Challenges

United Kingdom and Brazil

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The Seminar was open by H. E. Tony Lloyd, Minister of State, Foreign and Commonwealth Affairs of the United Kingdom.

The debates were attended by more than sixty Brazilian and British personalities. The Seminar provided the occasion for an open and informal discussion about convergences and divergences between the two societies and the potential for cooperation between the two countries.

The papers and the debates of the Seminar contributed to the preparation of President Fernando Henrique Cardoso official visit to the United Kingdom. They represent a permanent source for the study of Brazil and United Kingdom´s foreign policy and of bilateral relationship between the two countries.

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Contents

Opening Statement 11

Tony Lloyd 13
Mr. Lloyd's Speech to Open Seminar on UK/Brazil

First Panel - Brazil and the United Kingdom in the International Political Scenery 17

Antonio Carlos Pereira 19
Brazil, the United Kingdom and the Security of the South Atlantic, from the Viewpoint of a Brazilian Observer

Fraser Cameron 29
British and Brazilian Foreign Policies in relation to Europe

Mônica Herz 47
The Reform of the United Nations Organisation

Paul Taylor 73
The United Kingdom and Brazil in the International Political System with Particular Reference to the United Nations in the 1990s

Paulo S. Wrobel 111
Chronology Brazil - United Kingdom Relations

Timothy Garden 127
The United Kingdom, Brazil and South Atlantic Security: Present and Future

Second Panel - Bilateral Economical Relations: Brazil and United Kingdom 149

Andrew Hurrell 151
Dilemmas of Belonging Britain and the EU/Brazil and Mercosur

Lia Valls Pereira 173
Brazil and the United Kingdom in Relation to the European Union and Mercosul: Notes on Commercial Relations

Stephen Fidler & Peter West 197
Financial Flows, Including Direct Investment, between the United Kingdom and Brazil

Victor Bulmer-Thomas 231
Brazil and the United Kingdom: Trade Relations

Third Panel - Brazil and the United Kingdom in the Global Economy 257

Dalia Maimon 259
Environment and Environmental Policy in Brazil and the United Kingdom

Ghilleañ T. Prance 275
The Environment and Environmental Policies: Brazil and the United Kingdom

Grahame F. Thompson 299
The United Kingdom and Brazil in the Process of Globalisation

José Tavares de Araújo Jr. 327
Industrial Policy and Globalisation

Sheila Page 345
The United Kingdom and Brazil with Regard to International Trade and the World Trade Organisation (WTO)

Fourth Panel - Science and Technology: Brazil and the United Kingdom 375

Antonio Paes de Carvalho 377
Biotechnology in Brazil and in the United Kingdom: Possibilities for Cooperation

B. J. Miflin 395
Biotechnology, Particularly in Agriculture, and Possible Interactions between UK & Brazil

Chris Wheddon 421
Informatics in the United Kingdom and Brazil: Possibilities of Co-operation

Donald McLean 451
Aerospace Industry in the United Kingdom and Brazil: Possibilities of Co-operation

José Guaranys & Ana Paula de Almeida Silva 475
Energy in Brazil and in the United Kingdom: Cooperation Opportunities

Luiz Pinguelli Rosa 499
Energy in Brazil and in the United Kingdom: Cooperation Opportunities

Walter Herriot 521
Science and Technology Parks in the United Kingdom and Brazil

Brazil and the United Kingdom at the End of the Millenium: A few preliminary notes 553

Samuel Pinheiro Guimarães 555
Brazil and the United Kingdom at the End of the Millenium: A few preliminary notes

Program of Seminar 565

Opening Statement

Mr. Lloyd's Speech to Open Seminar on UK/Brazil

*Tony Lloyd**

I am very pleased indeed that the first event on my first visit to Brazil should be the opening of this seminar on relations between Brazil and the United Kingdom. My only regret is that I cannot participate for longer, but I have a lot of Brazil to visit in a very short space of time.

At the outset I should like to record the British Government's gratitude to the Brazilian Ministry of Foreign Affairs, in particular Ambassador Guimarães and his staff, and of course to all the contributors and sponsors for organising this seminar. A great deal of distinguished academic work, and careful organisation, has gone into its preparation. It seems to me that it will be an admirable scene-setter for President Cardoso's State Visit to London in December.

It only takes a glance through the papers which have been prepared for the seminar to appreciate the breadth and the depth of relations between Brazil and Britain. I do not want to encroach on the topics which will be covered in proper detail by experts during the next two days. But I should like to give a summary of the British Government's perspective on the importance of our bilateral relationship.

As Paulo Wrobel's excellent chronology shows, Brazil/UK relations have a substantial history. Initially these stemmed from the close alliance between Britain and Portugal. But what really shaped the course of relations between Brazil and Britain during the last century was trade and investment. Worth highlighting is that Brazil's first public loan was arranged in London, that Britain was Brazil's main trading partner for most of the nineteenth century, and that British engineers and entrepreneurs played a significant part in developing the country's infrastructure. Besides commerce, there

* Minister of State, Foreign and Commonwealth Affairs of the United Kingdom

are other events in Brazil's history in which Britain played an important part - such as the exploration of some of this country's magnificent natural resources, and of course the introduction of football.

The world, Brazil, and Britain have changed substantially since the nineteenth century, but many basic ingredients of our relationship remain the same. Bilateral trade and investment are as important as ever, even though our market share in Brazil is somewhat smaller in percentage terms than the 50% we enjoyed in 1850. We take great pride in the fact that British investment accounts for just under a third (28.7%) of all foreign direct investment in Brazil in the first six months of this year (US$2.1 billion out of a total of US$7.3 billion). Glaxo Wellcome, who are sponsoring this seminar, are a splendid example of the contribution which British investment is making here. In the other direction, Britain is benefiting from investments from Brazilian companies such as Petrobras. Both countries stand to gain further from increasing trade and investment in the next century, which is why such a large proportion of Britain's diplomatic effort in Brazil is devoted to commercial work.

The promotion and protection of human rights and democratic freedoms is an issue of top importance today. I know that in recent years, the Brazilian people have done a great deal to transform the political culture and develop democratic institutions. In Britain we salute what has been achieved, and offer every support as Brazil consolidates and builds on those achievements. The effective implementation of human rights and fundamental freedoms tends to go hand in hand with economic success. This in turn leads to increased international trade and prosperity. Those countries at the leading edge of technology are the very countries with the strongest democratic institutions. More than ever before, civil liberty and open government are not the enemies of economic success but the conditions for economic competitiveness.

The value of Brazil's superb natural resources has taken on a special significance at the end of the 20th century. There is now widespread recognition that these are vital for the environmental health of the planet. Safeguarding the environment is a top priority for the British Government, and we are ready to do what we can to help Brazil to preserve his rainforests

and other resources. Both our bilateral programme of technical co-operation, and our contribution to the G7 pilot programme are designed to do just that. Naturally, I look forward to learning more during my visit about environmental protection issues in Brazil.

One of the main themes of this seminar will be the importance of Brazil and Britain as players on the world stage. Tomorrow morning, while you will be discussing Brazil and the United Kingdom in the global Economy, my programme will include the latest round of high-level political talks between Britain and Brazil, during which we shall discuss a wide range of bilateral and international issues. We attach great importance to this regular dialogue.

In our respective hemispheres the foreign policies of both countries are targeted not only on preserving international stability, but also on creating conditions which will enhance peace and prosperity. The development of regional organisations, such as the European Union and Mercosul, and the growing partnership between them, are of great importance. During our Presidency of the EU in the first half of next year, the UK looks forward to working actively on developing that partnership further. Britain and Brazil fully recognise the importance of having an effective and efficient United Nations, which will serve the modern international system well, and both nations are actively participating in the general debate about UN reform. We are greatly looking forward to President Cardoso's State Visit in December. It will be an opportunity to celebrate the excellent state of our bilateral relationship, and to continue our dialogue on a growing number of issues of mutual concern. I have no doubt that this seminar will underline how extensive and important our mutual interests are.

First Panel - Brazil and the United Kingdom in the International Political Scenery

Brazil, the United Kingdom and the Security of the South Atlantic, from the Viewpoint of a Brazilian Observer+

*Antonio Carlos Pereira**

The preservation of peace and the strengthening of bonds of solidarity in the South Atlantic region form part of the directives of Brazilian defence policy. The first part of this proposition, while of the utmost seriousness, is the least worrying in the short term, for the majority of maritime states as well as for Brazil in particular. The immediate neighbourhood of Brazil, that is, the geographical surroundings that most affect Brazilian interests, is one of the most peaceful regions in the world. We refer of course to the countries at the edges of South America that give onto the Atlantic and to their relations with Brazil. For about one and a half centuries the vital interests of Brazil in South America have not been harmed, a situation which gave the country peace during that time, broken only when it entered the two great world conflicts of this century as an ally.

The preservation of peace however, has not been one of Brazil's immediate problems. Questions of war and peace are reflected though in the second part of the directive concerning security and defence referred to above. The wars of others, the conflicts of others, especially if fought between countries in the area and within countries in the area, aggravate the obstacles to regional solidarity which Brazil has chosen as a matter of policy, to achieve, consolidate and deepen.

The word solidarity, in this case, does not have the usual commonplace meaning of rhetorical attractiveness and cosmetic support. It means, above all, co-operation to achieve development and the search for a common destiny, since it is obvious that the peoples who share this immense

+ Traduzido por Graham Howells

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lake of the South Atlantic have more in common than geographical proximity. Solidarity, in this context, is no more than the keystone of a commonality of Political and economic values and interests.

The South Atlantic, luckily for the countries bordering on it. has been a strategic vacuum. None of the powers with the political-military capacity to occupy this vacuum has wanted to do it in a definitive way, just as none of the plans for the cataclysmic conflict that we all feared so much considered the South Atlantic as an important theatre of war. This was the reality, the discourse was different. The South Atlantic was given a mythical importance by western logistical thinking which if it produced no other effect, served at least to keep the region's national navies in the role of providing convoy escorts and of auxiliaries in submarine warfare, if a general conflict should break out. This kind of division of labour was an imperfect copy of the distribution of tasks that the NATO countries had made. Western Europe's vital interests and chances of survival were concentrated around the Atlantic Alliance, and from this came its adherence to an organisation which, under the leadership of the United States, provided the unity of command and co-ordination without which the states of Europe could have been swallowed up, one by one, by the Soviet Empire.

In the countries of this region, at least those of the western side of the South Atlantic, this did not happen. The Soviet Union was a political threat because it exported an ideology, not because it had an alarming military presence in the area, or could create one. Our navies were already practising antisubmarine warfare in the 1950s when the Soviet navy did not have the means even to leave the coastal waters of its motherland. In addition, during the period of the atom bomb and long-distance weapons of destruction, the blockading of supplies of essential materiel essential to a war effort, such as petroleum and other raw materials, would hardly depend on the fortunes of submarine warfare. In a large scale conflict such a blockade would be carried out on the areas of production, which would negate the training efforts of our navies.

The problem, however, was not in the training of our navies for their declared mission of protecting the South Atlantic sea lanes, through which large amounts of petroleum are carried, together with a considerable

proportion of the products on which our economies depend.

These years of training together helped to homogenise equipment and ideas. Since our countries did not have a tradition of developing clear policies of security and defence, that which should have been a minor activity in the professional lives of sailors became a major one, or at least a weighty variable, in our foreign policies. We spent years facing a virtual danger and threat - one which only became plausible in the mid-1970s when the Soviet navy acquired an ocean-going capacity - and during this period we gave no more than secondary importance to what should have always been one of our highest priorities: changing the South Atlantic into a unifying link between countries which, although neighbours, had always lived apart from each other.

That statement does not imply blame or responsibility on the part of the United States for having distracted us from what we see today as being a urgent task. Washington, as leader of the Western Alliance, did what it had to do in the circumstances of the Cold War. We were the ones with a short- sighted view.

And because in the 1950s we Brazilians - and I will not refer to the contribution of our neighbours - imagined a role that we would never have in the defence of a hypothetical South Atlantic war zone; and because in the 1960s we made sentimental ties into state policy which left us on the wrong side in the victory of the process of descolonisation; and because in the 1970s we dedicated ourselves to the sport of cultivating regional rivalries which certainly had their roots in the past but which then became no more than a pretext for authoritarian leaders to stir up enthusiasm to carry through their personal plans - some of them successful - we failed to construct in good time the deep foundations of that solidarity which today we are desperately seeking. We have wasted precious time.

And because we wasted time, but also because of other reasons, the South Atlantic remains far from being a region, that is, a group of countries united by geographical proximity and by that political, cultural, military and economic interaction which demonstrates the convergence of interests and plans and creates a common identity.

The internal characteristics of each country in the area have contributed greatly to this separateness in the South Atlantic. First it was the lingering wars of independence in Africa, followed by civil or tribal wars which prevented the major countries in the area from sitting around the peace tables to create a common future. Then the Latin American military dictatorships removed themselves from the process. Then the tensions emanating from the Cold War slowed the process. Then the presence of extra-regional powers provided an excuse to delay the process of regional co-operation which is synonymous with regional security and safety.

At this point we have to speak of the role of the United Kingdom as the sovereign power over its South Atlantic islands. This is not the place to discuss the nature of the titles that support the right of Her Majesty to these lands, especially the Falklands/Malvinas islands. for which British and Argentinean blood was spilt in the unhappy war of 1982. It is even less appropriate to debate the bases of Argentina's claim to the islands that face its territory.

What is important is that, once the war was fought, that is, when the two countries having gone as far as it was possible to go in the dispute over the possession of the islands, we cannot expect either country to give up what it sees as its sacred right, fed by the blood of its subjects. The diplomatic dispositions which began officially in Madrid, together with their developments, allowed the reestablishment and normalisation of diplomatic and commercial relations between Argentina and the United Kingdom But both countries continue to hold to the formulae which led to the madness of 1982, that is, a claim of sovereignty that the other refuses to concede. The explosion of fervour that occurred fifteen years ago - a military regime that could not interpret correctly the signals being sent from abroad and mistook its people's enthusiasm for a popular support that had actually been withdrawn from it - no longer exists. But the other ingredients of that crisis remain on the table and are a cause for concern - a very slight one, admittedly - in relation to the stability of the region. In Argentina children are still taught in school that the Malvinas islands belong to Argentina, and were stolen by the English. There is a deep popular feeling behind the claim to sovereignty over the islands and it is this that makes the theme easy to exploit by any demagogue looking for votes. On the other hand, it is this

feeling so strongly rooted in the soul of the people that prevents any politician or political parry from excluding the topic of the Malvinas from any manifest.

In England the Falklands have also become a symbol. A symbol that aggression must not be rewarded A symbol that the contraction of the Empire is a sovereign decision of the English, and not one that can be taken by anyone who wishes to see the Union Jack removed from this or that outpost. A symbol, mainly, of the vital importance of Her Majesty's subjects, the kelpers, who have stated their desire to remain under British rule and eject any alternative.

These are the ingredients of the impasse, which promises to be a long one. The quarrel over the Falklands/Malvinas islands has obvious implications for the security of the South Atlantic and for that reason, addresses each and every one of the countries in the area. The solidarity which the countries of the subcontinent owe to Argentina, as long as that country keeps to the peaceful terms of its claim, does not exclude good relations with the United Kingdom. Indeed, many political observers interpreted the vote of the British representative to the United Nations as a definite declaration of affiliation - as much of an affiliation as it was possible to have, in the conditions of territorial dispute such as the Falklands/Malvinas War on the part of the United Kingdom to the South Atlantic Peace and Co-operation Zone. It was expected that on that occasion the United Kingdom would vote with the United States - which was isolated, opposed to the creation of the Peace Zone - or would follow the other members of NATO, which abstained British diplomacy, however, delivered a master-stroke by taking advantage of the Brazilian initiative to affirm that the United Kingdom is an integral pan of the South Atlantic, accepting, along with the other countries in the area, the rights and obligations inherent in this situation. It is worth recalling that the British vote said:

"The establishment of a peace zone in the South Atlantic region, which as we understand it, consists of that part of the South Atlantic ocean situated between Africa and South America, which is not already included in a treaty, can make an important contribution, and, as the Treaty says, can reinforce the peace and security of the region. We, together with the other States in the Region, are interested in the peace and security of the South

Atlantic. This is well known and has been shown in various ways, including our ratification of the Protocols of the Treaty of Tlatelolco. Of course, the planned resolution does not affect our rights and obligations concerning those protocols, any other treaties or General International Law, neither does it affect our attitude with respect to certain resolutions referred to in Article 5 of the provision (which refers to the UN resolutions on colonialism, racism and apartheid)."

The United Kingdom, in spite of its dispute with Argentina, and with the reasonable suspicion that a final resolution of the problem is a distant prospect, is an integral pan of the South Atlantic and it should be considered so, as in fact it has been, in the negotiations that look to the progressive, transformation of this area into an integrated region, because this is how the countries of the South Atlantic seaboard see tensions being avoided, risks reduced and regional security increased, not only through military means, but through co operation for development.

In spite of all the progress that has been made in bilateral relations with Argentina, England maintains quite a large military presence in the Falklands/~ islands. The costs of this garrison are high, as much in financial as in political terms. The direct and indirect costs of keeping the garrison must be around £100 million per year. The improvements in and the change of emphasis in the economy of the islands, from sheep-rearing to fishing rights and in the future, the prospecting for and extraction of oil, to some extent off-set this investment in security.

But this must be a heavy burden for an economy beset with problems of growth, unemployment and strict budget cuts. The British military presence in the islands and their surrounding areas, however, discreet it may be, also has a political implication which it would be good to reduce, if indeed the British presence in the South Atlantic will be a long-term one.

Although this is the most serious problem of military security in the South Atlantic it is clear that general security problems in the area are of a wider and more relevant kind The political, economic and social elements of security surpass the military aspects of the problem in importance and pre-eminence. The majority of these questions concern the internal economies of the maritime countries, with their neighbours unable

to do more than open paths towards the solution of problems and tactfully encourage those changes that will lead to the strengthening of democracy and overcoming the obstacles to development.

The entry of South Africa to the roll of democratic countries has certainly removed on of the most serious causes of tension in the South Atlantic, not only because apartheid was one of the most abominable forms of racial discrimination and of the suppression of civil rights, but because it was an impediment to joint solutions of problems. The elimination of apartheid and the institution of racial democracy in South Africa were preceded by the physical destruction of the nuclear devices that Pretoria had built in secret and by the submission of the whole South African nuclear programme to the strict rules and inspections of the International Atomic Energy Commission. Thus the danger of nuclear proliferation was removed from the area. In this context it is worth noting the efforts made by the governments of Argentina and Brazil, which have rid themselves of the vestiges of pernicious competition in the nuclear area and have built instruments for checking and controlling their peaceful programmes that go further ZPCAS that the prescriptions of the AIEA, the UN organ for checking and inspecting the Non-Proliferation Treaty.

The African side of the South Atlantic did not, unfortunately, achieve peace with the end of apartheid. The problem of Angola continues in spite of the efforts of the UN and of individual countries that have taken upon themselves the until now inglorious task of mediating in a civil war that in its various stages and forms, has lasted for twenty years. The dispute between the MPLA and Unita has not only produced tens of thousands of victims among the population of Angola, but has also allowed, until very recently, countries in the area to carry out policies of influence and power-seeking that have been essentially de-stabilising. For these reasons and also because the rest of the South African cone cannot undertake any move towards more wide-reaching political and economic integration without the inclusion of Angola, peace in that country is of vital importance for the future development of the South Atlantic basin.

Indeed, the South Atlantic countries do not have a political-legal structure within which to agree on and develop common, harmonious policies. The South Atlantic Peace and Co-operation Zone (ZPCAS) arose

from a double inspiration. The most immediate, after the Falklands/ Malvinas war, was the de-militarisation and de-nuclearisation of this part of the ocean. The second, which derived directly from Brazilian diplomatic history, was the construction of a legal structure relevant to the only Brazilian frontier that did not have such an instrument for the regulation and discussion of its interests. The northern and western borders were covered by the Amazon Treaty; and the southern border by the Treaty of the Bay of the River Plate (Mercosul did not then exist) which also covered part of the western frontier. The maritime flank was not covered and this gained importance, not only because Argentina and the United Kingdom had brought into the region a conflict of unprecedented proportions but also because the questions of exploitation and use of the sea had become crucial.

The creation of the South Atlantic Peace and Co-operation Zone was, however, only the start of the undertaking. Since it is not a legal statute with regulatory powers, the operational usefulness of the ZPCAS depends on the importance and the interpretation the maritime countries give to the instrument's extent and depth. The ZPCAS, in fact, depends on prevailing political moods to work within the narrow limits of its current possibilities. Created in 1986, it was in hibernation until recently, a victim of more immediate concerns of the maritime countries with their economic problems, be they of inflation and recession, or of adjustment, but always of uncertainty. Once this phase had been passed through by some of the more economically powerful countries and once South Africa had been incorporated into the democratic community, the idea re-emerged with renewed strength.

In the 1994 meeting of member states, the first in which it was possible to analyse the effects on the area of the end of the Cold War, the representatives approved optimistic statements of principle. For example: "They re-affirmed the validity of the ZPCAS as a relevant instrument to promote co-operation between countries in the South Atlantic, as well as the ability of this forum to increase its efforts to strengthen its role as a regional instrument of co-operation". For example: "They agree that co-operation between ZPCAS countries should be thought of in an integrated way, with a view to consolidating a firm base for the growing co-operation in all areas in which the potential for joint initiatives lies, especially in the

fields of the economy, technology, the environment, culture and sport". For example: "They agree also that the ZPCAS constitutes a competent forum to promote co-operation based on a commitment to representative democracy, together with the defence and development of fundamental human rights and freedoms without distinction of race, sex, language or religion, and with respect for the sovereignty and integrity of the States, on the right of all peoples to freely decide on their economic and political systems and on other principles relevant to International Law.

As it exists today, the ZPCAS has no legal or operational facilities to implement any more serious and immediate effort for regional integration on any level at which it might wish to do so. But as is clear from the declarations quoted above, made by the countries in the area, there exists an embryonic desire to go forward, in the sense of turning what is today no more than an open forum for debate and the exchanging of position statements and which does not place obligations on the participants, into an organisation capable of more effective action. In fact, the ZPCAS is the only mechanism - even if it is an inorganic one - which gathers together all the countries of the South Atlantic basin. In one way or another its member countries belong to economic blocs which, with greater or lesser energy, fulfil important roles in the life of their respective regions and which, following the dynamic of regional integration processes, are trying to act in concert with each other. The European Union, for example, of which the United Kingdom is a part, is negotiating closer ties with Mercosul and Africa, not only in the context of the Lomé Convention, but now in the more integrated environment of SADCC, which has now been completed with the presence of South Africa.

There already exists a community of interest in the South Atlantic area. Several of these refer to the defence and security of the maritime countries, either according to traditional concepts or through the new understandings of threats and risks that have made environmental, social and economic factors into major causes for concern. It cannot be denied, for example, that extending the work done by CAMA (Co-ordination of the South Atlantic Maritime Area) in the protection of sea traffic in the area of influence of its members - Argentina, Brazil, Paraguay and Uruguay - to include the whole of the South Atlantic would be welcomed by the whole

South Atlantic community. This is only one timely example of the initiatives that are encouraging greater integration.

The experience of history has shown that true security is not measured only by the quantity and quality of the arms a nation holds. A nation is only strong and secure if it relates properly and to mutual advantage, with its neighbours, that is, if it does not turn its foreign affairs into a zero sum game. The way to do this is understood by everyone: the broadening of trade, the intermingling of interests, fair and open competition and fair play on all sides.

Brazil and the United Kingdom, while they dedicate their best efforts to initiatives of integration that are already under way, see the South Atlantic as an area that is vital to their interests - Brazil, inevitably for geographical reasons and the United Kingdom because of a political choice. Both will be secure, and will bring security to the area, if they use the best political skills their statesmen are capable of to change the South Atlantic, which is at present a disarticulated area, into a region that is integrated politically and economically.

British and Brazilian Foreign Policies in relation to Europe

Fraser Cameron[*]

Summary

This paper considers the future prospects for British and Brazilian foreign policy, with particular reference to the European Union (EU). It examines the difficult relations between the UK and EU, considers the recent changes in UK foreign policy as a result of the election of the Labour government in May 1997, assesses the changing international environment and consequent constraints on policy, and offers some pointers towards the future direction of UK policy. The paper also discusses recent trends in Brazilian foreign policy, focusing on its relations with other countries in the region, the US, the UK and Europe, placing these latter within the context of EU-Mercosur relations.

British Foreign Policy until May 1997

Traditionally there has been cross-party agreement on the main lines of British foreign policy. Since 1945 both Labour and Conservative governments have demonstrated a firm commitment to NATO, to good relations with the United States, and to global free trade. Despite a rift over the Suez affair in 1956, both main parties have been committed to a gradual disengagement from Britain's imperial past (the final chapter being the handover of Hong Kong to China on 1 July 1997). But one foreign policy issue above all has dominated British politics since the 1960s, and has led to bitter intra-party and inter-party disputes, namely the UK's relations with the European Community (EC), later the European Union.

It was a Conservative government that made the first application

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for British membership of the EC in 1961, a move that was strongly resisted by the Labour opposition. On taking power in 1966, the Labour government renewed the British application for EC membership, which had been blocked by France in 1963. It was left, however, to the Conservatives to finally negotiate British entry in 1973. Meanwhile the Labour Party had split on the European issue and on returning to power in 1974 Prime Minister Wilson agreed to hold a referendum on British membership in order to hold his party together.

The 1975 referendum confirmed British membership by a two-thirds majority, but the anti-Europeans in both parties refused to accept the outcome. On taking power in 1979, Mrs Thatcher pursued a profoundly sceptical approach towards the EC, which in turn led to Labour adopting a more positive tone. In the past decade British foreign policy has been increasingly dominated by the European issue which has led to deep splits within the Conservative Party and ultimately the downfall of two Prime Ministers, Mrs Thatcher in 1991, and Mr Major in 1997. During this period, British policy towards the EU became more and more hostile. This hostility was most evident in the right wing of the Conservative party and was fuelled by a strong anti-EU bias in much of the media.

Although there were some within the Conservative party who would have preferred the UK to withdraw from the EU, or at least rule out forever-British participation in the single currency, this course of action was never accepted or pursued by the government. Indeed, Mrs Thatcher agreed to a significant extension of EU powers when she signed the Single European Act in 1986, and Mr Major did likewise when he signed the Maastricht Treaty on European Union in 1991. Following his election victory in 1992, Mr Major had an extremely difficult struggle to secure ratification of the Maastricht Treaty. Due to the narrowness of his parliamentary majority (just ten seats over the Opposition), he effectively became a prisoner of the "Euro-sceptics" in his party. For a time, he withdrew the party whip from the most extreme, but was forced to accept them back into the party fold in order to maintain his parliamentary majority. The deepening split in the party over Europe was one of the main causes for his defeat in the May 1997 general election.

Due to his lack of room for manoeuvre, Mr Major approached the Intergovernmental Conference (IGC) which prepared the revision of the Maastricht treaty during 1996-97 with extreme caution. The negotiations had hardly begun when the UK and EU became involved in a furious row over "mad cow" disease which led to a ban on British beef exports and the UK blocking all EU decisions for six weeks. During the IGC, the British refused to contemplate any moves to further European integration, refused an extension of majority voting, refused to consider integrating the Western European Union (WEU) into the EU, refused to relinquish their opt-out on the Social Chapter, and refused to sign up to economic and monetary union (EMU). This negative position led to the virtual isolation of the UK and also prevented much progress in the IGC negotiations because a number of countries were able to hide behind the British "non".

Britain's poor relations with the EU also had a spillover into other areas, including transatlantic relations. After the heady days of the "Thatcher-Reagan" era, relations between Major and Clinton cooled when it was discovered that the Conservative party had been assisting the Republican party in its campaign against Clinton. The US administration also made it clear that Britain's voice counted more as part of a European voice than on its own.

The Impact of the New Labour Government

The landslide election victory of Tony Blair's "New Labour" party on 1 May 1997 brought about a decisive shift in the government's approach towards the EU. The Prime Minister made it clear that his government would adopt a constructive attitude towards the EU and announced immediately that Britain would drop its opt out from the Social Chapter. The Labour government also stated that it could agree to a modest extension of powers for the European Parliament and an extension of majority voting in the Council. It was not prepared, however, to modify its "wait and see" approach towards the single currency.

At the Amsterdam European Council on 16-17 June 1997, Mr Blair did indeed play a constructive role, and demonstrated an UK willingness to compromise that had been lacking for some years. In return for agreeing to

a very modest deepening of European integration, Mr Blair secured acceptance that the UK could retain its border controls, that there would be no timetable for integrating WEU into the EU, and some concessions for the UK fishing industry. The Conservative opposition, having elected a more Euro-sceptic leader, William Hague, after Mr Major had resigned, decided to oppose the Amsterdam treaty but they were unlikely to have much impact given their greatly reduced numbers in Parliament.

The overall results of the Amsterdam summit were rather modest. There was agreement to strengthen co-operation on justice and home affairs; dealing with international crime, asylum, migration etc. There was agreement to both extend the powers of the European Parliament, and to simplify its procedures. There was agreement to establish a foreign policy planning unit in the Council, and to designate the Secretary General of the Council as the High Representative for the Union's Common Foreign and Security Policy. But in the crucial area of reforming the institutions to prepare for enlargement to the countries of central and eastern Europe, there was no progress. Most analysts were agreed that the next decisive move forward in the integration process would come with the introduction of the single currency (Euro) in 1999.

The Labour government has committed itself to holding a referendum prior to the introduction of the euro in the UK. This commitment was offered partly to counter a similar commitment from the Conservatives and partly to disguise disputes within the Labour Party on the desirability of participating in the single currency. Soon after taking office, Gordon Brown, the Chancellor of the Exchequer, announced that the Bank of England would in future have control of interest rate policy, an important step towards full independence for the Bank and a strong hint of his own pro-euro thinking. During his first budget speech in early July, Mr Brown also indicated the government's aim of fulfilling the Maastricht criteria for the single currency. Most likely, the Labour government will wait until the euro is introduced in January 1999 before deciding on the timing of the referendum. Public opinion remains divided on the issue and the government recognises that preparation for eventual British entry will require a massive information campaign.

Enlargement of the European Union

The conclusion of the IGC at the Amsterdam summit also opened the door for the start of the enlargement negotiations. On 16 July 1997 the European Commission presented its Opinions on the ten candidate countries for accession, as well as a major report (Agenda 2000) outlining the challenges the Union faced on the eve of the 21st century. The Commission recommended that negotiations should begin with five countries (Poland, Hungary, the Czech republic, Slovenia and Estonia) from eastern Europe, plus Cyprus. It proposed strengthening technical and financial assistance to the other five countries (Latvia, Lithuania, Slovakia, Romania and Bulgaria) with a view to helping prepare themselves for membership at a later date. The Agenda 2000 report drew attention to the need for the EU to adapt its main spending policies on agriculture and structural funds within a strict financial framework, as well as to reform its institutions to cope with an enlarged Union. It will now be up to the Luxembourg European Council in December to take the final decisions regarding the opening of the accession negotiations.

There can be no doubt about the historic importance of the next enlargement. Never before has Europe had the opportunity to unite under democratic conditions. If properly prepared, an enlarged EU could bring increased security, stability and prosperity to Europe. But never before has the Union envisaged an enlargement of such dimensions - it could add more than a 100 million to its population of 370 million - and in terms of the different economic and social situations involved. The combined GDP of the ten potential new members in central and eastern Europe is roughly equivalent to that of the Netherlands and their average national income per head is still only 30% of the EU average. The percentage of GDP arising from and percentage of working population engaged in, agriculture (7.8% and 26.7%) is far above the EU average (2.5% and 5.7%).

The next enlargement will clearly present different problems and challenges from preceding enlargements, and the Union may have to find new approaches and new solutions, without in any way weakening the existing acquis communautaire. If the EU is to maintain its cohesion and compete in an increasingly global marketplace then it needs to ensure that

new members are capable of fulfilling all the obligations of membership. Indeed it is highly desirable that the candidates apply, as much of the acquis communautaire as possible on accession, and that there should be no open-ended derogations from the acquis. The EU has already made it clear that each candidate should be considered on its merits which implies a differentiation in approach, even if not for the end result. There can be no question of compensation for some candidates because they have not been accepted for the first wave of NATO enlargement.

The further enlargement of the EU is sometimes presented in negative terms - the cost of taking in poorer members, the difficulty of reforming Union policies, institutional problems, etc. But the potential benefits of enlargement are also considerable because it will:

- enlarge the EU's internal market to include more than 100 million additional consumers with rising incomes

- support the newly liberalised market economies by further opening up markets in goods and services between East and West, North and South, stimulating economic growth in Europe and offering new trading opportunities for all ;

- bind the countries of central and eastern Europe into western European political and economic structures and thus enhance security and stability ; both the US (and Russia) support enlargement for this reason ;

- increase effective co-operation in the fields of Justice and Home Affairs, helping to fight crime and the menace of drugs, the effects of which are felt throughout the continent ;

- bring higher environmental standards to central and eastern Europe, benefiting all of Europe by reducing cross-border and global pollution ;

The next enlargement is thus an unprecedented historic challenge, requiring imagination and political will of the same order as inspired the foundation of the original European Communities. But unless the EU makes thorough preparations for enlargement, including the functioning and decision-making procedures of the institutions, enlargement could lead to paralysis and even disintegration.

The enlargements which brought Greece, Spain and Portugal into the European Community had as a basic motive the consolidation of democracy and stability in countries which had abandoned totalitarian regimes. For the countries of central and eastern Europe, membership of the Union has a similar significance. There can be no question of accepting applicants who do not fulfil the criteria for membership. But assuming they do fulfil the criteria, the efforts required to integrate the applicant countries is well within the capacity of the Union.

NATO Enlargement

On 7 July NATO issued invitations to three countries, Poland, Hungary and the Czech Republic, to open accession negotiations with a view to joining NATO by its fiftieth anniversary in April 1999. There was considerable disagreement within the 16 member alliance as to whether only three countries should be invited to accede, or whether Romania and Slovenia should also be invited. The UK supported the US minimalist position on enlargement. The Mediterranean countries, led by France, argued for the inclusion of Romania and Slovenia. Both these countries, along with the three Baltic States, were identified in the final communiqué as possible future members of the alliance. Russia remained adamantly opposed to NATO enlargement, despite the creation of the NATO-Russia Joint Permanent Council which will create a forum to involve Russia in all aspects of European security.

Whilst EU and NATO enlargement both have the same goals of promoting security and stability in central Europe, they remain fundamentally different processes because of the very different nature of the two organisations. NATO is an inter-governmental defence alliance. The EU is a supra-national organisation committed to "an ever closer Union between its peoples".

The EU's Foreign Policy Priorities

Externally, the EU has a number of priorities, including :

- reconstruction in the Balkans ; the EU has a major interest in

ensuring peace and stability in the Balkans, and is attempting to co-ordinate the civilian reconstruction efforts resulting from the Dayton/Paris peace accords. The EU has attached considerable conditionality to its aid, notably concerning democracy, human rights, the return of refugees and willingness to co-operate with the international war crimes tribunal

- developing a new Euro-Mediterranean partnership following the Barcelona Conference and the European Council (Cannes) decision on a new and substantial financial package for the Mediterranean. This will amount to over 5 billion ecus over the 1996-2000 period ; the EU also foresees a free trade area with the Mediterranean countries by the year 2015.

- developing a strategic partnership with Russia and Ukraine, and deepening relations with other members of the CIS. The EU has signed Partnership and Co-operation Agreements (PCA) with Russia, Ukraine, and other newly independent states. These wide-ranging agreements provide for close co-operation in the political, economic, trade, industrial, scientific and cultural sectors.

- strengthening ties with Turkey following the conclusion of the Customs Agreement in December 1995. Understandably Turkey has been disappointed at seeing a number of former communist countries from central Europe overtake it in the race for EU membership. But Turkey continues to have problems with Greece over Cyprus and the Aegean, and internal political, social and economic problems which make early membership for Turkey unlikely.

- strengthening transatlantic relations by building on the EU-US Action Plan agreed at Madrid in December 1995. This plan calls for close co-operation in a wide number of areas ranging from foreign and security policy, to justice and home affairs, to environmental and health problems.

- building a new relationship with Asia following the Bangkok summit in March 1996. The EU wishes to extend the present largely trade-based relationship to cover political and economic issues. Asian and ASEAN partners are supportive of this wider relationship with the EU.

- preparing for a new round of world trade negotiations. The EU recognises that it will face another series of international trade negotiations

following the successful conclusion of the Uruguay/GATT round.

This by no means exhaustive list of external priorities also gives an indication of the EU's increasing global role. But if the EU is to exercise its true weight in the world, it is essential that it speaks and acts with one voice in dealing with major issues such as the crisis in Bosnia. So far the common foreign and security policy (CFSP) has been rather a disappointment and it remains to be seen whether the modest changes agreed at Amsterdam will lead to an improved performance.

Britain and Latin America

As regards the UK's relations with Brazil and Latin America, these can only be described as weak. The UK's external relations have faced sustained budgetary pressure throughout the 1990s and attention has focused more on Europe and the demise of the Soviet empire than elsewhere in the world. The UK's share of world exports to Latin America in 1996 was only 1.9% compared with 5.1% for Germany, 4.2% for France and 3.4% for Italy. The UK also has less diplomatic staff on the ground in Latin America than its major EU partners. Financial ties do, however, remain strong with the City of London a major international centre for Latin American fund raising. Although the UK would like to increase its share of exports to the region, it recognises that it can exert more political and economic influence by acting in concert with its EU partners (see section on EU-Mercosur relations below).

During the first six months of 1998 the UK will hold the Presidency of the EU and will be faced with a number of difficult and sensitive issues, including the choice of countries which will participate in the single currency, and the opening of the enlargement negotiations. This will ensure that Europe remains firmly at the top of British foreign policy priorities. At the same time the UK is also Chairman of the G7 and will host the next summit in Birmingham. One of the UK's main priorities will be to press the US to live up to commitments agreed at Rio on environmental issues. According to Foreign Secretary Robin Cook's "mission statement" on taking office, the Labour government will also pay more attention to human rights issues, and to the developing world.

The Changing International Environment

For any state, including Britain and Brazil, foreign policy will have to adapt to a rapidly changing international environment. In the past decade there has been an explosion of new states onto the world stage, mainly precipitated by the collapse of the Soviet empire. Most of these states have adopted democratic structures and market economies, which has fundamentally transformed the number of states operating on such basic principles, and given a massive boost to the process of globalisation. There has been an explosion of global finance, foreign direct investment, and international trade. Amongst the problems which have worsened, one might mention the population explosion (90% of the world's population will be under 20 by the year 2000) and environmental degradation, worsened by the failure of the industrialised countries to meet the targets established at Rio.

The whole concept of security threats has also changed. Europe is no longer divided into two armed camps, ready to engage in "mutual assured destruction" at a moment's notice. As mentioned above, NATO has announced plans to take in three former members of the Warsaw pact (Poland, Hungary and the Czech Republic), with the prospect of more to follow at a later date, and has signed a charter with Russia (and Ukraine) which will provide for extensive consultations and joint actions on security issues. Whilst the role of the military remains important, viz. Bosnia, its overall importance has declined with the end of the Cold War. Political, economic and social cohesion is now recognised as essential factors in promoting security in all states.

The main security threat is now posed by "weak" states which are incapable of providing stable political and economic structures. A classic example is Albania, where a pyramid selling scheme led to riots, the downfall of the government, anarchy and economic chaos within a matter of weeks. In this rapidly evolving new world, foreign policy has become more focused on economic and trade issues as can be seen from the agendas of most foreign ministers' meetings which are concerned with trade and co-operation agreements, financial assistance, environmental issues, closing down unsafe nuclear reactors, humanitarian aid, etc.

The changing international environment has also imposed constraints on Britain and Brazil in terms of external relations. British foreign policy operates under many constraints including numerous international commitments (UN, EU, NATO, WTO, etc.), a relative declining economic base, on-going financial stringency which may lead to further defence cuts in the announced defence review, and a popular lack of interest in foreign policy. The commitment to engage in the Union's CFSP is certainly the most onerous restraint on British foreign policy but one which arguably increases the UK's weight in world affairs. This is certainly the view of successive US administrations which have consistently pressed London to engage fully in the Union. Brazil also has constraints on its foreign policy including its international commitments (UN, WTO, Mercosur, etc.), its economic and other domestic policies. But Brazil's recent economic success has also opened the door for a greater international role for the country, both regionally and globally.

Brazil Foreign Policy Priorities

For much of its recent history, Brazil was more concerned with domestic than foreign policy issues, and as a result did not play a major role on the world stage. But a number of factors, including Brazil's growing economy and increasing reliance on foreign trade, its large multi-cultural population, and the election of President Cardoso have led to an increased international role for Brazil. This has coincided with the opening of the Brazilian economy to the outside world, demonstrated by the gradual reduction in tariffs during the 1990s.

One of the main priorities for Brazil has been increasing co-operation with other countries in South America and indeed throughout the Americas. This involves a sub-regional dimension (MERCOSUR), a regional dimension (SAFTA), and the hemispherical (FTAA). In all these levels Brazil defends the adoption of a realistic and pragmatic approach to the integration process, considering that the romantic phase of the 1960s was counter-productive. The 1986 co-operation agreement with Argentina was an important milestone, followed by the 1991 agreement with Argentine, Paraguay and Uruguay to establish Mercosur. Brazil was also to the fore in

proposing the establishment of SAFTA during the Group of Rio summit which took place in Santiago in 1993. During the summit of the Americas in Miami in 1994, Brazil supported the creation of a FTAA on a step by step or building block model.

Brazil thus has excellent relations with neighbouring countries and faces no external threat. It supports Argentine claims to the Malvinas (Falklands), a minor irritant in its relations with the UK.

Another foreign policy priority of Brazil is its campaign to become a permanent member of an enlarged UNSC, arguing that its size, population and status as the tenth largest contributor to the UN budget should lead to a permanent seat. Brazil is also campaigning to change the character of global institutions such as the IMF and World Bank. Brazil's armed forces are the largest in the region but their role has been diminishing since democracy was restored. There are no terrorists groups active in the country and there has been no politically motivated violence in recent years. Brazil also wishes to change its sometimes negative image in the northern industrialised world which focuses on social and environmental problems of Brazil. Its relationship with the US tends to reflect these changing foreign policy priorities.

Brazil and Mercosur

Brazil supported the creation of Mercosur as it believed that it would speed up the process of economic development, promote a global presence by means of consolidating economic integration, promote scientific and technological development to assist the modernisation of the economy, and the quality of life. Mercosur also forms a guarantee for democracy for its members since this is a basic condition for participation. The main instrument for realising these objectives is the creation of a common market entailing the free movement of goods, services and production factors.

In January 1995 Mercosur transformed itself from a free trade area into a customs union with free intra-regional trade and a common external tariff towards third countries. Following the Ouro Preto Protocol in June 1995 Mercosur was given a legal personality allowing for an external

representation and the capacity to negotiate. This protocol also established the institutional set-up of the Mercosur integration process which has many similarities with the EU, though one should not overlook the basic distinction that, unlike the EU, Mercosur institutions are fundamentally of an intergovernmental nature.

Similar to the EU, Mercosur has a rotating Presidency, which for the first semester of 1997 was Paraguay and the second semester Uruguay (Brazil was in the second semester of 1996), while on a provisional basis certain Mercosur institutions are based in Montevideo, though many meetings take place in the country holding the presidency. In 1996 Mercosur signed agreements with Chile and Bolivia creating free trade areas between these two countries and Mercosur, but which did not include them in the common external tariff and which also provided them the status of associated member.

Since 1991 intra-Mercosur trade has doubled, representing 15% of external trade for Brazil, 26% for Argentina and more than 40% for Paraguay and Uruguay. Mercosur global trade amounts to $120 billion (1994) while intra-Mercosur trade was $10 billion. In 1994 Mercosur held a fourth position in world economic ranking. Its GDP in 1994 was $715 billion as a whole. With 195 million citizens Mercosur represents approximately 45% of the population of Latin America.

EU-Mercosur Relations

As a first step of support to the integration process in Mercosur the European Commission and the Common Market Group of Mercosur signed an inter-institutional co-operation agreement in May 1992 which put at Mercosur's disposal the whole of Europe's experience in the field of regional integration. Following this agreement an intensive co-operation relationship was created which resulted in major programmes with Mercosur in the field of customs harmonisation, technical norms and standards, agriculture, statistical harmonisation, competition and consumer policy, and support to the administrative secretariat of Mercosur.

Since May 1992 there has also been an informal political dialogue

with Mercosur which usually takes place in the sidelines of EU-Rio Group meetings or at UNGA meetings in New York. This dialogue was formalised in the 1995 Framework Agreement with Mercosur.

In October 1994, the European Commission published a strategy paper on Mercosur which argued that the EU should support the integration process in Mercosur ; welcome the competitive integration of Mercosur in the global economy, and consolidate the European presence in the region. This resulted in a two-pronged strategy aiming in the short term at an inter-regional framework agreement with Mercosur reinforcing the existing relations on the basis of reciprocity, and in the long term the creation of an inter-regional association between Mercosur and the EU of a political and economic nature. The EU-Mercosur framework agreement was signed in Madrid in December 1995.

While awaiting the ratification by all parties to the framework agreement, letters have been exchanged as regards the provisional application of the 1995 Framework Agreement which cover the commercial elements of the agreement as well as those related to the political dialogue. To date in the EU only the European Parliament, Denmark, Sweden and Finland have ratified the agreement. though Spain and France are in the process of doing so. During 1996 a number of meetings took place including a visit to Europe by President Menem as the current President of Mercosur ; a first EU-Mercosur ministerial meeting covering political dialogue issues, in June, in Luxembourg ; a first Joint Commission (JC) in June (Brussels) ; a first Trade Subcommission (TSC) in November (Belo Horizonte).

The first ministerial meeting (political dialogue) only had modest results due to a weak agenda and the absence of appropriate European participants in the meeting in Luxembourg (right after the BSE debate in Council). It was considered that for the future a greater preparation would be required of these meetings, as well as a broad reflection about the elements for discussion.

The first JC was more successful, approving the creation of three technical Working Groups on goods, on services and on trade standards and disciplines which should assist the preparations for future negotiations on a further liberalisation of trade. During 1997 a number of useful JC

meetings were held in Europe and in Mercosur.

In April 1997 in the Netherlands, the second EU-Mercosur ministerial meeting (political dialogue) took place in the margin of the EU-Rio Group ministerial meeting. In contrast to the first meeting in 1996, the second meeting was to the satisfaction of all partners involved. During this meeting, Commission Vice President Marin outlined his views on the different activities to take place within the next two years in order to prepare for an opening of negotiations on trade liberalisation. He indicated that first a "photography" of the present trade flows should be established by the end of 1997 or the first semester of 1998. Then in the second half of 1998 political decisions are to be taken, after which negotiations could possibly be opened by 1999. December 1997 will also see a number of other meetings in the Mercosur context in Uruguay including a major trade/business event called the "Mercopartenariate", in which hundreds of EU companies will participate.

The Future of EU-Mercosur

Mercosur has left the phase of merely being an idea for the future and has turned itself into a reality. Intra-Mercosur trade has grown over the past five years by 100%, external trade with the EU has grown by 110% during the past six years, and more and more companies are diversifying their activities throughout Mercosur.

The EU attaches great importance to Mercosur as a guarantee for a continued democratic development of the region and as means of attaining prosperity and stability for the peoples involved. The Mercosur integration process has unleashed a wave of optimism and economic interest in the Southern Cone of South America. Together with the policies of economic liberalisation and modernisation in Argentina and Brazil this has created an upsurge in economic activity and investor interest. Though Mercosur still has a long way to go, its existence at present forms an essential part of the economic success of the Southern Cone economies. Moreover both the EU and Mercosur support the concept of "open regionalism" in accordance with WTO rules.

Mercosur affairs at the regional level should not be confused with the bilateral commercial disputes that may exist between the EU and the individual members of Mercosur (a/o. Argentina - textiles, Brazil - poultry). The areas of competence of Mercosur as an organisation may differ greatly from those of the EC as an organisation and therefore certain issues can only be address at the bilateral, member state, level.

Mercosur, and in particular Brazil, views its relationship with the EU as a counterbalance to its ties with the US/NAFTA. As such Mercosur views further association with the EU as a balance to the 1994 initiative to create a Free Trade Area of the Americas (FTAA/ALCA). At present the US wishes to accelerate the commercial opening of Latin America and though Brazil favours such a development, it wishes to enter into negotiations as Mercosur as a bloc and not as four individual countries. However, ties with the FTAA and with the EU are not mutually exclusive as such.

During March 1997 President Chirac of France made an official visit to the Mercosur region during which he stressed the close cultural and economic links between Europe and Latin America, called for a partnership of equals between the regions and supported Spanish ideas for a Euro-Latin American Summit meeting, now being considered for the first half of 1999 under the German Presidency.

Conclusion

Both Britain and Brazil have had to adjust their foreign policies to deal with a rapidly changing international situation. But domestic issues have also influenced their approach to foreign policy. In Britain's case, the Eurosceptic wing of the Conservative Party exercised considerable negative influence on Britain's policy toward the EU whilst in Brazil's case, social and economic problems hindered Brazil's desire to play a greater role on the world stage. Both Britain and Brazil are also constrained by obligations arising from membership of regional and international organisations. In future both countries will also be increasingly affected by global issues such as trade, finance, science and technology, the environment, crime, drugs, etc.

Britain is likely to play a more constructive role within the EU, seeking to promote and maximise its influence within the constraints of the Union. The most important decision it will have to take in the coming few years will concern its participation in the single currency. It will adopt a pragmatic approach to foreign and security policy co-operation within the framework of the CFSP.

Brazil has successfully moved from a reactive to a proactive role in foreign policy and this trend is likely to continue as a result of the continuing opening of the Brazilian economy and the impact of globalisation. Brazilian foreign policy is also likely to gain in confidence due to the successful strategy of diversification which has demonstrated Brazil's ability to respond to international developments in an activist and forceful manner.

The EU and Mercosur will provide the main framework in which the UK and Brazil will pursue their external relations. Developments in both regional organisations will thus impact on Britain and Brazil. The EU may well be viewed as an increasingly attractive model for Mercosur.

The Reform of the United Nations Organisation+

*Mônica Herz**

Introduction

The reform of the United Nations Organisation is a central theme on the international agenda at the moment. Because of this, the debate on the different proposals to fit the UN to the post-Cold War international scene are an important part of multi-lateral and bilateral relations. A presentation of the main axis of this debate will provide an understanding of the political and conceptual framework in which bilateral discussions between the British and Brazilian governments should proceed. The areas of convergence and divergence that may emerge can be indicated by surveying a group of trends that constitute the Brazilian position regarding the role of the organisation, together with a brief comparison with the British government's view.

Even though the fiftieth anniversary of the UN and the end of the Cold War have not resulted in a reform of the system of the United Nations, as some analysts had hoped, recent years have seen an intense debate on several proposals for reform that are either being planned or negotiated. These proposals come from and are being discussed by, academics, national leaders and by those directly involved in the different organs and agencies of the United Nations.

We can see in the specialised literature and in the various forums of debate on the role of the organisation, a concern with salvaging its history. In spite of the impediments created by the beginning of the Cold War, at the moment of the birth of the UN, we can see today the relevance of the effect

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of the latter in a normative and operational sense in the second half of the 20th century, in crucial questions such as security, development and human rights (Weiss, Forsyth & Coate, 1994). On the other hand, it can also be seen that revisiting the organisation's operations, its internally generated norms and principles, allows the elaboration of proposals relevant to the present context.

Some would say that the organisation cannot and should not be reformed. According to this view the UN has always had, and will continue to have, a marginal role on the international political scene. The idea that the organisation could take a central role in the process of global government comes from a mistaken attempt to revive outdated idealistic principles. Others propose that the Charter, the constitutional pillar of the organisation, should be re-written and a new organisation created which would conform to the realities of the next century. However, most of the analysts researching the function, role and history of the UN, together with those political leaders who have stated a position on the issue, would agree that institutional reform is the most appropriate way to adapt and re-invigorate the organisation.

During the period immediately after the end of the Cold War, which was marked by the "success" of the intervention in the Persian Gulf, a connection could be seen between the idea of a "new international order" and the new role of the UN. Thus, the proposals that are now emerging are notable for their high level of optimism in relation to the role of the organisation and to the possibilities for reforming it (Urquhart - Childers. 1990). Lately, there has been a recognition of the difficulties inherent in changing the most wide-ranging and comprehensive organisation in the history of the world. On the other hand, the reform of NATO, the processes of regional integration, the need to regulate the international financial market, and transnational economic problems, have occupied the international agenda in recent years.

The profusion of studies on the matter (more than 50 books have been published in recent years) is a result of the unfreezing of the organisation with the end of the Cold War, of the incorporation of new attitudes and of an awareness of the interdependence of sovereign nations. The changes in the international system created by the end of the Cold War came from an

unfreezing of the decision-making process in the Security Council and a revision of the historical role of the UN. As far back as 1988 and 1989, five security operations were begun (Afghanistan, the Iran-Iraq border, Angola, Namibia and Central America) after an interruption of ten years.

Thus it is relevant to point out that there is a movement for change in the organisation, stemming from the needs of the international community, from cultural changes and from the new distribution of power in the international system, which have occurred in parallel to this debate and, often, in disagreement with latest positions. This movement is especially evident where it concerns the establishment of UN mandates for security operations and the actions of the Security Council.

The reform proposals are characterised by the great number of questions encompassed, so I shall try to describe the debate by identifying its political axes and concepts.

The Debate on UN Reform

Sovereignty

The concept of sovereignty is one of the standard supports of the modern international system. However, the growing interdependence between national societies, the process of transnationalisation, the role of non-state organisations and the increasing consideration given to questions that cannot be dealt with inside the territorial bounds of frontiers, are generating a lively debate on the validity, flexibility and, transformation of this concept. The end of the Cold War has intensified this debate.

The principle of sovereignty and non-intervention in domestic issues, embodied in the UN Charter (article 2), is in a state of tension with the increasing consciousness concerning interdependence between national societies. This tension is expressed in two different debates, one of a procedural nature, the other more substantive in character. On the one hand the discussion concerns the need for creating a decision-making process and a locus of authority which would do away with the restrictions that come from the organisation's intergovernmental nature. On the other hand,

the kind of legitimate intervention by the international community is a central part of the present agenda of debate.

The proposals which propose most clearly stepping over the limits imposed by the principle of sovereignty take the European Union as their model and concentrate on the creation of a supra-national institutional structure. For this to come to fruition a constitutional reform of the organisation is needed (Bertrand, 1994, 1989). Thus, it is suggested that the Secretariat General be strengthened and that new supra-national agencies be created (Tinbergen, 1991).

The culture of international politics has change considerably in recent years and the most visibly affected concept has been that of state sovereignty. New possibilities of intervention by the international community have been formed, directly affecting the notion of internal and external sovereignty. The discussion on the legitimacy of political regimes, the expanded scope of UN activities, including tasks previously thought to have been restricted to the states, the abandoning of the principle of consent of parties involved, these are some of the questions that show the relationship between UN reform and the most wide-ranging debate on the crisis of the concept of sovereignty.

In the context of the UN, the countries of the "South" have expressed their concerns about the flexibility of the concept of sovereignty, especially after the re-starting of peace operations at the end of the '80s. Nevertheless, even those states, traditional guardians of the principle of sovereignty, have modified their attitudes, accepting new forms of intervention by the international community (Childer Urquhart, 1994).

The type of behaviour of the UN that prevailed in the first fifty years of its history reinforced the concept of sovereignty insofar as the organisation's activities were directed by the defence of the sovereign territory of states and the creation of new sovereign states in the process of de-colonisation, (Emerson, 1965). Today we see a growing pre occupation with the viability or legitimacy of states and political regimes, which requires a re-definition of the limits of intervention by the international community.

The nature of government regimes and respect for human rights

are felt to be a legitimate concern for diplomatic action. In 1991, for example, the General Assembly voted to condemn the coup d'état in Haiti, going against the dominant tendency of the developing countries to adopt a defensive position in relation to state sovereignty.

The changes revealed in recent UN operations represent in practice the birth of a new concept of intervention. The peace operation established to facilitate and monitor the withdrawal of South Africa from Namibia and the holding of elections (UNTAG, 1990) still worked in accordance with the principle of consensus and the minimum use of force, while at the same time it also showed a significant expansion in UN activities, such as involvement in civil administration, the organisation of elections and in policing. During the operation in Nicaragua (ONUCA, 1989-1992), launched to monitor the Esquipilas II agreement, the UN took part for the first time in a de-militarisation programme, collecting and destroying weapons. The mission that monitored the Haitian elections (ONUVEH, 1990-1991) was significant because the tasks it undertook were both civilian and military in nature, involving issues of security and human rights.

The revision of the concept of international security, including the human rights dimension, has important implications when it comes to the legitimacy of the international community's intervention in domestic issues. In this sense, Resolution 688, approved by the Security Council in April, 1991, which declares that the repression of the Kurd and Shiite peoples in Iraq by Saddam Hussein's government constitutes a threat to international peace and security, demonstrated the first explicit link between security and human rights, although the Council had previously considered its responsibilities in the human rights area in the cases of Rhodesia and South Africa. In fact, in recent years a formal determination, according to Article 39 of the Charter, which states that a threat to peace and security must, be detected before actions contained in Chapter VII can be authorised, has become a procedural limitation rather than a substantive one in relation to the organisation's actions (Berdal, 1996).

Nevertheless, historically, the reaction to international intervention in the field of human rights, starting from a defensive position in relation to the concept of sovereignty, has been significant. Thus only in December,

1993 did it become possible to create a UN High Commission for human rights.

The UN's security mechanisms were created objectively to deal with conflicts between States. Recently however, intra-state conflicts have been more common, creating more dramatic crises of a humanitarian nature. In these situations the principle of consent by all parties is difficult to take into consideration. In fact, in the operations in Cambodia (UNTAC), in Angola (UNAVEM II), in Yugoslavia (UNPROFOR) and in Somalia (UNOSOM), this principle was not respected

The Security Council's resolutions condemning the invasion of Kuwait by Iraq in August, began the UN's "peace enforcement" actions in the post-Cold War era.

The text in which Secretary-General Boutrous Boutrous-Ghali tries to analyse the changes taking place and to plan the organisation to fit the new configuration of the international system, shows the tension between the concept of sovereignty and the new type of UN action. In his Agenda for Peace the Secretary-General identifies four areas for UN action: preventive diplomacy, the building of peace (sub divided into "peace enforcement" and "peace keeping") and the construction of peace after conflict (Boutrous, 1992). In January, 1995, the Secretary-General published a supplement to Agenda for Peace in which he emphasised the changes in the type of peace operations, which now included the rebuilding of state structures. The Secretary-General emphasises that the majority of conflicts are of an internal nature, with civilians as the main victims (Boutrous, 1995). As Weiss, Forsyth and Coate emphasise, the Secretary-General tries to develop the idea of "peacemaking', including in it activities the organisation has traditionally carried out, such as mediation between conflicting parties, and others central to the UN's new agenda, like economic and military sanctions. These new activities conflict with the idea of sovereignty. The Secretary General, however, re-affirms respect for the traditional idea of sovereignty, avoiding a discussion of the "new" forms of intervention. The lacunae in his text are an expression of the present state of the debate, in which the re-definition of concepts is not in step with the political changes that are taking place.

The Workings of the Organisation

The operational problems of the UN concern the means of co-ordinating its agencies, the financing of its activities and the military capability at its disposal. The qualitative and quantitative modifications that have affected the organisation in recent times have created an urgent need to resolve these questions.

International pressure, especially from North America (US State Department, 1997) to rationalise the organisation's administration and define more clearly the allocation of resources (accountability) is the most visible face of the problem. In 1994 the Office of Internal Oversight Services of the secretariat was created to deal with the financial irregularities of the secretariat. In July of this year Secretary-General Kofi Annan announced a series of measures in response to growing international pressure, to make the organisation more efficient. However, these measures are strictly administrative in nature: freezing the normal budget, axing 10% of bureaucratic posts; prioritising development aid programmes, creating the post of Vice-Secretary-General and setting up a Secretary-General's cabinet.

While the UN was created after the war to guarantee peace and to prevent war, the development of the organisation was marked by the appearance of new problems, especially in the socio-economic field. Because of this, a series of structural anomalies was created. Problems of co-ordination, duplication of activities and definition of jurisdictions are very serious and may be seen in some of the organisation's recent multi-functional operations (Richter, 1995). Special interests and bureaucratic policies hinder moves towards rationalisation which, in some cases, should envisage the possibility of removing certain agencies from the system.

The specialised agencies in the socio-economic area, for example, could be, in accordance with the UN Charter, co-ordinated by the Economic and Social Council. However, the specialised agencies have their own internal constitutions and directions, and the scope of their activities was not foreseen. The problem is particularly serious in this area since, as well as the five regional commissions of the Economic and Social Council, fifteen other agencies are formally related to the Council and special programmes

have been set up to deal with specific questions.

The creation of new organs, like the Commission for Sustainable Development, has not been given the necessary structural support (Woroniecki, 1995). An overlapping of jurisdictions is evident. For example, the question of torture is dealt with by the Sub-commission on Human Rights, the Commission on Human Rights, The Economic and Social Council, the Assembly General, the Commission Against Torture, the European Commission Against Torture and the International Red Cross Commission.

The expansion of the organisation's activities has created a demand for already scarce financial resources. The annual budget for peace operations, for example, grew to U$ 4 billion between 1991 and 1993. The proposals for resolving the problem include mechanisms to guarantee the payment of contributions, unification of the budget (Ford Foundation, 1993), and the raising of taxes for the organisation (Evans, 1993).

The delegation of some functions to regional organisations, temporary coalitions of countries, individual governments and even non-government organisations, have been discussed as a possible response to the financial problem and to the need to decentralise operations at the same time as developing a greater co-ordination of activities.

One of the most serious problems that the UN is facing today is the weakness of its military capacity, especially in terms of control of the operations authorised by the Security Council. In accordance with the UN Charter, military enforcement operations should be controlled by the Military

Staff Committee, however, in Korea as in the Persian Gulf operations forty years later, control of the operation fell to the North American state. In fact, the Military Staff Committee has not functioned since 1947. The difficulties of the Somalia operation, when operational control was in the hands of the Secretary General, highlighted the need to reform the system. While the creation of permanent UN forces would generate a very high military and political cost, one realistic proposal would be the creation of national units kept in reserve especially for the organisation.

Regionalisation

The original conception of the UN incorporated the idea of co-operation between the UN and regional organisations, nevertheless the power relationships that existed at the time of the organisation's birth meant that these organisations had to be clearly subordinated to the overall organisation. We can see here the Wilsonian view that tends to identify regionalism with competitive and conflictive alliances (Claude, 1983, pp. 113-114). On the other hand during the Cold War, regional organisations were seen as extensions of the bipolar conflict. However, Chapter XVIII of the Charter suggests the possibility of a division of labour between regional organisations and the UN (Barnett 1995, p. 413).

With the end of the Cold War co-operation between the UN and regional organisations was once more the object of intense discussion. Boutrous Boutrous Ghali emphasises in his report the positive aspects of decentralisation, delegation and co-operation that would be possible if there were co-operation between UN forces and regional organisations (Boutrous, 1992).

The supervision of the peace agreements in Nicaragua by the UN was an important experiment in co-operation with a regional organisation - the Organisation of American States. In Cambodia, Liberia, Burundi and Rwanda Haiti and El Salvador and in Bosnia, co-operation between the UN and regional organisations was carried out with differing degrees of success.

The greater awareness of local conditions, cultural and historical affinities, the practical advantages of decentralising activities, and the legitimacy of regional organisations in the "South" are some of the advantages that are mentioned. The creation of regional centres for preventative diplomacy and peace-building (Evans, 1993) and the delegation of the appointment of personnel from the Security Council to the regional groups are some of the themes on this agenda.

Democratisation

The debate on the need to democratise the organisation has focused on two central questions: (a) the decision-making process within the organisation and (b) the representation of non-statal organs.

The proposals concerning the democratisation of the decision-making process within the organisation include proposals concerning (I) The balance of power between the Assembly General and the Security Council; (II) the need to widen the Security Council and change the veto system; and (III) the establishment of clearer criteria on the jurisdiction of the Security Council and the role of the International Court of Justice in this context.

Historically, the proposals of the non-aligned movement and the Group of 77 have show an attempt to discuss and democratise the organisation. These have traditionally emphasised the need to reinforce the role of the power of the General Assembly. The model developed by the Rajiv Gandhi Foundation illustrates this position. It proposes that the Assembly should be involved in the process of preventive diplomacy and to deal with non-military threats to peace, it also suggests the formation of a commission within the Assembly for the prevention and resolution of conflict. On the other hand, the restriction of the imposition of the veto by members of the Security Council in situations in which the implementation of sanctions and the use of military force were being discussed would represent a restriction on the actions of the Council (Rajiv Gandhi Memorial, 1994).

The need to reform the Security Council has been discussed since the beginning of the '90s as a result of the greater international importance of the UN in the post-Cold War era and of the questioning of its authority as the organisation's executive organ. The representatives of the Council are questioned from the geopolitical point of view, with the countries of the "South" being under-represented and because the countries with a greater ability to contribute to keeping the peace are not properly represented (Russet, O'Neill, Sutterlin, 1996).

The main points of the discussion are the possibility of expanding the Council and modifying the voting system. The greatest difficulties are found, on the one hand, in reaching a consensus that could be approved, in accordance with the UN Charter, by two-thirds of the General Assembly and the permanent members of the Security Council (Article 108), and on the other hand, in keeping a balance between representation and efficiency.

The General Assembly's Resolution 47/62 of 11th December, 1992 invited the member states to present proposals concerning reform of the Security Council and more than 10.0 countries presented suggestions. The 47th session of the General Assembly decided to create a special working group to discuss the expansion of the Security Council.

The acceptance of the principle of widening this organ, the inclusion of Germany and Japan, even with special status, and the need to find a formula for the representation of the countries of Asia, Africa and Latin America is the minimum starting point for discussion. The creation of a third category of member is one of the proposals that has significant support; semi-permanent or permanent members without the right of veto, or having a "half-veto", are some of the suggestions on the agenda.

The regional representation of Asia, Africa and Latin America, supported by the international community, as well as by the North American government, creates other difficult questions. The decision on which countries should represent these regions, on the nature of this representation and on access to the right of veto, are some of the problems that have to be resolved

As for the voting system, proposals under discussion include reform of the veto system, for example limiting the areas in which the veto may be applied, the creation of a voting system which would allow the Council to over-rule a veto, increasing the number of vetoes needed to defeat a resolution, and increasing the number of votes in favour that would be necessary to approve a decision.

The action of the Security Council has been strongly criticised for showing the influence of special interests and informal deliberations. For example, during the Gulf War the interests and leadership of the US were dominant. The democratisation of the decision-making process implies the development of clear criteria capable of controlling the influence of the special interests of powerful participants. In the context of the Security Council this is a particularly sensitive issue. The establishment of "automatic triggering" mechanisms that would force the Council to debate certain problems (Weiss, Forsythe Coate, 1994, p. 94) is one suggestion being put

forward. Objective criteria would establish when a decision should be taken; these criteria would include the number of refugees or dead or even the need for an independent commission. In this way, the actions of the international community would be generated on a basis of the type of problem and not on the special interests of one or other members.

We see today a renewed interest in the role which the International Court of Justice can play in resolving controversy. The General Assembly has approved several resolutions at the instigation of member states to use the court to resolve controversies, in an attempt to strengthen the court. In 1989 the Special Committee on the Charter began a study to strengthen the role of the International Court of Justice. The resources of the court have been discussed in the Security Council itself as in the case of genocide in Bosnia-Herzegovina and Rwanda and the Lockerbie air crash. While the international situation during the Cold War hindered the Security Council's attempts to refer matters to the court, today this path is open (Bernal, 1995).

In accordance with the principles established in 1945 when the court was created, its authority extends to deliberations on quarrels between states, based on the interpretation of international law, however, in the context of the debate concerning the democratisation of the UN its role in the distribution of power between the organisation's agencies is beeing discussed again.

The democratisation of the UN must include ways of representing civil society, be it through collective entities - organisations, movements and associations of various kinds, or through individuals. The participation of non-statal entities in UN-promoted debates has a precedent in the international conferences that took place at the start of the '90s. Although the resolutions of such conferences are not binding they have created a new level of legitimacy in discussions on the environment, the codification of concepts of social equality and the development of gender relations.

The Conference on the Environment and Development, held in Rio de Janeiro in 1992 is frequently held to be a landmark in relations between NGOs and the UN[1]. Nevertheless the relationship between the NGOs and

[1] See General Review of Arrangements for Consultations with Non Government Organisations. Report of the Secretary-General, UN Document E/AC. 70/1994/5 26/05/94.

the UN had been developing since the 1972 Stockholm Conference, creating co-operation between inter-governmental and non-governmental agencies and having also a considerable influence on the development of political agendas. This process is not confined to environmental matters, but also includes efforts in the area of development, population policies, women's rights, health policies and human rights (Willetts, 1996).

A non-governmental organisation can, in principle, be accredited by the UN as long as the former has an international structure, does not support the use of violence, is not a political party, does not earn profits, was not established by a government and supports the world of the UN (Willetts, 1996). The development of a relationship of co operation and consultation between non-governmental organisations and the UN does not answer a series of questions concerning the representation and participation of civil society in the organisation. On the one hand, these organisations suffer from a lack of democracy, originating from their own internal structures, and represent no more than a type of collective organisation within civil society, on the other hand, more universal and transparent criteria of representation and participation must be established.

Development

The 1994 report of the General-Secretary of the United Nations is an expression of the pressure within the international community for the organisation to play a more effective part development, especially in a context where the relationship between peace and development has been firmly established (Boutrous, 1994). This connection gave rise to the suggestion in the report of "preventive and curative development" to accompany the aims of preventive diplomacy and peace making.

The most concrete proposals in this area include the creation of a council for economic security or the creation of an economic (section) in the Security Council and better co-ordination between those organs of the UN system that deal with socio-economic questions. especially between the Economic and Social Council and the specialist agencies such as the World Health Organisation or the Organisation for Food and Agriculture.

Concern about co-ordination and duplication of activities in the social and economic sphere was expressed by the G-7 countries in the 1995 and 1996 meetings in Halifax and Lyon. They agreed that the Social and Economic Council should be clearer in its definition of the organisation's strategies in this area and that there was a need to look again at the humanitarian aid programmes and agencies, development aid and statistical analysis, in order to avoid duplication of activity (US Department of State, 1997).

The Brazilian Perspective

The present position of Brazil on the reform of the United Nations system may be understood by taking into account five basic attitudes relating to multilateralism and the role of international organisations.

Defence of the Principle of Sovereignty:

The idea that the international system today is under pressure from centrifugal and centripetal forces and that international institutions ought not to work as a means of world government has led the Brazilian decision-making elite to emphasise the need to protect the internal and external dimensions of state sovereignty in a context of growing inter-dependence.

We find, particularly after the impeachment of President Collor de Mello, evidence of a defensive posture with regard to interventionism on the part of the international community in questions such as human rights, ecology, drug trafficking and terrorism. Certain events have placed the Brazilian government in an especially delicate position, for example the murder of a group of young people in Rio de Janeiro in July, 1993, the massacre of Yanomami indians in August, 1993 and the question of the destruction of the Amazon rainforest.

As for the debate on the reform of the United Nations system the Brazilian position has favoured discussion about procedures rather than debate on the changing the organisation's rights of intervention. This being the case, Brazilian diplomats have been sceptical about the proposals the Secretary-General's 1993 report. The view that the organisation should exercise a "pacifying" function in spite of the positions of the parties

involved, is felt to be particularly problematical (Macieira, 1994). When Brazil filled one of the vacancies on the Security Council in 1993-1994 the country abstained on the vote on ending the arms embargo in the regions of ex-Yugoslavia and also on the vote concerning intervention in Haiti. Moreover the Brazilian representatives were not in favour of the "peace enforcement" operations in Somalia and Rwanda.

The defence of the principle of sovereignty has been accompanied by efforts to establish Brazil as a significant participant on the international stage. Thus we may observe an attempt to reach a balance between accepting the growing network of international norms and conditions, and the protection of state sovereignty. While the decision-making elite has developed a more sophisticated understanding of the growing inter-dependence between national societies in the economic, social, political and cultural areas, and of the role of international organisations in the context of a dual view of the international system, the defence of the principle of state sovereignty constitutes a central plank in the structure of official discense.

The Acceptance of the Internationalisation of Structures of Power and Authority

The Brazilian government has taken an active part in the discussions to generate international rules to combat problems in the areas of the environment, human rights and non-proliferation of arms..

During the 1992 RIO conference on the environment one characteristic of the Brazilian position, together with those of India and China, was the idea of a balanced policy between protection of the environment and encouraging development. The two principles which the Brazilian supported were that environmental problems are global in nature and that responsibility for them should be differentiated in proportion to the economic capacity of the countries involved.

Since 1972, when the Stockholm Conference took place, the Brazilian position concerning international norms for environmental protection has changed considerably. During the '70s and '80s the idea prevailed that development and environmental protection were incompatible. During the Sarney government, in spite of the government's defensive policy

in the face of international pressure regarding the development of the Amazon region, various measures, such as monitoring and control of forest burning, the suspension of incentives for the development of agriculture in the region and the creation of extractive reserves, were implemented with the aim of creating an image of environmental responsibility. This trend continued in the subsequent period. Although in general the effect of the decisions of the 1992 conference was extremely limited, we may observe on the part of the decision-making elite a concern to participate in multilateral initiatives and to accept the norms established by the more successful initiatives, such as the initiative for protecting the ozone layer and the Antarctic initiative (Viola & Ferreira, 1996).

During the second international conference on the environment (Vienna, 1993), with Ambassador Gilberto Saboia having presided over the conference's executive committee, the Brazilian representatives emphasised the relationship between human rights and development (Trindade, 1994), following a more general trend of considering human rights on a wider scale that included political, social, cultural and economic aspects. The creation of a UN programme of material and financial aid to national projects and institutions directly related to protecting human rights and to strengthening the legal state, was defended by Brazil.

With the ending of the military regime the Brazilian government was able to resume its part in the international debate on human rights, the Vienna conference marking the point when Brazil affirmed its position in this area. In fact, since 1985 there had been evidence of a gradual change in the view taken by the Brazilian government. This year the government decided to adhere to three treaties on the protection of human rights (the American Convention and the two UN pacts on human rights), which were only ratified in 1992.

During the conferences on population and development in Cairo in 1994, on social development in Copenhagen in 1995 and on women in 1995, Brazilian representatives tended to defend a universal view, repeating the relationship between human rights and development: a vision that has characterised Brazil's position since the second half of the '80s.

On the other hand, various studies have shown the government's

tendency, in collaboration with non-governmental organisations and networks of local institutions, to take on board measures established in the context of recent UN international conferences. This behaviour reveals a concern with achieving greater international legitimacy and an using of the fact that the growing network of international standards and rules is one of the facets of the process of internationalising structures of power and authority.

As for the non-proliferation policy, Brazil has taken an active profile in creating a non-proliferation policy in South America, although it was only possible to sign the non proliferation treaty after a long process of negotiation (Wrobel, 1996). The Tlatelolco treaty was signed in 1994 and the country kept to regulations of the Missile Control Technology Regime and of the Nuclear Suppliers Group. Moreover, the 1988 Constitution forbids the development of nuclear power for non-peaceful ends. In spite of the visible acceptance of international regulations in this area it is important to note that the debate about signing the NPT reveals a view that still exists, that the treaty is discriminatory. Recent Brazilian governments have supported the creation of limits for the production and distribution of arms. Congress has already approved the necessary legislation to control the export of goods and services with military applications and information about conventional arms is periodically supplied to the UN register that was established in 1991.

The Brazilian position, participating in the development and negotiation of international regulations and accepting multilateral jurisdiction, shows an understanding of the fact today there is an undeniable relationship between the country's international involvement and the internationalisation of the structures of power and authority.

Development as a Responsibility of the International Community:

When the Minister of Foreign Affairs, Ambassador Araújo Castro opened the session of the UN General Assembly thirty years ago he stated that disarmament, development and de colonisation were the fundamental tasks of the organisation. According to Minister Celso Amorim, on the occasion of the opening of the 48th annual meeting of the UN, the organisation also has to confront three tasks today: democracy, development and disarmament. Bearing in mind the country's international position it is

not surprising that its representatives make such a point of the relevance of dealing with the question of development in multilateral forums, nevertheless it is revealing that the new themes on the international agenda should have been systematically connected to the problem of economic and social development. Thus, the debates on human rights, terrorism, the environment, new concepts of security, and women, should be approached from this viewpoint.

On the other hand, we can see that the emphasis given to development-linked problems is linked to the defence of state sovereignty, which is still seen as guaranteeing national development. In accordance with this point of view, Brazil supported the UN Secretary-General's production of the Agenda for Development which complemented the 1992 Agenda for Peace.

The preoccupation with the "exclusion" of Brazil:

We may detect in recent years, in the discourse and practice of those who develop Brazil's foreign policy, a preoccupation with the "exclusion" of the country from the centre of international politics and attempts to construct a strategy of entering that area (Lafer & Fonseca, 1994). Although this is not a new theme, the recent changes in the country's systems and the concern over the "lost decade" have reawakened this discussion.

This tendency was expressed when Brazil was a candidate for a seat on the Executive Council of the League of Nations[2] and when, in 1945, it attempted to become one of the permanent members of the UN Security Council. This point of view can be found today, when the government is seeking to establish the legitimacy of Brazil's claim to a permanent seat on the UN Security Council and when changing the country's international image has become an aim of state policy.

The argument against the marginalisation of the county, despite its socio-economic conditions and despite Brazil's relative position in the

[2] In 1923 Brazil left the organisation as a result of the political crisis caused by its exclusion from the Executive Council.

hierarchy of nations, proposes that its cultural and ethnic diversity, the presence of developing world characteristics alongside those of the first world, a tradition of coherent foreign policy and sophisticated diplomacy, the peaceful nature of the country's international relations, all favour a more active participation in international decision-making (Abdenur, 1994).

During President Itamar Franco's government Brazil applied for a permanent seat on the Security Council and Fernando Henrique Cardoso's government is following the same line, increasingly pressing this claim in recent months. The argument has been that the Council's membership should reflect the changes apparent in the international scheme of things, particularly the emergence of developing nations on the world stage. A more representative Council would have more legitimacy, which would lead to greater efficiency. Brazil is a strong candidate due to its diplomatic tradition as an international mediator and as the result of its active participation in the organisation (Amorim, 1995, 1996).

The relevance of the latest application comes from the perception, mentioned above, concerning the internationalisation of the structures of power and authority, from the debate about the reform of the UN system described in the first part of this essay, and from the greater importance that the executive organ of the UN has acquired since the end of the Cold War (Macieira, 1994).

The stabilisation of the economy, the political democratisation of he country and Brazil's participation in the international debate on the environment, human rights and non-proliferation of arms, all favour the change in the country's international image. This situation has been exploited by the diplomatic system and by the state's executive organs.

The Search of Institutions of a Universal Kind:

The presence of an "idealistic" vision of the international system can be found in the international culture of the Brazilian political elites. In 1907, when the country took part in the Second Peace Conference in the Hague, the focus of the discourse of the Brazilian representatives was the relevance of the norms of international law and the negotiated resolution of conflicts. In that text the "Hague patterns" were born and the tradition of

defending the ideal of an international society based in universal principles and the systematic support of the role of reason and mediation in the resolution of international conflicts, took root.

The view that the UN occupies, or should occupy, a central position in the creation of international rules results from the view that this agency is the only one that is available to almost all sovereign states and is capable of creating an international order founded on universal law. In this context, despite their country's application for a permanent seat on the Security Council, Brazilian diplomats have expressed the view that the role and functions of the General Assembly ought to be renewed and that the Security Council should operate in accord with transparent and clearly established criteria (Sardenberg, 1993, 1994, 1995). The preservation of the organisation's universal and representative credentials has been a theme frequently touched on by the decision-making elite.

The Brazilian government has supported the idea that the UN is the preferred channel for the solution of conflict and the maintaining of international peace and security. The peace operations are seen as the UN's most effective expression in terms of international order.

Consequently Brazil has actively participated in peace operations. The principles on which these operations have traditionally been carried out - prior agreement of the parties involved, impartiality, minimum use of force - have been supported by Brazilian governments.

Brazilian soldiers have taken part in operations in the Middle East, Central America, the Balkans and in Africa. Brazilian involvement is especially important in the Angolan mission. Since 1989 there has been a diversification in the country's contribution. After the end of the Cold War Brazilian diplomats have expressed concern as the lack of impartiality and prior consent of involved parties in some operations. On the other hand, the government has confirmed its support for strengthening the functions of collective security laid down in chapters VI and VII of the Charter, as opposed to transferring this role to regional military organisations (Alvez, 1996).

The international conferences that have been held in recent years are felt to be relevant forums for discussion in which the different countries

can be represented Preparation for each of the conferences has involved Itamaraty,[3] other agencies of the state apparatus and sections of non-official society. At each of these conferences, as well as the trends already mentioned, Brazilian representatives have concentrated their efforts on looking for a balance between special interests, particular cultural and religious realities, and universal ideas.

We may thus conclude that Brazilian positions in the present debate with regard to the reform of the UN system will be guided by the five tendencies we have identified.

Conclusion

A comparison between the English and Brazilian participation in the UN system relates to the different positions these two countries occupy in the international power structure and the particular history of each with the organisation.

As a consequence of Britain's involvement in World War II and during the birth of the organisation, the United Kingdom has been at the centre of the decision-making process in the UN. While being a permanent member of the Security Council, one of the main mediators in discussions on the substantive policy that was adopted and the changes in the organisation's structure, and with its representatives filling executive posts with notable frequency, Great Britain is one of the main actors in the UN. In the Brazilian case we have seen the construction of links with the organisation since its inception, in spite of the country's marginal position in regard to the UN's decision-making process. The universal and inclusive nature of the UN is in accord with one of the elements of Brazilian political culture, moreover the UN has worked as a forum for discussion of a series of questions that affect developing countries.

Successive British governments have shown special interest in the role of the UN in the international system We find that participation in an organisation of a universal nature, together with the special relationship with the US, corresponds to some extent to the decline in British power in

[3] [the Brazilian Ministry of Foreign Affairs - trans.]

the 20th century. With the end of the Cold War and the renewed debate over the UN's role, British diplomats, politicians and experts have taken an active part in discussion on the reform of the organisation.

As was noted above, the Brazilian decision-making elite sees the emergence of a network of norms, rules and international organisations as part of the internationalising process of the structures of power and authority. On the other hand, we can note a concern with the marginalisation of the country from the international decision-making process. This being the case, we observe a growing worry about Brazilian participation in the UN's decision-making and with its operations; in this context a change in the status quo is being sought. Brazil's application for a permanent seat on the Security Council is the clearest expression of this point of view.

We may conclude that UN reform - the pre-definition of the organisation's structural concepts and strategic policies - is a relevant theme for both states. Nevertheless, the changes they consider necessary and the focus of attention are bound to differ.

The conservative governments of recent years have emphasised the necessity to rationalise the organisation and have supported the movement toward greater interventionism of the international community by means of the UN. The years to come will see a continuance of this view. The new British labour government will favour the international community's intervention to resolve internal conflicts and in the control of human rights, following a more cosmopolitan point of view. In the near future we shall also see a greater concern with international co-operation in the field of social and economic development. As for the debate on Security Council reform, we also see continuity between the labour government and previous government, that is, support for widening the Council and maintaining the English position.

In the context of the present debate on UN reform, the Brazilian government has come out in favour of the need to reform the organisation. Among the elements that make up this area of debate on reforming the organisation, Brazilian representatives have emphasised the need to establish clear and transparent criteria in the decision-making process and the

importance of expanding the Security Council and widening its representation. Dealing with the idea of sovereignty is especially difficult for the Brazilian government insofar as finding a balance between understanding the increasing internationalisation of power and authority structures, and the defence of state sovereignty, is an element in both the practice and the discourse of the decision-making elite. As we see, the international community's responsibility with regard to problems of development in various regions is included in and associated with the "new themes" of the international agenda.

UN reform and the organisation's role in generating international standards, mediation of conflicts, as a forum for debating different themes on the international agenda and even as a political arena in which are formed coalitions, alliances and the hierarchy of power and influence at the international level, have particular importance for both countries and should become a main theme of bilateral relations. Some tendencies to differ may be seen in regard to the democratisation process in the organisation and to the international community's intervention in matters formerly considered to be internal.

The Brazilian position has been one of traditionally supporting universal principles and a concern with the openness of decision-making in the UN. The British government, for its part, has been one of the main supporters of informal groups such as are found in the consultations among permanent members of the Council. Another area in which differences may be observed is in the definition of terms of engagement and the nature of UN operations and their implications in re-defining the concept of sovereignty.

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The United Kingdom and Brazil in the International Political System with Particular Reference to the United Nations in the 1990s

*Paul Taylor**

In this paper the position of the United Kingdom with regard to the condition and reform of the United Nations in the late 1990s is considered. The case for UK membership of the Security Council is considered and the arguments compared with those about admitting candidate states such as Brazil. The discussion touches on the position of the states in the regional and global context. Where appropriate there are extracts from reports of Brazilian Foreign Ministry position papers which were made available to the author. These are formated and indented as follows:

- **The Brazilian Government believes that the fiftieth anniversary of the United Nations provides an historic opportunity to reassess the role played by the various agencies and programmes of the United Nations system.**

The United Kingdom's position as a sponsor of, and major actor in, the UN system was at the outset made structurally secure in the Charter. Henceforth, to change it, whatever the relative decline in the United Kingdom's power, prestige, and resources, would need to be with the approval of the UK. In the years after 1945, the United Kingdom's structural position in the UN system was not eroded, and it wielded an influence significantly greater than its place in world affairs would otherwise suggest. As Foreign Secretary Douglas Hurd said in the early 1990s: Britain punched above its weight.

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But in the late 1990s it was no longer conceivable that the United Kingdom could act as the political patron of a general global organisation and approach to world order as a member of a 'Big Three." Now the United Kingdom was one of those powers whose advice was sought, whose policy was important, whose initiatives were taken seriously, but upon whom the organisation did not, in the last resort, depend. Without the United Nations, on the other hand, UK diplomacy would be weakened in a significant manner. The structural privileges of 1945 were a considerable asset for the United Kingdom, and successive British governments sought to justify their continuation by using them to good effect, particularly in the Security Council.

On 6th June 1997 in a speech to European Union centre-left representatives at Malmo in Sweden the newly elected New Labour British Prime Minister, Tony Blair, committed his government to an internationalist stance and an actively supportive policy in the United Nations. The more committed tone of the Prime Minister suggested that Britain, with the other members of the UE, would do what it could to support and enhance the UN role over a wide front. The government had earlier committed itself to support for expanded programmes of international aid to the developing world. The line between the areas in which Britain would reserve its right of independent initiative, and responsibility, and those which would be dealt with multilaterally with the other members of the UE, was not clear at the time of writing. But, as will be seen, under John Major, after the Maastricht Treaty in 1991, the UE had more often begun to act as a unit especially in the area of the UN's economic and social arrangements, including their reform.

The United Kingdom and the United Nations: The organisational framework

There was a regular annual review by British officials of the committees on which the United Kingdom served and the positions it held throughout the UN system to ensure that there was no slippage in the United Kingdom's favoured position in the system as a whole. The United Kingdom was a permanent member of the Security Council, which conferred numerous

rights and duties as well as opportunities and costs for British diplomacy, but was also closely involved with the other principal organs of the United Nations and the specialised agencies. In the General Assembly the five permanent members were always members of the General Committee of the Assembly, where they looked at the agenda and generally acted as a busyness committee. The United Kingdom also tended to be a member of other restricted member committees, like the key committee in the budgetary process, the Committee for Programme and Co-ordination (CPC). In the Thatcher-Major period British candidates were sometimes not re-elected because of such issues as UK policy on the Falklands or its policy on sanctions against South Africa. But British unilateralism on some issues had little impact upon her good reputation as a UN citizen, and Britain remained a preferred member of key committees.

The United Kingdom was always voted on to the Economic and Social Council (ECOSOC) and was a member of the Trusteeship Council by right. There had always been a British judge on the International Court of Justice (ICJ). In 1997 the first female judge -Rosalind Higgins - was appointed to the Court who was British. The United Kingdom was the foremost supporter of the Court among the permanent members. Moreover, the United Kingdom welcomed the new War Crimes Court set up following the war in ex-Yugoslavia. The United Kingdom had always accepted the Optional Clause. There was an awareness that in doing so it was putting itself in a position to be sued, but it usually managed to settle disputes before they got to the Court. The Soviet Union and the People's Republic of China (PRC) never accepted the Optional Clause. France and the United States withdrew - the French being concerned about nuclear testing (1974) and the United States with Nicaragua (1985). In the Secretariat, although British nationals continued to hold high office, the number of British nationals was below the historic highpoint of the early years, but this was to be expected with the need for geographical representation and the expanded membership of the United Nations.

The United Kingdom's contribution to the regular budget of the United Nations for the period 1989-1991 was assessed at 4.86 per cent. This increased to 5.02 %. in 1995. In that year the 15 UE states contributed

32.65 % of the UN assessed budget.[1] Britain was the fifth contributor after the United States (25%), Japan (12.45%), Germany (8.93%), and France (6.00%). This rate of assessment of approximately 5 per cent was typical of the specialised agencies as well.

The United Kingdom was well placed in the specialised agencies, being a permanent member of the IMO (International Maritime Organisation) governing board, which was decided by tonnage, and of the ILO (International Labour Organisation) governing board, which included the principal industrial powers. In the case of the ILO, however, the "privileged" position of the 10 states of chief industrial importance was abolished, and the United Kingdom, as a consequence, was no longer guaranteed a seat on the governing body. Typical periods of British membership of the governing bodies of other important specialised agencies had been as follows: Food and Agriculture Organisation (FAO) - 1957-1990; UN Educational, Scientific and Cultural Organisation (UNESCO) - 1946 until withdrawal in 1985 (New Labour announced that Britain would rejoin); World Health Organisation (WHO) - 1948-1991 (except every fourth year); International Civil Aviation Organisation- 1947-1989; Universal Postal Union - 1974-1984; International Telecommunication Union - 1947-1989; World Meteorological Organisation- 1979-1991; International Atomic Energy Agency - 1957-1990; UN Industrial Development Organisation - 1967-1991. Substantial periods of membership in these organisations extended up the late 1990s. The position of structural privilege was striking. The United Kingdom was determined to protect this position not only because of its enhancement of British power but also because of a genuine belief in the value of the contribution which Britain could make to world order. As the then Prime Minister put it on the fortieth anniversary of the organisation, in a sentiment shared by other British political leaders, what the United Nations "can do - and has done - is to encourage civilised standards of international behaviour by member states and to secure the resolution of international disputes by peaceful means"[2].

1. Jeffrey Laurenti, National Taxpayers, International Organisations , UN-USA, 1995, Appendix 1.
2. Margaret Thatcher, "The United Nations at 40," in The United Nations Still Humanity's Best Hope (London: UNA, 1985), 7.

Although many home ministries maintained direct relations with the specialised agencies, as did British-based INGOs and NGOs, the organisational hub was the UN Department (UND) in the Foreign and Commonwealth Office (FCO), which fell under the remit of an Assistant Under-Secretary responsible for a range of departments in the FCO. It was a relatively small department in part because the FCO's structure tended to give priority to issues over particular institutions. In the 1950s and the early 1960s, the United Kingdom even had two ambassadors at the United Nations in New York, one of whom was solely concerned with Fourth Committee and Trusteeship Council affairs. There was then a long period during which Her Majesty's Government (HMG) considered that the United Nations' role on the issues that mattered was marginal and consequently the UND was then not a front-rank FCO department. This changed as governments came to feel that the United Kingdom could use the United Nations positively, especially the Security Council. Indeed as Britain's power in the world declined increasing stress was placed on doing well in the UN to make the most of what was left. However, the geographical and functional departments generally took the lead, and the role of the UND was to get them to think of the UN angle. In the new climate after the end of the Cold War the UND made more policy suggestions. and policy in the United Nations was no longer a damage limitation exercise. Nevertheless, the African department, for example, would lead on the Great Lakes problems, and the same was true of the Middle East, the problem of drugs, and the like.

The structure of the FCO's UN administration reflected this in 1997. Before possible changes by the new Blair government there were about 32 people doing UN policy work, ranging from Heads of Department to Assistant Desk Officer level. There were 20 UND policy posts, 6 policy posts in the Human Rights Policy Department (HRPD), 3.5 in the Environment, Science and Energy Department (ESED) and 2.5 in the Drugs and International Crime Department (DCID). Many officers, particularly in HRPD, ESED, DCID, combined their UN work with other responsibilities. For example the head of HRPD had responsibility for human rights policy across the board, both bilateral and multilateral. Similarly the Geographical Departments had a strong input into UN decision-making when their

particular country or region was the focus of UN attention.. The UND worked in a "mutual education" process with geographical and functional departments.. Some 8 per cent of FCO personnel were assigned to intergovernmental organisations (IGOs). Subscriptions to international organisations amounted to £79.7 million out of a total financial provision for the FCO in 1988/89 of £725.4 million. The UND did not, therefore, have a central position in the FCO, but there was a trend towards task expansion and a greater prominence for UN questions.

Peace and security

The United Kingdom had three particular concerns in this area: it wished to sustain and expand co-operation between permanent members of the Security Council; it supported the revived UN peace-keeping role; and it wished to protect and put to good use its status as a permanent member of the Security Council. This was one of the few areas of UN activity in which the United Kingdom did not insist upon a policy of zero real growth in financial terms.

- **While there is no pre-ordained mandate for peacekeeping, it is nevertheless imperative to abide by certain principles for the establishment and conduct of peacekeeping operations. First and foremost, lack of co-operation from the parties to a dispute should not be construed as sufficient justification for abandoning diplomacy in favour of force. The United Nations must not jeopardise the safety and ultimate success of an operation for the sake of imposing its will upon the parties. It should only do so once all attempts at a negotiated settlement have been exhausted and even then as a measure of last resort. A shift from peacekeeping to peace-enforcement can prove difficult if not self-defeating. The alternative - relying on a regional organisation to undertake enforcement activities that United Nations is ill equipped to handle - is not feasible.**

  Brazil has differed with some Member States on the desirability of establishing a United Nations rapid-reaction force as a means to overcome the chronic delays that often beset peace-keeping operations, notably in cases involving humanitarian emergencies

that require the immediate presence of UN peace-keepers. Brazil has been reluctant to support the establishment of a force which, although designed for peacekeeping, could possibly be drawn into peace-enforcement, especially in complex emergencies where prevailing conditions verge on chaos.

> **The Brazilian Government has, on the other hand, expressed sympathy for the view that peacekeeping operations have often lapsed into peace-enforcement more through inadequate planning than through a prior commitment to the use of force. We share the concern that a lack of adequate means to fulfil the original mandate may lead the UN and individual Member States to resort to force to ensure compliance with their decisions.**
>
> **Brazil has been consulting informally with a group of Member States known as the *Friends of Rapid Reaction* on developing a rapid reaction capability, within the existing system of stand-by arrangements, for deployment in peacekeeping operations. It is the understanding of the Brazilian Government that such a capability should be used exclusively for peacekeeping.**

Both John Major, and Mrs. Thatcher before him, liked the United Kingdom's status as a permanent member of the Security Council and wished to see it used. The veto was useful on particular issues, but the British made a conscious effort to use their status to facilitate relationships between the five permanent members (P5). An informal amendment to Security Council practice was initiated by the then British ambassador, Sir John Thomson, in the mid 1980s, who, sensing a change in mood in the Iran-Iraq war and in Soviet attitudes towards the United Nations, acted as a catalyst. The idea was that the permanent members would meet before full Council meetings to agree proposals if possible. Thomson talked to his French counterpart with a view to making a joint suggestion for P5 consultation. However, for various reasons of an accidental nature, it was Thomson who made the telephone calls. He did not consult the FCO before issuing the invitations, and his Soviet colleague responded without consulting Moscow. The Chinese

dithered but, in fact, were present at the initial meeting in the autumn of 1986. A second meeting took place two days later, and on that occasion the FCO and the Secretary-General were both informed. The Secretary-General, however, was not invited to join the group. As the initial co-ordinator Thomson (and his successor, Sir Crispin Tickell) briefed the Secretary-General and others, such as the non-permanent members and the non-aligned movement, either alone or with representatives of the other permanent members. The meetings were weekly or even more frequent, depending on items on the agenda. The meetings themselves were informal, of a confidential character, and work, in English, was on the basis of consensus.

Co-ordination rotated on a three-monthly basis: France resisted a "permanent" co-ordinating role for the United Kingdom. The ground rules were that no member should insist on discussing an issue that another member did not wish to have considered. However, any question could be raised. The work, which started at the end of 1986, was on the basis of written documents and came into operation when the Five had a definite objective in mind. It therefore met on demand.. There were also meetings of the five foreign ministers with the Secretary-General - another British initiative. Moreover, it was under British chairmanship in January 1992 that the heads of government of the members of the Security Council met in session for the first time - a meeting that invited the Secretary-General to prepare his *Agenda for Peace*. Reflecting on his experience with co-ordinating permanent member co-operation, Sir Crispin Tickell told a University of Georgia audience,

> Two things are necessary for success. First... is an identification of common interest and political will to construct joint policies based on it. Second is a good relationship between the Permanent and non-Permanent Members: for while the Five can stop anything, they do not, by themselves, carry a majority in the Security Council. You will note an important point: the negative power of the Five has always been vital; but now we are seeing the development of the positive power of the Five, and that may turn out to be more important still.[3]

The retention by the United Kingdom of one of the five permanent

[3]. Crispin Tickell, "The Role of the Security Council in World Affairs," The Sibley Lecture 1989 delivered to the University of Georgia, Athens, 2 Feb. 1989.

seats on the Security Council was in some ways anachronistic in that the United Kingdom's power in the world had declined relative to that of a number of other states since 1945, and the United Kingdom's role had changed with the disappearance of the empire and membership of the European Union (UE). As already pointed out the seat enhanced the United Kingdom's power rather than reflected it, which explained a certain defensiveness in attitudes towards the reform of the United Nations, and in particular the question of the permanent membership of the Security Council.

Nevertheless, the evident strengthening of the European Union's foreign policy and security arrangements over the years and through the Treaty of Maastricht inevitably threatened the right of both the British and the French to their own individual seats in the Council, though the prospect of an UE seat was, of course, still remote. For the time being the common foreign and security policy of the UE and the daily and detailed exchanges of information and co-ordination had induced the British and French to conceive of their role in the Security Council as having an UE dimension, although they were not prepared to accept in the late 1990s that they were UE representatives. Indeed both the Single European Act and the Maastricht Treaty contained clauses which confirmed British and French independence on matters which were on the agenda of the Security Council. They would inform the others about such questions but not be instructed on them.

The general picture was that Britain was reluctantly yielding place to other powers but that this reluctance was not merely a selfish denial. By late 1997 Britain appeared to have accepted without enthusiasm the case for enlargement of the Council to include Germany, Japan and an undetermined number of non-permanent members. Japan had taken the United Kingdom's "second place" in the International Monetary Fund (IMF), and both Japan and Germany had provided high-ranking international civil servants in WHO and NATO respectively. But the United Kingdom was seen as a reliable member of the Council, with a wealth of experience in multilateral diplomacy - more than the US -and first-rate diplomats in New York. It was acknowledged by other members that the United Kingdom (and France) were different from countries such as Germany and Japan. The United Kingdom was a nuclear power and had a global military reach

surpassed only by the United States. Moreover, again like France, the United Kingdom had an inclination to act, which seemed likely to be stronger under New Labour. The United Kingdom could still play an important role in the Security Council: the various inhibitions of other potential candidates in the Kuwait crisis was instructive.

The British were unique in having both a large number of technical skills, in drafting, committee work, and so on, and great ability in the processes of multilateral diplomacy, and in the possession of a world view. The other major states were all deficient with regard to one or other of these criteria. The point was often made that British diplomats were likely to have a contribution to make, in, say, the executive board of the World Bank, or in the Security Council, on a very wide range of issues with a global reference when even the Americans were silent. They were most definitely not the American's poodle, and, as was evident in the diplomacy leading up the Gulf War, often led the Americans at key moments.

- **Brazil has joined the widespread consensus on the need to redress the present imbalance in the membership of the Council. That imbalance is felt in the ratio of developed to developing permanent members and in the ratio of permanent members to the UN membership as a whole.**
  Any increase in the permanent membership should take into account the changes which have taken place in the world over the past half-century. These changes include the emergence of a handful of countries - developed and developing alike - that are capable and willing to contribute to the maintenance of international peace and security. Permanent membership would entail additional responsibilities and costs. Member States with global protection and a willingness to bear those additional responsibilities and costs should be eligible for permanent membership.

The pattern of use of the United Kingdom's veto in the Security Council is clear from table 9.1. Apart from the Suez crisis, it was concerned almost exclusively with southern African questions. Sir Crispin Tickell made a forthright defence of the veto in his Georgia lecture. This illustrates the

British view that the UN worked best if it was led by larger committed states, which were well inclined towards a role of maintaining global order, and equipped with sufficient tangible and intangible resources to make an impact. The big states had to act together but could not be pushed to action by votes against them in the Security Council. The veto was therefore necessary and giving priority to the alternative principle of the equal representation of states in the controlling committee, without regard to their capacity to contribute positively, was likely to lead to sclerosis.

> Perhaps the main strength of the Council is that there is no damned democracy about it. The veto power of the Five Permanent members has always been an essential element... it is vital. First the veto, paradoxically, does more than anything else to ensure that the United Nations bears some resemblance to the real world and it is treated seriously as an organisation. Imagine what would happen if there were no veto. Resolutions of mounting fatuity would be passed, instructing the Permanent Members to do things which they had no intention of doing. Through ignoring these resolutions, the leading countries of the world would soon ignore the Security Council, thereby devaluing not only the Security Council, but the whole UN system.

Over the invasion and annexation of Kuwait the Security Council responded with great vigour and the United Kingdom played a leading role[4]. Success there seemed to some, including US President George Bush, to promise a new world order. But by the late 1990s the Security Council had lost some of the credit it had earned, especially through the faulty mandates of the operations in ex-Yugoslavia. In the years of the waning of Yeltsin in Russia, and post Tianamen Square China, and Right wing republican power in the US Congress, the maintenance of a P5 activist consensus proved difficult to sustain. Mandates were more often fudged, unclear and irresolute. As is seen below problems emerged in Security Council practice: its reform

[4]. Paul Taylor and A.J.R. Groom, The United Nations and the Gulf War, 1990-91: Back to the Future? (London: Royal Institute of International Affairs, Discussion Paper 38, 1992).

to include countries such as Brazil had to be reconciled with a larger agenda of reforms of the central UN system.

Secretary-General, Secretariat, and finance

The UK government's view was that the Secretary-General should act only in a manner complementary to the P5 and not by using Article 99 as a basis for an important and potentially adversarial initiative. The British liked Mr. Perez de Cuellar's combination of third world credentials and Western perceptions - a blend of Hammarskjold and U Thant.. There was also a drawing back from some of the activism of Dr. Boutros-Ghali and an awareness of the tension between the Secretary-General's functions as chief administrative officer of the United Nations, and his independent political responsibilities derived from Article 99, which specifically relate to the Security Council. There was a preference for a more professional mode of appointing the Secretary-General and a sympathy for the one term principle such as had been proposed by senior British ex-UN officials. They had been prepared to approve a renewal of Boutros Galli's appointment, preferably for an agreed "half term". There was some support for the idea of splitting the two responsibilities of the Secretary-General so that administrative questions would be dealt with by a second senior officer.

Table 9.1 Permanent members' use of the veto in the Security Council

	Soviet Union	United States	United Kingdom	France	China
1946	9 (M3)			1	
1947	13 (M7)			1	
1948	7 (M3)				
1949	14 (M9)				
1950	3				
1952	8 (M6)				
1954	4				
1955	17 (M15)				1 (M1)
1956	2		2	2	
1957	3 (M2)				
1958	5 (M2)				
1960	5 (M1)				
1961	7 (M1)				

1962	1				
1963	1				
1964	2		1 (1Rh)		

Enlarged Security Council

1966	1				
1968	1				
1970		1 (1Rh)	2 (2Rh)		
1971	3		1 (1Rh)		
1972	1 (1ME)	1 (1ME)	2 (1Rh)		2 (M1)
1973		3 (1Rh, 1ME)	1 (1Rh)		
1974	1	1 (1SAf)	1 (1SAf)	1 (1SAf)	
1975		6 (M4, 1Nb, 1ME)	1 (1Nb)	1 (1Nb)	
1976		6 (M2, 2ME, 1Nb)	1 (1Nb)	2 (1Nb)	
1977		3 (3SAf)	3 (3SAf)	3 (3SAf)	
1979	2				
1980	2	1 (1ME)			
1981		5 (1SAf, 4Nb)	4 (4Nb)	4 (4Nb)	
1982		8 (6ME)	1		
1983	1	2 (1ME)			
1984	1 (1ME)	2 (1ME)			
1985		7 (1SAf, 1Nb, 2ME)	2 (1Nb, 1SAf)		
1986		8 (21SAf, 3ME)	3 (2SAf)	1	
1987		2 (1SAf, 1Nb)	2 (1SAf, 1Nb)		
1988		6 (1SAf, 5ME)		1 (1SAf)	

Source: Sally Morphet, "The Significance and Relevance of the Security Council and Its Resolution and Vetoes," *Review of International Studies* 16 (Oct. 1990), no. 4.
M = membership veto
ME = veto on Middle East Question associated with Palestine/Israel dispute
Nb = veto on Namibia Question
Rh = veto on Rhodesia Question
SA = veto on South Africa Question

The British had also been concerned with budgetary reform, and strongly criticised the Americans for non- payment. Criticisms of the US failure to pay their share of the assessed budget and the costs of peace-keeping were repeated by the New Labour Foreign Secretary Robin Cook in September 1997, and there was a bad tempered meeting between him and the anti-UN Chairman of the Senate Foreign Relations Committee,

Jesse Helms. The United Kingdom pursued a policy of "zero growth" of the assessed budget in real terms, though accepted increases in peace-keeping funding, but had a good record on finance, always paying its dues, usually at intervals during the year and occasionally earlier in the year if there were special reasons for so-doing. When British arrears arose, as had happened on peace-keeping, these were due to accounting procedures or special problems, such as those involving supplies to operations in the Near East, and were not a consequence of deliberate avoidance. The United Kingdom's policy on finance illustrated its positive attitude -unlike that of the American right wing political group - towards the United Nations and the agencies. But, like the Americans, the United Kingdom insisted that those who paid the piper should call the tune. Sir Crispin Tickell made the point less crudely with reference to the General Assembly.

> One reason for the General Assembly's relative loss of prestige has been the lack of commitment of the industrial countries. This is related to the way in which the budget is decided as a one-man one-vote basis. We should look again at some means of recognising the weight - and corresponding responsibility - of the main contributors. It is no accident that in the UN organs where there is weighting, including the Security Council, things work relatively well. There is also a need for firm budgetary ceilings: in short, each institution and organ should be obliged to choose its priorities[5].

As is mentioned below reform of the budgetary process in the late 1980s had largely restored the leadership role of the main contributor states in the budgetary process both in the central system and the majority of the agencies. This was certainly part of an attempt to wrest political control of the organisation from the numerical majority, to encourage reform in the Secretariat, and to bring about a diminution in anti-Western politicisation of the agencies. Behind British policy was a deep conviction that programmes and resources must be matched and kept under strict political control and that control should be exercised by the few Western countries that funded

5. Tickell, "The Future of the UN."

the UN system.

But after these reforms the problem remained that the agreed sums were not paid, and on this the British and the US were in disagreement. In the mid 1990s the European Union with strong British input took the lead in proposing changes in the sums due from states and new ways of calculating the amount due. In late 1996 they proposed that the US contribution to the peacekeeping budget should be reduced to just over 28% of the total from the earlier 32+%. The US House of Representatives had earlier decreed that it would pay no more than 25%. At the time of writing the bargaining continued with the US administration proposing further economies and a reduced contribution to the regular assessed budget as a condition of returning to full funding. A settlement looked probable and the positive speech by President Clinton to the UN General Assembly on 21st September 1997 pointed the right way. But the budgetary dispute also had a sub-text. Although the British energetically opposed the US methods they accepted that the money must be made to talk[6], which meant retaining control of policy in the hands of the contributor states.

> **The Brazilian Government is presently assessing the implications of a possible increase in its assessed contributions to the regular budget. It is also concerned about a possible increase in its contributions to the peacekeeping budget, which is now almost twice the regular budget. Brazil is concerned about a possible increase in its financial contribution to the United Nations system. As the tenth largest contributor to the regular budget and the largest among the developing countries, Brazil does not favour an increase in its assessed contributions to the regular and peace-keeping budget without being assured a voice in all relevant decision-making bodies. In that connection, it is of special concern that provision be made for Brazil to have a greater say with regard to the launching and conduct of United Nations peacekeeping operations.**
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> **It is the stated position of the Brazilian Government that no**

6. Paul Taylor, "Reforming the System: Getting the Money to Talk," in Paul Taylor and A. J. R. Groom, eds., International Institutions at Work (London: Pinter, 1988).

solution to the financial crisis of the United Nations is possible without a steadfast commitment by all Member States to meet their financial obligations as assessed by the General Assembly. The UE proposal further points out the need to revise the scales of assessment to the regular and peacekeeping budgets as part of a long-term solution to the cash-flow problems faced by the UN. It does not appear to take into due account, however, the need to ensure a steady flow of funds needed for the United Nations properly to discharge its mandate and to carry out its activities to the standard expected. It also fails to acknowledge the direct impact on the financing of the UN of the unilateral decision by the largest contributor to curtail its contribution to the peace-keeping budget by bringing it into line with its contribution to the regular budget, i. e. 25% of the total.

Under the terms of the UE proposal the contributions of the five permanent members of the Security Council would actually be reduced in proportion to the whole. This would be at variance with the principle of the special scale of assessments, which provides that the P-5 should bear a proportionately heavier burden for the financing of peace-keeping operations, in keeping with their special responsibility in that regard. The UE proposal would also, if adopted, preserve for all time the present correlation of forces within the United Nations, as many Member States would be called upon to pay more without necessarily being given an active voice in the decision-making bodies responsible for apportioning the expenses of the organisation (it must be borne in mind, in that connection, that there would be as much as a sevenfold increase in the assessed contributions of some Member States).

The UK and Brazil in regional organisations

The point has to be stressed that by the late 1990s the attitude of the UK towards the reform of the UN was strongly affected by its membership of the European Union. Unlike 1945 arguments about the role of the British

and the Brazilians were crucially affected by their relationship with regional institutions in Europe and Latin America. The situation in 1997 was that the UK and France still reserved their right to decide for themselves on issues which were on the agenda of the UN. Britain agreed to inform the other members of the UE through the machinery in New York but would not be bound by instructions from their partners. This was protected by agreements in the Single European Act and the Maastricht Treaty. Because of the UE's gradual development of stronger mechanisms for a Common Foreign and Security Policy (CFSP) this position was becoming increasingly difficult to maintain by the UK. But it became less important to do so as the CFSP became stronger because the regional context was more likely to promote interests and policies of the which the UK approved and had helped to shape.. Similarly, although the British remained unwilling to renounce their ability to act independently on the Council and to promote its unilateral position in that context, the matter was by no means as sensitive as it would have been if the UE had not existed. Indeed the whole question of German accession to the Security Council as a veto-bearing permanent member was less important to the extent that the strengthening partnership made the precise nature of the Union's representation in the Council less sensitive.

This relative insouciance about the maintenance of the strict forms of national representation in the UN was a reflection of the same changes in attitudes towards the state that by 1997 had made devolution within Britain a rather less sensitive issue than it would have been without the UE. The proposal to grant Scotland and Wales a measure of autonomy in the late 1990s, which was approved by referenda in both cases in September 1997, was less controversial because of the commitment of the nationalist parties to the UE: it mattered less in the context of the superordinate framework.

Some countries sought seats in the Security Council for more traditional reasons. Brazil, for instance, saw membership of the Council as one of the steps in its emergence as a ranking power, a confirmation of status and acceptance by the states that mattered. It saw that membership as confirming its leadership of the regional group of which it was a member, MERCOSUR, which aspired in the late 1990s to emulate the UE. Unlike the case with Britain membership was seen as an aspect of the defining of

Brazilian identity and role in the world and could not be mediated through the notion of an emerging regionalism in Latin America. While British attitudes towards protecting its Security Council position were mixed, it was conceivable by the late 1990s that there could be a regional successor or - more likely - a stronger form of mandating of members by the partners. In contrast Brazil's position was an indication of the weakness of MERCOSUR in that it would help to assert its separate foreign policy identity especially in relation to Argentina. If anything Brazilian membership would challenge rather than enhance regional integration, in that it would increase the status of the biggest regional state at a point in the evolution of MERCOSUR when countervailing regionally located institutions and policy making arrangements were weak.

Although membership was worth noting as a legitimate Brazilian foreign policy aspiration, from the point of view of the reform of the United Nations it was unlikely to be helpful. Brazil could not claim to represent a set of regionally agreed interests, in the sense that they emerged by consultation in a set of legitimate institutions embodying common interests, as with the CFSP of the UE: membership looked like a form of triumphalism in relations with the Argentine. In the arguments for membership the question of the capabilities of Brazil in performing UN tasks got little attention, though there was some reference to the modest involvement of Brazilian forces in peace-keeping: it was more a question of entitlements and claims, entitlements because of emerging national economic strength and claims to be promoting international democracy by representing Latin America more effectively in the UN. Both arguments rested on uncertain foundations: would economic recovery continue? In what sense could Brazil represent other Latin American countries which expressed doubts about its right to do so?

But enlarging the SC to include Brazil raised the issue of whether this was compatible with other aspects of the reform of the UN system. How would this help to solve the problems of the Security Council, which in the late 1990s were judged to include the poor definition of mandates, the production of vague resolutions which were deliberately couched in general terms to facilitate a consensus of members, the problem of mission creep and the difficulty of agreeing to provide enough resources to pay for

the agreed policies. Enlargement was at best irrelevant to these problems and at worse it could exacerbate them: it would be more difficult to reach consensus among a larger number of states which were less experienced in the ways of the UN, and less able to contribute substantial resources. Was it likely that the states which contributed the overwhelming majority of resources for peacekeeping would accept decisions about military activity shaped by the developing countries?

But there was also the problem of the relationship between the SC and the economic and social areas of the UN, which by the late 1990s had become the largest in terms of the size of the institutions and the resources used. As pointed out the main contributor states of the developed world had sought to regain control of the agendas and spending in this area since the mid- 1980s and had largely succeeded. The states that paid the most were unlikely to yield control over the management of development and social issues and dealing with humanitarian crises. How would the work of an enlarged Council fit in with reforms of the Budget and the management of the system which had been intended to reinforce the leadership and responsibility of the main contributing states? If the SC enlargement meant the real enhancement of the power of the new states, such as Brazil, there was the real danger of new problems with regard to the overall management of approaches to the complex crises of the late 1990s which inevitably required the co-ordination of peace-keeping activities, political activities, development activities and humanitarian activities.

On the one hand would be an institution, the Security Council, with an influential representation of the poorer, other ranks, states, and on the other hand a related machinery dominated by those states which paid the piper, which could include some elements of the Security Council machinery, but also the machinery of the specialised agencies and the funds and programmes such as UNHCR, WFO UNDP and the successor to DHA. There would in these circumstances be the danger of lessening the chances of agreeing a well formulated comprehensive mandate to cover the whole range of related sectors of activity. From the point of view of the United Nations system the conclusion was hard to avoid that it was better if the enlargement of the Security Council was confined to states which had sound

regional backing and disposed of substantial resources for investment in UN activities. In the late 1990s the priority of Brazil should be the further development of MERCOSUR arrangements, especially the institutionalisation of its policy management procedures, and the development of the economy of the region. Security Council membership would be a natural extension of these developments, rather than something which could get in their way.

British involvement in the agencies and programmes

The government of a country such as Brazil, which was seeking membership, possibly permanent, of the Security Council, should be reminded of the pattern and intensity of involvement of one of the older, if declining members. This illustrates the kind of performance which could be expected in this position, and, though it cannot be answered here, invites the question of whether the candidate state could match that performance in the range of institutions of the UN system.

At the operational hub of British policy towards the agencies was the UK mission in Geneva, though of the four principal agencies, two were not situated there, UNESCO being in Paris and the FAO in Rome. The Geneva mission had an ambassador with more than 30 staff, together with a separate ambassador and staff for the on-going disarmament negotiations. In so far as relations with London were concerned, the mission dealt directly with the key people on technical and functional matters in Whitehall, depending on which home department had the lead. However, on administrative and personnel questions the mission worked through the UND in the FCO.

The New Labour government announced its intention of rejoining UNESCO immediately after its success at the polls on 1st May 1997. The work of the organisation was monitored during the period of British absence and the old British National Commission for UNESCO remained in informal contact. The FAO, in Rome, was another agency about which there were some doubts while it was under Mr. Sauma; on this they were at odds with the French. British withdrawal was never an immediate option, though concern was expressed about the agency's lack of transparency, its failure

to reform its budgetary procedures, and its unwillingness to acknowledge the need for reform. Nevertheless, Britain, with the United States, Germany, Australia, New Zealand, and the Scandinavians, constituted an informal reform group. Through the so-called Gatwick group an internal opposition to Sauma was organised by officials from these countries.

The British considered that the ILO, of which the United Kingdom was a founder member, had not been sufficiently well managed in recent years from an administrative point of view, although the political skills of the former director-general, Francis Blanchard, were appreciated. The Thatcher and Major administrations did not however pay a great deal of attention to the ILO's condemning Britain for ignoring a number of its conventions, and there was indeed a tendency for the Conservatives to be contemptuous of international standard setting in social areas. In particular limiting the rights of labour to union membership was a bone of contention. A major issue was the question of the Government Communications Headquarters (GCHQ) where the government banned trade unions on security grounds, contrary to the principles of the ILO. The British government's view was that ILO Convention 87 on freedom of association made exceptions for military or police work, and that the associated Convention 151 similarly exempted those doing work of a highly secret or confidential nature. The use of a Special Paragraph to condemn Britain was, in the government's view (but not in that of the British Trades Union Congress), inappropriate. The 1988 Trades Union legislation in the United Kingdom was also criticised as being contrary to ILO principles. One of the first acts of New Labour in May 1997 was to restore the right of the GCHQ officials to membership of a Trade Union subject to a no strike agreement.

Despite these problems for the most part the United Kingdom's image was a good one in the agency. This was hardly surprising since the ILO was a very Western organisation in philosophy and rationale: it was set up to counter the siren calls of Bolshevism to Western workers after World War I. The ILO, like the League, set up "embassies" after its formation, and these included one in London. Others were in Washington, Ottawa, Paris, Bonn, Ankara, Rome, Brussels and in South America. In London the office had a staff of eight, of whom two are professionals. There was "daily"

contact with the International Department of the British Trades Union Congress (TUC), which acted as a conduit to the organisation. Relations were good since the TUC saw the ILO as being on "its side." Regular contacts existed with the CBI, which was generally supportive of the ILO. While the CBI sent good delegations to ILO meetings, it could not be said to exhibit great enthusiasm for the agency. In addition, the London office facilitated the agency's reach into other areas of British society such as multinational corporations and the academic world.

The ILO made considerable use of British experts - some 30-40 per cent of the total being British. The reasons for this were the English language and their extensive knowledge of the Third World. Britons also tended to be cheaper in the sense of being a better person for the money, less political than the French, and less suspicious than the Americans. Most of the recruiting was done from Geneva, but the London office assisted and some use was made of the Overseas Development Administration's International Recruitment Unit. In addition, a similar proportion of all ILO-sponsored trainees came to the United Kingdom. The benefits to the United Kingdom were obvious and give it a considerable stake in the organisation - often financed by the voluntary contributions of others. The Scandinavians complained about this. This pattern of benefits accruing to the British that exceeded contributions was also apparent in other agencies and programmes.

The British position was strong in WHO, with a seat on the executive board (except every fourth year) and over-representation of nationals in the secretariat, especially at higher levels, which was likely to continue because of good scientific and technical backgrounds and salaries that were attractive to Britons. British delegations, too, were of high quality and had the reputation of being "real internationalists," who played fair and accepted the rule of law and majority rule. They were also valued for exerting a moderating influence on the United States in the Geneva Group. In its relationships with the United Kingdom, the WHO worked through the Ministry of Health and the Overseas Development Administration (ODA). The relationship was felt to be an easy and friendly one.

The United Kingdom was traditionally concerned with the definition and promotion of human rights and, despite increasingly restrictive asylum

policies, was active with regard to refugee issues in international institutions. The government paid a significant amount of attention to the Third Committee in New York and the Human Rights Commission and Sub-Commission in Geneva. It sent large delegations to human rights meetings, made up of individuals from the missions in Geneva and New York and from London, and fairly big delegations to meetings on refugees, drawn from the FCO, the ODA, and the Home Office. The UND usually had a co-ordinating function. The United Kingdom was a permanent member of the executive committee on the UNHCR, to which it was, in British terms, financially generous. The United Kingdom played a leading role in the Humanitarian Liaison Working Group, which was mainly concerned with the sharing of information, and had developed a capacity for a rapid national response to rapid onset disasters and complex emergencies. In the late 1990s the new Labour government seemed to be opting for a more liberal policy on admitting refugees- it was certainly under pressure to do so. On both refugees and human rights the main caucusing group was a broad Western one with increasing co-ordination through UE mechanisms. The member states were committed to develop common asylum and visa policies, though the United Kingdom had some reservations about this.

The British position under the Conservative administrations was that in general the "basis is now firmly set" in so far as universally recognised standards were concerned and that "Our principle [sic] task now must be the implementation and maintenance of existing standards[7]." In this the United Kingdom generally sought to be diplomatic in presentation, first giving private warnings, for example over human rights violations in the Israeli occupied territories. The United Kingdom's approach was not therefore conceived as adversarial. But the Conservatives' quiet approach was however increasingly out of line with the new and more proactive cosmopolitanism of the United Nations after the ending of the Cold War. Robin Cook, the Foreign Secretary under New Labour, made it clear very quickly that Britain would actively pursue a moral agenda in its foreign policy. Immediately questions such as the legitimacy of supplying arms to

[7]. Speech by Tim Eggar to the UN Commission on Human Rights, Geneva, 7 Feb. 1989, London Press Service, COI, 10 Feb. 1989.

regimes with poor reputations on human rights acquired new significance.

British Overseas Aid through the UN system amounted to about 8 per cent of the total and roughly a fifth of British multilateral aid, the rest going through other IGOs, such as the UE and the Commonwealth, while the bulk of it (60 per cent of all British aid) was bilateral. The Overseas Development Administration was the principal body involved in British aid policy before 1997 and it was a part of the FCO. Under Labour governments it had often been a separate ministry, the main consequence being the enhanced status of the minister. The ODA had parallel structures with the FCO, but it controlled its own funds. After 1997 aid questions were likely to have greater salience for a Labour government, since New Labour created a Department of International Development of which the Minister, Clare Short, was in the cabinet[8]. The ODA was separated from the FCO, and British delegates and missions to various international organisations would, in appropriate cases, come from the new department. Labour changed the word "aid" to "development" and emphasised co-operation to indicate that development was between equals on a reciprocal basis. The new Government also signalled it intention of reversing the decline in the value of British aid in its GNP and striving to reach the.07% target of the UN Development Decade agreements.

The ODA had been the lead department in Whitehall for several of the UN agencies and programmes, apart from the ILO and WHO, although the UND in the FCO had responsibility for general matters such as membership of the governing councils or the election of new agency heads. This sometimes led to disagreement, with the ODA taking a pro-United Nations line not always congenial to parts of the FCO. The ODA had dealings with seven agencies, including UNIDO. The representative in Rome and to the Banks were ODA staff. In appropriate cases they were the Geneva Group participants for particular organisations. The United Kingdom had good relations with most ODA-linked agencies.

The United Kingdom, as the home of many NGOs concerned with matters falling within the remit of the ODA, was subject to pressures from

8. Labour Party publication B/008187.

such bodies. However, this occurred on an ad hoc basis apart from contacts with the NGO meetings in Geneva and elsewhere. There was no central point of contact, as, for example, in Canada. Alongside the bilateral and multilateral aid there was an ODA-NGO co-financing scheme and the ODA was the major financier of the old British Volunteer Programme, made up of Voluntary Service Overseas, the UNA International Service, the Catholic Institute for International Relations, and the International Voluntary Service. Moreover, the ODA consulted NGOs on questions such as women's rights, volunteers, and medical questions. The ODA was also lobbied by NGOs, often to put pressure on IGOs. Parliament, however, was interested in the ODA only when there was a major dispute such as over UNESCO. Thus, despite many British NGOs in the ODA area, they did not constitute a major lobby on the government, which was reasonably untrammelled in its pursuit of policy. This was the case even in such a dramatic instance as the withdrawal from UNESCO.

On humanitarian crises Britain had supported the creation of the Department of Humanitarian Affairs, and had established its own rapid response teams both as regards complex emergencies and rapid-onset natural disasters. Bilateral support was generally through the ODA. British based NGOs such as Save the Children and OXFAM had also become major players in this area. They relied for their finance on voluntary funding: around 30% came from official sources, whereas in the US NGOs generally got around two-thirds of their funds from the Federal Government.

The Reform Process in the economic and social arrangements of the United Nations

Candidate states such as Brazil should also be reminded of the direction of evolution of the economic and social arrangements of the United Nations system, since they increasingly facilitated the wish of the main contributing states to exercise leadership. Indeed in this area the reform process was pushed mainly by the developed states, in particular the members of the European Union. The intention was that the developing states should be placed under pressure to accept approaches that were acceptable to the developed states in the new framework. A state such as Brazil, given its

relative economic status, would find itself marginalised in this context even as a permanent member of the Security Council.

In the 1990s the attempt to reform the UN's economic and social arrangements was pushed very strongly by the British and the other members of the UE. This had been a long -standing interest of the British and they continued to lead, involving the other members of the UE as the CFSP procedures were consolidated. For many years attempts to reform the arrangements had foundered but, in the 1990s, with regard to the mechanisms if not the resources, there seemed to be real progress for the first time. The reforms should be regarded as primarily a British achievement.

They were at two levels: first, those at the general or headquarters level, especially as regards the role of the Economic and Social Council (ECOSOC); and, second, those concerned with operations in the field within the developing countries. In both cases the reforms were included in a series of key resolutions approved by the General Assembly between 1992 and 1996, namely A/47/199, A/48/162, A/50/120 and A/50/227, in all of which the British played a key role. The origins of the new phase of reform may be traced further back to the Secretary-General's report on economic and social matters in 1990 (A/45/714), which followed the failure of the Special Commission in 1987 and 1988[9].

A key feature of the reforms at the field level was the adoption of Country Strategy Notes[10]. These were statements about the development process tailored to the specific needs of individual countries, which were evolved on the basis of discussions between the Agencies, Funds and Programmes, donors and the host country. They were described in 1996 as a *tour de table* of the plans of the various involved institutions and governments[11], but had the potential for development into something closer to indicative planning. The UNDP played a key role in instigating the process of formulating such a Note. They were identified as being the property of

9. See Paul Taylor, International Organisation in the Modern World, loc. Cit., Chapter 5.

10. Set out in A/47/199 at para.9, and frequently alluded to in the later resolutions.

11. By an official, Danish mission to the UN, September 1996.

the host country, and had the obvious merit of setting out targets, roles and priorities.

The role of the UNDP Resident Co-ordinator as the responsible officer at the country level was also to be reinforced, with greater care to be taken about the selection of officers, and providing any necessary training for them. This was another feature of the reform process: increased concern with professionalising the way in which services were provided in this area, as in the area of humanitarian crisis responses, and the management of peace keeping. The pace of change with regard to such reforms had accelerated remarkably quickly since the end of the Cold War in 1989. In the 1990s major steps away from the earnest amateurism of the earlier generation had been taken. There was an increasing professionalisation of international organisational service providers which involved the agreeing and monitoring of standards of performance. In this the continuing complaints of NGOs about poor IGO performance in the field had often been a powerful stimulus for reform[12].

Because of these changes it looked as though by the 1990s the task of the UNDP Resident Co-ordinator of promoting enhanced co-ordination between participating actors in countries had been made much easier than it had been earlier. This was combined with better selection procedures and training for the officers themselves. Certainly their reputation was higher than in the past. The UNDP Resident in Palestine had become a major channel for funding into the area, and the UNDP Capital Development Fund had been used by the World Bank as the pilot for larger scale investment. In Ghana a UNDP administered $50,000 project in local development had led to a well reported large- scale tourism development programme. It was agreed, however, that UNDP needed to be involved operationally only to the extent necessary to get larger programmes off the ground. Some thought this should be the model for the rest of the UN system!

Nevertheless this was only a part of the story. Supporting changes were also required at the general or headquarters level if the role at the

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12. See Paul Taylor, "Options for the reform of the international system for humanitarian assistance," in John Harriss, The Politics of Humanitarian Intervention, Pinter and Save the Children, London, 1995.

country level was to be effective. At the global level attempts were focussed upon the reorganisation and rationalisation of the work of the Economic and Social Council (A/50/227 section IV). The Council was to hold a single substantive session each year in New York instead of the two held hitherto, one in New York and the other in Geneva. It was to be divided into three primary segments, called High level, Co-ordination, and Operational which were to meet over a period of 4-5 weeks. The High level segment of 4 days was to discuss general questions of policy and it was expected that the shorter sessions would facilitate attendance by more senior government representatives, and Agency heads, who would have authority to commit their governments and institutions to action in the chosen areas. There remained, however, a suspicion that the way topics were chosen for High Level Segment discussion needed further consideration: there was scope for states and agencies to indulge in political manipulation in the preparatory meetings to choose topics which they found less awkward. It was reported that the 1996 segment on Narcotics had been a success. It was also pointed out that the increasing public awareness of global problems, which had been stimulated by the global conferences, made it more difficult for Governments to ignore such meetings.

The meetings of the Co-ordination Segment were to have multi-annual Programmes of work to look at cross-sectorial and common themes in the work of so called functional commissions. These were themes which cut across, or were common in, the sectors of work of global conferences. Each of the global conferences, which had become a routine feature of international society since the 1970s (though with an increasing number in the 1980s and 1990s) - Population in Cairo, Women's interests in Beijing, Human Rights in Vienna, Environment and Development in Rio de Janeiro etc. - had been linked with a functional Commission[13]. In July 1996 there were nine such Commissions, the members of which were chosen by the plenary meeting of ECOSOC to represent the various self-identified groupings of states. A common number of members was 53.

The programmes of work were derived from the agreed conclusions

[13]. Commissions were first created in the 1940s; they were only later attached explicitly to global conferences and their number then increased.

of the global conferences: themes were identified and related to specific proposals for action. The work of the Commissions also helped to identify issues to be considered at the review conferences which were to be held in relation to each of the major global conferences, usually five years after the first meeting. A series of Working Groups were also set up to pursue more co-ordinated strategies in specific areas of work, such as the Aids Programme. In 1996 attention was focussed upon the further rationalisation of the relationship between the General Assembly, the functional commissions and ECOSOC. It was agreed that the functional commissions should concentrate upon their particular specialised sectors of activity, but that attention should be given to eliminating any overlap or duplication in their areas of concern. The General Assembly was "to consider and establish the broad policy framework, the Council was to integrate the work of its functional commissions, to provide guidance to the UN system on co-ordination, issues, and to support the General assembly in its policy role."[14] How was the Council to realise this laudable, if vague, ambition?

The theme of ECOSOC's greater assertiveness was reflected in a new way of agreeing the respective agendas of ECOSOC and the General Assembly, which was so devised that the Assembly would not repeat work done by ECOSOC, and the executive responsibility of ECOSOC in a framework of overall General Assembly policy supervision would be respected. Annexe 2 of 48/162 established a procedure for agreeing a draft programme of work of the General Assembly's Second Committee with the assistance of the bureau of the Council, and once agreed, this "*should be changed only in extreme circumstances [my italics].*" This effort to rationalise the agendas of the General Assembly's Committees in relation to the ECOSOC was taken further when it was agreed in Paragraph 21-24 and Annex 11 of A/50/227 that the agendas of the Second and Third Committees of the General Assembly should have "greater coherence and complementarily", a goal supported by the agreement that issues of a procedural nature should be taken by *decision* rather than resolution. This was evidence of an attempt to achieve a more rational and effective relationship between ECOSOC, the Assembly, and its committees. ECOSOC

[14]. Economic and Social Council, General Segment, Background paper on the harmonisation and co-ordination of the agendas and multi-year programmes of work of functional commissions of ECOSOC, E/1996/CRP.4, 10 July 1996 Para 6.

had significantly increased it power over the agendas of the 2nd and indirectly of the 3rd committees of the Assembly. The language used in 48/162 and 50/127 was altogether more positive and authoritative than that in earlier resolutions, and, indeed, in the Charter. ECOSOC's leading role in the co-ordination of the system was asserted and it was correspondingly more assertive. There was evidence by the autumn of 1996 of a rapid increase in the number of conclusions in the form of *decisions* taken by ECOSOC which were more often linked with more concrete proposals. An official reported that the change in this direction had begun in 1994.

The European Union and the United States also pressed for adjustments in the divisions of the Secretariat concerned with economic and social work. They proposed the merger of the three existing divisions, Sustainable Development, Economic and Social Information and Analysis, and Development Support and Management Services. They also argued for placing this work in the charge of a new Under-Secretary General who would act as Executive Secretary of ECOSOC, and thus strengthen the Council's policy formulation and co-ordination role. The new officer would also pursue the reform process in collaboration with the heads of Agencies, reducing overlap in mandates, abolishing redundant organisations, and generally enhancing effectiveness and efficiency. The appointment would also "advance the rationalisation of UN economic analysis and reporting and maintain a clear oversight in respect of UN funds, Programmes and Agencies while respecting autonomies and competencies." (UE Presidency letter, loc. cit. P 5.) The Union also backed the proposal made in 50/227 of 1 July 1996 to review the "mandates, composition, functions and working methods of the Functional Commissions and expert groups and bodies with a view to ensuring more effective and co-ordinated discussions and outcomes of their work."

The structure of the segments was of the greatest importance.. Within them the heads of Agencies were brought into close consultation with the main donors and beneficiaries about the programmes for action, which were now increasingly derived from the Global Conferences, and carried forward by the respective Global Commissions. In the co-ordination segments the donors, the heads of the Agencies and the ACC, as well as the Secretary General, the members of the Committee and Programme and Co-ordination

(CPC) and the beneficiaries were present. This meant that decisions about money were now to be taken in the context of decisions about policy. Agencies were made more aware of a need for good performance with regard to collectively approved programmes. And they were also made more clearly subject to inspection and monitoring by the bodies that took the initial decisions about money and policy. In other words the Agencies were brought to realise that fitting into the system was necessary in order to maintain budgetary provision. The new arrangements had the effect of making it politically in the interest of the Agencies to become system orientated. In this way the multilateral system was adapted to enhance actor compliance.

An alternative way in which the British sought to engage the UN system more closely with current major world problems was by getting them onto the agenda of the Security Council on the grounds that they were matters that affected security, at the same time as removing from the agenda some of the long-standing non-active issues. Sir Crispin Tickell tried to get environmental questions onto the agenda of the Security Council, and also the question of drugs, but failed on both counts. He summarised the situation regarding ECOSOC at a meeting on 6 July 1989:

> There is still lack of direction in the Council's work; still sterile repetition of work done elsewhere; still too many people working at high cost on problems which are marginal; still lack of action in the critical area of co-ordination between the work of the central organs of the United Nations and the Specialised Agencies, and between the work of the Specialised Agencies and the subsidiary bodies of this Council... [P]rogress, albeit modest so far, has been made. The working methods of the Council have improved... and we have introductory key themes to give Council deliberation sharper focus. This is a good beginning... I should underline that our overriding concern is not to look for financial savings, but to make ECOSOC an efficient and effective member of the United Nations family of institutions at a time when the prospects for the United Nations look better than they have been for over 40 years.

Expanding the area of responsibility of the Security Council could

have major benefits at the expense of a further centralisation of power and enhancement of the position of the permanent members. For instance it would assist the process of obtaining coherence and consistency between the policies and activities of the various institutions of the UN system It would help to eliminate some of the inconsistencies and contradictions, for instance between environmental legislation, as with the Multilateral Environmental Agreements, and the free trade stipulations of the World Trade Organisation. It could also be linked with an enhancement of the role of the ICJ to maintain judicial supervision over its various decisions in ensuring such coherence and consistency. This obligation would be placed on the Security Council.

The United Kingdom in context

The United Kingdom had a service role in the UN that was a product of its competence in diplomacy, its command of the issue, its global reach, its skill in drafting in the major international language, and by 1997 its absence of threat - actual or structural - simply by not being a superpower. But these qualities were also explicable partly in terms of the range of ties to which Winston Churchill had alluded in his claim that Britain was at the hub of three overlapping circles, the US-Soviet relationship, the great power relationship of continental Europe, and the British Empire. Perhaps in those days, when the United Kingdom was still acknowledged as one of the Big Three, the notion was that of a directing role. Now the role was one of servicing derived from being historically relevant, competent, acceptable, and in place.

The United Kingdom was not America's poodle, and the special relationship was less visible but still very much relevant as something that could be rapidly reactivated in practical terms. The US and the UK continued a special relationship in intelligence matters. However, in the last decade other powers had on occasion used the United Kingdom as an advocate with the United States, while the United Kingdom, for its part, had usually used its influence with the United States and its ties with and knowledge of others to moderate US policy in and towards the UN system. This dimension was well understood and appreciated, and it followed essentially from the

fact that the United States was a curious giant that was often unwilling or unable to lead because of a lack of will or policy. Any account of the diplomacy of the Gulf war brings out this point. It is important because it leads to the conclusion that the US in the UN has to be surrounded for its guidance by mature and experienced partners with resources that command respect. An argument against expanding the Security Council to include less experienced and capable states is that they would muddy the process of persuading the United States to act in the general interest.

The Commonwealth tie as a unique British asset in the UN was less well understood and appreciated. The Commonwealth was not only the Commonwealth heads of government meetings (CHOGMs) and an association of independent states but also a vast transmission belt for the flow of ideas and people as well as of goods and services. Intergovernmental ties were buttressed by well over 200 Commonwealth INGOs. The system was more than it seemed at first sight[15]: it meant that Britain was at the centre of a vast international civil society through which influence could be informally transmitted. And it was, in so many ways - economic, political, and social - an exemplar for the UN system. Commonwealth ties in the UN system amounted to a bridge between North and South and between regions on different continents on a basis of mutuality and equality. The United Kingdom, the Commonwealth Secretariat, and a variety of its members performed a servicing role for other Commonwealth countries which made up nearly a third of UN membership. It was a role that was of great benefit to the United Kingdom and the countries concerned, but also to the UN system. The United Kingdom had been repaid, for example, through Commonwealth support on the Gibraltar, Belize, and Falklands questions. A surprising number of Commonwealth countries had seen these situations not as expressions of British imperialism but as contexts of self-determination in which the right to remain with Britain could be asserted as readily as the right to independence. British governments and officials had tended to undervalue the Commonwealth after the 1960s, and past Labour governments had attempted to abandon non-governing territories to a

15. See A. J. R. Groom and Paul Taylor, eds., The Commonwealth in the 1980s (London: Macmillan, 1984), and A. J. R. Groom, "A Commonwealth for the Twenty-First Century?" Kent Papers in Politics and International Relations, Senes I. no. 5 {1 9978.

notional independence too readily. But it remained a major asset for British diplomacy.

As already pointed our the United Kingdom's European dimension was now well-developed and no longer seriously in question. Britain's policy everywhere was permeated by information, ideas, and pressure from the constant interaction in UE bodies, and the more so since the entry into force of the Treaty of Maastricht, with its strengthened provisions for political co-operation and a common security and foreign policy. Visibly this took the form in the UN system of caucusing through UE mechanisms and speaking through the UE Presidency in the General Assembly and other parts of the system. During meetings of the General Assembly, the 17 UE countries held daily meetings in New York. An UE secretariat had been established in New York in 1995. The United States did not caucus in the same manner and, therefore, British ties with the United States were useful as a link with the caucus in question or through the Western European and Other Group.

Broadly speaking the UE was more likely to have a common position and to be proactive on economic and social questions, though political and security issues were increasingly of common concern. In Security Council affairs, the P5 caucus played an important role for the United Kingdom; in Specialised Agency matters, the Geneva Group, of which the United Kingdom and the United States were co-chairmen, was a crucial caucus. There were weekly meeting of UE experts and bimonthly UE ambassadors' meeting in Geneva. In a number of international institutions the UE countries were represented through the Commission. This was the case with the new World Trade Organisation, and, if monetary union went ahead in the late 1990s, the Commission together with the new European central bank would represent the UE in the International Monetary Fund. Change indeed!

The UK Political parties and the UN

The UN Charter begins with the words: "We the peoples of the United Nations...," but the rhetoric was belied by the predominant role played in the system by the governments of member states. Nevertheless, governments and international institutions were subject to influence by other

actors, be they other political parties, NGOs, IGOs, or INGOs. And this was particularly the case in liberal parliamentary democracies such as the United Kingdom. Although Parliament had an All-Party Committee on UN Affairs, the UN system did not generate much activity or excitement except when a major issue emerged, as with the decision to withdraw from UNESCO. Although the political parties made mention of the United Nations in their manifestos and there was a flow of written questions on UN affairs, the interest was minimal. The FCO sponsored the visit of six MPs to the United Nations in New York each year, and MPs were occasionally to be found in British delegations, but such activities were best classified as routine. Labour, "Liberals," and the Tory "Wets" tended to be UN-minded, but the radical right-wing Thatcherite Tories were not at all so inclined.

The Labour Party had international co-operation written into its constitution, which stated that the Party would:

> Support the United Nations Organisation and its various agencies, and other international organisations for the promotion of peace; the adjustment and settlement of international disputes by conciliation or judicial arbitration; the establishment and defence of human rights; and the improvement of the social and economic standards and conditions of work of the people of the world.

Labour set store by the United Nations' contribution to peace and progress, though it was admitted that "Not everything the UN does is successful, but the world would be a much more dangerous place without it." The New Labour government took Britain back into UNESCO without any conditions being set. Indeed, Labour pledged itself to play a "full part" in the United Nations as a whole[16]. British aid policy under Labour tilted more towards multilateral aid, since this was considered to have less of a neo-colonialist aspect. New Labour shared much with the preceding government in this area. It was strongly in favour of the continuation of the British role in the co-operation between the permanent members of the Security Council. Indeed, the Labour Party was keen to use British

[16]. Labour Party publication L/138/86.

membership of the Security Council, as well as that of the UE and the Commonwealth, for positive purposes. Certainly, Labour would resist any challenge to Britain's position as a permanent member of the Security Council, although it would not necessarily oppose an extension of permanent member status to others. Labour would encourage the Secretary-General to be interventionist and to give his special envoys an element of leeway. On the agencies, Labour took a more relaxed attitude than the preceding government, while remaining determined to obtain value for money and, where necessary, pressing resolutely for reform.

Conclusions

In the late 1990s the United Kingdom was privileged in the UN structure, in that its ranking in the company of states was enhanced rather than reflected by its membership of the Security Council. But its assets, which were an inheritance from its earlier position, permitted a considerable contribution to world order through the world organisation. Even its overlarge army, increasingly lacking a traditional role, could be useful in that it could find gainful employment in UN peacekeeping activities. It was still at the centre of a global system of governmental and non-governmental organisations, and possessed a rich array of formal and informal connections. But it was increasingly a part of Europe through the European Union and the circumstances of this regional involvement were of crucial importance with regards to the argument in favour of its continuing role in the Security Council. There was no difficulty in the assumption that if necessary Britain - and France - could speak for the partners, and this should be contrasted with the situation for Brazil with regard to MERCOSUR.

From the point of view of many Western governments there was an expanding agenda of global problems in the late 1990s, including international crime and terrorism, global warming and other environmental threats, drug trafficking, and complex humanitarian crises in Africa and elsewhere, in addition to more traditional threats to international peace and security. There was thus a need for some form of global problem-solving or, failing that - and in many governments' perceptions, prior to that - a need for global riot control. Either way, salience was given to the UN system,

and this gave added point to the United Kingdom's privileged position. But the government needed to respond by further loosening its purse-strings on questions such as the environment. There was a long way to go, because Third World countries were suspicious that riot control measures may be applied against their interests. Moreover, their priorities on a number of the problems differed from those of the developed countries. It was a challenge to the new British Labour government to use its assets to ensure that its assets were use to ameliorate the range of these problems in the general interest and not to act just on its own account. But the case for a continuing British membership, either in itself or through the UE, was powerful, and candidate states such as Brazil should be well aware of the enormity of the tasks that lie ahead, the scale of the responsibilities incurred, and the special strains that could be placed on their resources if they were effectively discharged.

Chronology Brazil - United Kingdom Relations

Paulo S. Wrobel[*]

Independent Brazil inherited the close relations established between Portugal, Britain and Colonial Brazil. Portuguese-British relations dated from the fourteenth century, and a series of treaties, beginning in 1642, established English privileges in Portugal and Brazil. In 1654 English merchants were granted the right to trade with Portugal's colonies, including Brazil, as long as their ships accompanied the Portuguese fleet. In 1661, they were granted permission to reside in Bahia, Pernambuco and Rio de Janeiro, along with the Dutch and the French. By the end of the eighteenth century, especially from 1780 onwards, the expanding Brazilian market for manufactured goods was supplied by British manufactures.

During the Napoleonic Wars, Britain was Portugal main ally, and since 1801 the British Foreign Secretary gave guarantees of support if the plan to move the Portuguese court to Brazil went ahead.

- November 1807: the Portuguese court prepare to leave Lisbon to Rio de Janeiro in the even of Napoleon invasion of Portugal. On 29 November, one day before the French arrived in Lisbon, the Portuguese court, accompanied by between 10 and 15,000 people sailed to Brazil, escorted by four British warships.
- 22 January 1808: the Portuguese court arrived in Bahia, escorted by the British navy.

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- 28 January 1808: under British pressure, actually part of a secret convention concluded in October 1807, it was announced that the Prince Regent of Portugal, Dom João VI was opening Brazil's ports to direct trade with all friendly nations. This act was the end of a 300-year-old monopoly of colonial trade and the elimination of Lisbon as an entrepot for Brazilian imports and exports.
- 7 March 1808: Portuguese court arrived in Rio de Janeiro. Trade between Britain and Brazil increased fourfold in 1808 and by August there were 150-200 British merchants and commercial agents in Brazil. As the British Foreign Secretary George Canning had anticipated? Rio de Janeiro became "an emporium for British manufactures destined for the consumption of the whole of South America"
- June 1808: Hipólito José da Costa, a Brazilian politician and journalist begins to publish in London the influential liberal newspaper Correio Braziliense. It was published until 1822.
- February 1810: Treaty of Navigation and Commerce, and a separate Treaty of Alliance and Friendship, were signed between Portugal and Britain. British merchants were formally allowed the right to reside in Brazil and to engage in the wholesale and retail trades. The British government was also given the right to appoint judges conservators for dealing with cases involving British subjects in Brazil. A maximum import duty of 15 per cent on British goods (compared with 24 per cent for others) was also part of the treaty. Slave trade was restricted to Portuguese territories.
- 1812: John Mawe, English naturalist and mineralogist, publishes, In London, "*Travels in the Interior of Brazil, Particularly in the Gold and Diamond Districts of that Country, by Authority of the Prince Regent of Portugal*". He was the first foreigner to be granted a license to visit the mining areas of Minas Gerais.
- 16 December 1815: Brazil was raised to the status of kingdom - equal with Portugal.
- 1810-19: Robert Southey publishes "*History of Brazil*", the first general history of Brazil during colonial times.
- 1816: Henry Koster publishes, in London, "*A History of the Brazil*"; comprising its geography, commerce, colonisation, aboriginal inhabitants etc...

- 26 April 1821: Dom João VI, together with around 4,000 people, returns to Portugal transported by the British navy. While he remained in Brazil, Portugal was governed by a Council of Regency, presided over by an Englishman, Marshal Beresford, who after the end of the Napoleonic War remained the Commander in Chief of the Portuguese Army.
- September 1822: Brazil declares its independence from Portugal under Emperor Dom Pedro. Brazilian population was between 3 and 4 million.
- 13 March 1823: Lord Cochrane arrives in Rio de Janeiro from Chile, bringing with him several other English officers who had served with him in the Pacific, and set about organising a small Brazilian naval squadron for the blockade of Bahia, which remained under Portuguese control
- 2 July 1823: under attack from Lord Cochrane, the Portuguese evacuate Bahia and the Brazilian forces enter the city.
- 26 July 1823: Lord Cochrane persuaded the small Portuguese garrison at São Luis to surrender.
- 13 August 1823: Lord Cochrane's second in command, Captain John Pascoe Grenfell secured the submission of Portuguese loyalist elements in Belém.
- September 1823: George Canning agrees with Portuguese request that Britain mediates between Portugal and the recent independent Brazil.
- July 1824: talks between Brazil and Portugal open in London sponsored by Britain and Austria.
- 1824: Maria Graham publishes, in London, "*Journal of a Voyage to Brazil and Residence there during part of the years 1821, 1822, 1823*".
- 1824: Edward Oxenford, an English merchant, obtains the first mining concession granted to a foreigner and formed in London the Imperial Brazilian Mining. Association (the new Brazilian Constitution of 1824 made the entry of foreign capital into Brazilian mining a legal possibility for the first time in Brazilian history.
- 1824-25: Brazil floats its first public loan in London - £ 1,333 million - to pay for the costs of independence.
- February 1825: talks in London between Brazil and Portugal broke down.
- 1825: Sir Charles Stuart sent on a special mission to Rio de Janeiro to negotiate an Anglo-Brazilian commercial treaty. He was empowered to

negotiate on behalf of Portugal as well.

- 29 August 1825: Stuart signed the treaty by which Portugal recognizes the independence of Brazil. Brazil agrees to pay Portugal a compensation of £2 million, £1.4 million of which was earmarked to repay a Portuguese loan floated in London in 1823, to cover the cost of the campaign to restore Portuguese authority in Brazil
- 1825: Brazil floats £1,4 million in London to pay the Portuguese indemnity.
- January 1826: Britain formally recognizes the independence of Brazil when Manuel Rodrigues Gameiro Pessoa was received in London as Brazilian Minister. Robert Gordon was sent to Rio de Janeiro as British Minister, later in the year.
- November 1826: anti-slavery treaty signed between Brazil and Britain, under which the entire Brazilian slave trade would become illegal in three years from ratification that is from March 1830 onwards.
- August 1827: Anglo-Brazilian Commercial Treaty was signed, which included the continuation of the 15 per cent maximum tariff on British goods imported into Brazil, and the right to appoint judges conservators to deal with cases involving Britain merchants residents in Brazil.
- October 1828: Argentina and Brazil recognize the independence of the Banda Oriental (Uruguay) after British mediation (Woodbine Parish and Lord Ponsonby). Actually, a war between Argentina and Brazil was fought over Uruguay (1825-28), in which the navies of both Argentina and Brazil were commanded by the British Admiral Brown on the Argentine side and Admiral Norton on the Brazilian side. Most seamen on both sides were English.
- 1829: Brazil floats a public loan in London - £ 769,200 - partly to cover the servicing of the first loans. Brazil was the only country in South America not to default on interest payments in the first debt crisis over the costs of independence.
- 1829: establishment of one of the first iron foundries owned by the British in Brazil, the "*Fundação Aurora*" in Recife, owned by Christopher Starr.
- 1830: foundation of the "*St. John d'El Rey Mining Co.*", the most successful British gold mining operation in Latin America. The company became the largest industrial employer, landowner and taxpayer in the

state of Minas Gerais.

- 7 April 1831: Dom Pedro I, Emperor of Brazil, abdicates the throne, and on 13 April returns to Portugal on board of a British navy ship. The HMS Warspite. Council of Regency established.
- November 1831: Brazilian anti-slavery legislation.
- 1831: Charles Darwin begins in December the five year research trip in South America aboard the H. M. S. Beagle.
- September 1834: death of Dom Pedro I in Portugal.
- 1836: Barbacena Mission to London, which attempts to revise commercial relations, failed.
- 1836: John Armitage a young English merchant, publishes in London "*History of Brazil from the arrival of the Braganza family in 1808 to the abdication of Dom Pedro the first in 1831. Compiled from state documents and other original sources*". Forming a continuation to Southey's History of that country.
- 1839: a public loan was raised in London - £ 411,200.
- 1839: Lord Palmerston's Act, which unilaterally extended the powers of the British navy to intercept slavers flying the Portuguese flag, with or without slaves on board, and to send them to British vice-admiralty courts for condemnation.
- 1839: Thomas Cochrane, a second cousin of Admiral Cochrane, prepares the first prospectus for a railway linking Rio de Janeiro and São Paulo The project was influential in the government's approval of a railway law in 1852.
- 1839: Charles Darwin publishes "*Journal of Researches into the Geology and Natural History of the Various countries Visited by H. M. S. Beagle*".
- 23 July 1840: begins the Second Empire under Dom Pedro II, then fifteen years of age.
- 1840: first visit to Britain by the Visconde and Barão de Mauá, a prominent Brazilian industrialist, which inspired him to establish industries and railways in Brazil. He became partner in the Manchester banking firm of Carruthers, de Castro and Company.
- 1842: Britain sends a special mission to Brazil, led by Henry Ellis, with the intention to persuade Brazil to abolish slavery and renew commercial treaty. Negotiations break down in March 1843

- 1842: foundation of Edward Johnston & Co., a coffee merchant house, one of the most important British export firm in Brazil
- 1843: another public loan was raised in London - £ 732,600
- August 1844: new tariffs on imported products (tarifas Alves Branco: main objective was fiscal rather than protection). Imported British goods have their tariffs increased from 15 per cent to between 30 and 50 per cent.
- November 1844: at the insistence of Brazil, the 1827 treaty was terminated.
- March 1845: fifteen years after 1830, the Brazilian government chose to terminate the anti-slave trade treaty of 1817, under which British navy exercised the right of search and the Anglo-Brazilian mixed commissions adjudicated on captured Brazilian vessels.
- August 1845: as a response to March 1845, the slave trade (Brazil) Act, known in Brazil as o Bill Aberdeen (from George Gordon, Lord Aberdeen), authorised the British navy to treat Brazilian slave ships as pirate vessels and send them for condemnation in British vice-admiralty courts. In the five years period of 1845-1850 over 400 ships engaged in the Brazilian slave trade alone were captured and sent to vice-admiralty courts. Despite this, slave trade continued to growth, and at least 50 - 60,000 slaves per annum were imported into Brazil in the period 1846-49.
- 1846: British discrimination against Brazilian coffee and sugar ended gradually in the years after 1846.
- 1848: the British naturalists, Henry Water Bates and Alfred Russel Wallace, arrive in Brazil.
- 1849-50: a number of British ships of the South American squadron were transferred from the Rio de la Plata to the coast of Brazil, specifically to undertake anti-slave trade duties. January 1850 was the most successful month the British navy had ever had in terms of slaves captured on the Brazilian side of the Atlantic.
- 1849: Richard Spruce, a naturalist, arrives In Brazil to start expedition.
- 22 April 1850: the Foreign Office advises the Admiralty that under the Aberdeen act of 1845 British warships could enter Brazilian territorial waters and even Brazilian coastal ports to search for slaves. There

followed a series of incidents up and down the Brazilian coast in June 1850. The most serious was an exchange of fire between HMS Comorant and the Fort of Paranaguá. As a consequence, Brazil passed legislation on 4 September 1850 to strengthen the 1831 law and end the slave trade.

- 1850: Britain supplies almost 50 per cent of Brazilian imports (British exports to Brazil were on average similar to British exports to the whole of Spanish America). Brazil was then the third largest British market after the United States and Germany.
- 1850s: British merchants control the bulk of Brazil export trade. Among the largest British export firms based in Rio de Janeiro were: "*Phipps Brothers, Naumann Gepp and Edward Johnston & Co*". Most of the import houses were also owned by British merchants.
- 1851: Brazilian government decides to improve the port of Rio de Janeiro and contracts a British engineer, Charles Neate, to make studies and plans
- 1852: additional public loan raised in London - £ 1,1 million
- 1853: Alfred Russel Wallace publishes, in London, "*A narrative of travels on the Amazon and Rio Negro, with an account of the native tribes, and observations on the climate, geology, and natural history of the Amazon valley*"
- 1855: the house of Rothschilds named the sole financial agent for Brazil. The agreement was signed in London by Francisco Inácio de Carvalho Moreira, Barão de Penedo, the Brazilian Minister in London.
- 1855: the Estrada de Ferro Dom Pedro Segundo was established with a substantial British contribution. The company raised a loan of £ 1.5 million in London. An Englishmen, Edward Price, was hired as the contractor for the first section of the line which was completed in 1858.
- 1858: another public loan raised in London - £ 1,5 million.
- December 1859: establishment of the São Paulo (Brazilian) Railway Company Ltd. the most important British-owned railway in Brazil, which controlled the transport of coffee from São Paulo to the port of Santos.
- 1860: Zacarias de Góes e Vasconcelos publishes in Rio de Janeiro l) "*A natureza e limites do Poder Moderador*", a liberal political pamphlet strongly influenced by British liberal thought.
- 1861: William H. Edwards publishes in London "*A Voyage up the River*

Amazon, Including a Residency at Pará".

- 1862: Brazil send representatives to the London Exposition of 1862. Under the encouragement of the Brazilian Minister in London the industrialist brothers André and Antônio Rebouças prepare reports on their visit to the Exposition.
- 1862-63: foundation of British commercial banks in Brazil: the London and Brazilian Bank (1862 and the English Bank of Rio de Janeiro (1863).
- 1862-63: the British Minister in Brazil, William D. Christie (1861-1863), orders the seizure by British ships of several Brazilian vessels outside the port of Rio de Janeiro, which culminated in a six day British naval blockade of Brazil (December 1862 - January 1863). This event led to the Christie affair ("questão Christie"), and the break down of diplomatic relations between Britain and Brazil for two years.
- 1863: the Rothschilds issue two public loans to Brazil, totalising £3.8 million.
- 1863: Henry Water Bates publishes, in London, "*The naturalist on the river Amazons, a record of adventures, habits of animals, sketches of Brazilian and Indian life and aspects of nature under the equator, during eleven years of travel*".
- 1864: Barão de Mauá visits Britain again
- 1865: the merchant house of Lamport & Holt of Liverpool founds the "*Liverpool, Brazil, and River Plate Steamship Company*", offering a regular shipping service to and from Brazil. It becomes the major handler of coffee export to Europe.
- 1864-1870: Britain remains officially neutral during the Paraguayan War (the Triple Alliance of Argentina, Brazil and Uruguay against Paraguay). Nevertheless British manufacturers sold to Brazil all the materials necessary for the building of warships as well as steam launches artillery and ammunition.
- September 1865: the Rothschilds issue a loan of £ 7 million to Brazil, which was used to purchase ships and arms for the Paraguayan War
- 1865: William D. Christie publishes, in London, "*Notes on Brazilian Questions*".
- 1866: William Scully, publisher of the Anglo-Brazilian Times, publishes, in London, "*Brazil: Its Provinces and Chief Cities; the Manners and*

Customs of the People; Agricultural, Commercial and other Statistics, Taken from the Latest Official Documents; with a Variety of Useful and Entertaining; Knowledge, Both for the Merchant and the Emigrant".

- 1867: two influential Brazilian liberals, Francisco Otaviano and Aureliano Tavares Bastos visit England.
- 1869: Richard Francis Burton publishes "*Explorations of the highlands of Brazil; with a full account of the gold and diamond mines. Also canoeing down 1500 miles of the great river Sao Francisco, from Sabara to the sea*". Colonel George Thompson, the British army commander and one of Solano Lopez's senior military commander, publishes "*The War in Paraguay*". George Frederick Masterman, a British military apothecary who directed the pharmaceutical service of Solano Lopez forces, publishes "*Seven Eventful Years in Paraguay*".
- 1869: the Aberdeen Act was abrogate.
- 1870: Richard Burton publishes "*Letters from the Battlefield of Paraguay*".
- 1871: Francisco Pereira Passos, a prominent Brazilian politician and later a mayor of Rio de Janeiro, settles in London for two years, to deal with legal questions concerning the São Paulo Railway Company Ltd.
- 1871: following continuing British pressure, Brazil decrees the freedom of all children of slaves born after 1971
- 1870s: undersea communication cables connect Brazil's port cities with London, resulting in the reduction of prices, supply uncertainties and to a great extent facilitating the transfer of commercial credit. The two major firms involved were the "*Brazilian Submarine Telegraph Company Ltd*". and the "*Western and Brazilian Telegraph Company Ltd.*" In 1899 they merge to form the "*Western Telegraph Company Ltd.*"
- 1870s: British companies control transport in the Amazon basin through the "*Amazon River Steam Co.*" They also control international shipping from the area through the Liverpool based "*Booth*" and "*Red Cross Lines*"
- 1873: Henry Wickham finally succeeds in transporting rubber seeds out of the Amazon to the Kew Gardens in London. The plant was later taken to Burma, Ceylon and Malaysia, where rubber plantations were established, eventually destroying Amazon rubber trade after 1910
- 1874: first visit to Britain by prominent Brazilian politician and writer

Joaquim Nabuco. He lived in London in 1882~1883. 1886-7 and was Brazilian Ambassador to Britain from 1900 to 1904.

- 1874: the Brazilian government asks Sir John Hawkshaw, a leading British engineer, to study the principal ports of the empire in order to begin improvements.
- August 1875: Postal Convention between Brazil and Britain signed in Rio de Janeiro.
- 1878: Thomas Plantagenet Bigg-Wither publishes, in London, "*Pioneering in South Brazil: Three Years of Forest and Prairie Life in the Province of Paraná*".
- 1879: construction begins in the north-east of Brazil of the British-owned "*Great Western of Brazil Railways Company Limited*". It was inaugurated in 1882.
- 1870s: failed attempts to establish British agricultural colonies in Brazil, m Cananea (São Paulo) and Assunguy (Paraná).
- 1880: foundation of the British-owned "*Minas Gerais and Rio Railway Company, Ltd*".
- second half of 1888: after the 13 May abolition of slavery, government decides to aid the coffee planters and borrows over £ 6 million in London.
- 1886: Francisco de Figueiredo and the Englishmen William Henry Holman, manager of the Rio Gas Company, found the "*Rio de Janeiro Flour Mills and Granaries Ltd*". the most successful British manufacturing investment in Brazil.
- 1886: football was introduced in Brazil, allegedly by Englishmen in São Paulo. Charles Miller, an agent for the "*Royal Mail Lines*" in São Paulo, organizes the first football teams
- 1886: Charles Hastings Dent publishes, in London, "*A Year in Brazil, with Notes on the Abolition of Slavery, the Finances of the Empire, Religion, Meteorology, Natural History, etc..*" William James Wells publishes, in London, "*Exploring and Traveling Thousand Miles Through Brazil from Rio de Janeiro to Maranhão. With an Appendix Containing Statistics and Observations on Climate, Railways, Central Sugar Factories, Mining, Commerce and Finance: the Past. Present and Future, and Physical Geography of Brazil*".
- 1888: the Brazilian writer Júlio César Ribeiro publishes "*A Carne*", a

novel strongly influenced by the ideas of Charles Darwin and social Darwinism.

- 1889: end of the Empire. Brazil becomes a Republic.
- 1892: the London and River Plate Bank (founded in 1862) begins operating in corn
- 1893: despite the alleged support of the British Minister in Rio de Janeiro, Hugh Wyndham, to the revolt, Britain and British business interests in Brazil, remains neutral during the naval squadron revolt in Rio de Janeiro. At the time of the blockade of the city, in September 1893, there were about seventy-five British merchant ships in the port of Rio de Janeiro.
- 1894-95: Rui Barbosa, a distinguished liberal politician, journalist and writer is exiled in England
- 1895-96: Portugal mediates between Brazil and Britain after the latter occupies the Atlantic island of Trindade. In August 1896, Britain recognizes the Brazilian sovereignty over the island.
- 1896: Rui Barbosa publishes in Rio de Janeiro "*Cartas da Inglaterra*".
- 1897: British creditors take over the "*Leopoldina Railways Company*". By 1912, the Leopoldina was the largest privately-owned railway network in Brazil.
- June 1898: a representative of a leading British bank operating in Brazil ("*London and River Plate Bank*") is sent to Rio de Janeiro to discuss details of a plan for financial assistance drawn up in London.
- 1898: a Funding Loan of £ 10 million organised by the Rothschilds rescues the finances of the new republican regime. The bank demands in return a surcharge on import duties to be deposited in a reserve account in London and a deflationary programme which caused an intense three-year recession.
- 1898: Worthington Mission to South America to evaluate trade.
- 1899: the Ginásio Anglo-Brasileiro, an important elite school, is founded in São Paulo by Charles W. Armstrong.
- 1899: by the end of the century, there were twenty-five British connected railways in Brazil. Aside from government bonds, almost half of all British investments in Brazil before the First World War were in railroad enterprises
- 1899: Argentina overtook Brazil as the main South American market for

British goods, a position Brazil held since 1808.

- 1900: Brazilian population raised to 17 million.
- 1901: loan raised in London - £16,619 - to provide the funds to expropriate twelve railway companies
- November 1901: Britain and Brazil sign treaty on the boundaries of British Guyana. Subsequent treaties were signed in 1926, 1930 and 1940.
- 1904: the modernisation of the port of Rio de Janeiro begins. Carried out by the British firm C. H. Walker & Co.. it is concluded in 1911.
- 1908: after the refusal from the Rothschilds, the London based Schroders led the international consortium which raised a loan to the state of São Paulo. The loan was aimed to finance valorisation, the price-support programme for coffee.
- 1906: J. & P. Coats (Machine Cottons, Ltd.), a thread factory, opens in São Paulo
- 1906: Brazil adheres to the gold standard.
- 1909: the British merchant house "*Edward Johnstons and co*". begins to finance coffee production through the "Brazilian Warrant Company", a leading British coffee export firm.
- October 1914: the Brazilian government was saved at the last moment from default on its foreign loans by a £15 million Funding Loan raised in London.
- 1914: with the beginning of the war in Europe Brazil suffers a temporary collapse of its trade and financial links with Britain.
- October 1917: after breaking off diplomatic relations with Germany, in April, Brazil enters the First World War on the side of Britain and the Alliance. German firms (about 500) and ships in Brazil were subjected to the application of the British 'Black List'. The war accelerated British decline and strengthened United States economic presence in Brazil.
- 1917: British monopoly of cable communication was broken off and direct lines between the US and Brazil were opened.
- 1918: after the end of the war, the Maurice de Bunsen mission is sent to Latin America to rebuild British trade.
- 1921-22: the Federal Government borrows £ 9 million for the valorisation of coffee though a consortium of Rothschilds, Schroders and Barings. These financial houses assumed control of coffee stocks. Lazard Freres

was also deeply involved with the programmes for coffee valorisation.

- December 1923-March 1924: despatch of the Montagu Mission to Brazil (headed by Edwin Samuel Montagu. a liberal MP) to advise on financial reorganisation.
- 1923: "*the London and Brazilian Bank*" joined the "*London and River Plate Bank*" to become the "*Bank of London and South America*"
- 1925-26: conflicts with Britain over the question of Brazil's permanent representation in the Council of the League of Nations. In early 1926, British Brazilian relations became extremely strained and Brazil abandoned the League in 1926.
- 1927: the United States displaces Britain as the leading Brazilian trade partner.
- August-September 1929: British Economic Mission (Viscount d'Abernon Trade Mission) is sent to Argentina, Brazil, Chile and Uruguay to improve British commercial relations with South America.
- August-November 1930: Sheffield Industrial Mission to South America.
- First half of 1931: Sir Otto Niemeyer Mission, a senior Bank of England official, heads a mission to Brazil to advise on financial matters (he recommends orthodox financial policies, the creation of a central bank and a continued reliance on international trade as a stimulus for economic growth). British-Brazilian relations were then dominated by the Brazilian public debt.
- September 1931: economic reforms in Brazil affect British-Brazilian relations: Brazil introduces exchange controls and restricts imports by higher tariffs and the use of quotas, but Britain obtains from Brazil a guarantee of 'most favoured nation' status, which was reaffirmed in August 1936. Brazil also suspends amortisation and interest payments on much of foreign debt, but excluded the Funding Loans of 1898 and 1914 contracted in London.
- 1932: British decision to offer preferential treatment to imperial producers (Imperial Preference) at the Imperial Conference in Ottawa affects Brazilian exports to Britain.
- 1934: re-negotiation of foreign debt with bankers, with advise by sir Otto Niemeyer.
- March 1935: financial agreement between Brazil and Britain guarantees

British access to foreign exchange

- November 1937: Brazil suspends payment of all foreign debts.
- 1939-40: Bank of England negotiates with Brazil and other Latin American countries the set up of 'special accounts' with the aim to keep sterling in Britain during the war.
- 1939-40: British blockade of the Atlantic forces abrupt decline of commerce between Brazil and Germany, then Brazil's second trade partner.
- late 1940: Lord Willingdon commercial mission despatched to South America.
- February 1941: Britain introduces export licensing for products exported to Brazil.
- January 1942: Brazil breaks off diplomatic relations with the Axis. In August Brazil became belligerent on the side of Britain and the Allies. In July 1944 it sends an expeditionary force (the only country in Latin America) to fight in Italy, alongside with the US Fifth Army
- 1943: Brazil redeems sterling debt and begins to purchase British-owned railways and other British-owed assets in Brazil
- 1943: foundation of the Hispanic and Luso-Brazilian Council at Canning House in London,
- September 1946: Brazilian Foreign Minister João Neves da Fontoura visits London to advance negotiations over Brazil's sterling deposits.
- October 1946: air transport agreement concluded between Britain and Brazil. Further amendments were concluded in 1977.
- May 1948: Anglo-Brazilian Trade and Payments Agreement concluded. It was negotiated in Rio by the Wise Mission and included current payments, accumulated sterling balances and trade.
- September 1949: devaluation of sterling. As a result, Brazil loses in sterling deposits.
- 1952: The Federal Republic of Germany displaces Britain as the second exporter to Brazil after the United States
- 1956: Brazil purchases aircraft carrier Minas Gerais from Britain
- 1957: United States investors (Hanna Mining Co.) buy controlling shares of the St John d'El Rey Mining co.. In 1960 they closed down the London office and moved all the English operations to Cleveland, Ohio.

- 1964-68: six centres for Latin American studies are set up in Britain: Oxford in 1964; London in 1965; Cambridge and Liverpool in 1966; Glasgow in 1967 and F. R Rex in 1 968.
- 1966: a Lectureship of Hispanic American and Brazilian History is set up al University College, London.
- 1968: Queen Elizabeth and Prince Philip visit Brazil.
- March 1968: the Brazilian Aeronautical Commission in Europe is set up in London.
- August 1972: the Brazilian Naval Commission in Europe, established in November 1971, starts its operations in London.
- 1976: Brazilian President Ernesto Geisel visits Britain.
- September 1978: agreement on export safeguards of enriched uranium between Brazil and the British-Dutch-German consortium URENCO.
- 1970s: Brazil purchases 4 frigates of class Niterói and acquires technology to build two additional ones in Brazil.
- 1980: set up of the Brazilian Contemporary Arts in London.
- 1980: Lord Carrington, British Foreign Secretary, visits Brazil.
- 1981: Brazilian Foreign Minister Saraiva Guerreiro visits Britain.
- May-Junel982: Brazil remains neutral during the Falklands-Malvinas War. It supported Argentina's right to sovereignty of the islands but disapproved the use of force. It attempted to mediate and find a negotiated solution.
- 1985: the Royal Air Force purchases the Brazilian training planes Tucano, produced by the Brazilian firm Embraer, in a deal involving the Belfast-based firm Shorts Brothers.
- June 1982 - 14 February 1990: after the end of the Falklands-Malvinas War, during the period when diplomatic relations between Britain and Argentina were suspended, Brazil represented the interests of Argentina in the United Kingdom.
- 1985: Sir Geoffrey Howe, British Foreign Secretary, visits Brazil
- November 1988: narcotics and drugs agreement between Brazil and Britain concluded in Brasília.
- 1991: the Prince and Princess of Wales visit Brazil.
- 1993: Brazilian Foreign Minister Fernando Henrique Cardoso visits Britain.

- July 1994: Brazilian Foreign Minister Celso Amorim visits Britain and signs agreement on the reciprocal protection of investment.
- 1994: the South American Ordinance is created a joint venture between British Aerospace and the Brazilian firm Imbel.
- 1994: British Foreign Minister Douglas Hurd visits Brazil
- 1994-95: Brazil purchases from Britain 4 frigates class 22 and 3 mine-sweepers.
- July 1995: Brazilian Foreign Minister Luis Felipe Lampreia visits Britain and signs treaty of extradition between Brazil and Britain.
- 1995: Brazil purchases in Britain nine helicopters Super-Linx from Westland. Five more are modernised.
- 1995: British Foreign Minister Malcolm Rifkind visits Brazil.
- 1995: set up of the Centre for the Study of Brazilian Society and Culture at King's College, University of London.
- 1995: the first MA in Brazilian studies at the Institute of Latin American Studies, London is opened.
- 1997: the Centre for Brazilian Studies, University of Oxford is established.
- December 1997: Brazilian President Fernando Henrique Cardoso visits Britain.

The United Kingdom, Brazil and South Atlantic Security: Present and Future

*Timothy Garden**

Introduction

Any comparative study of security needs and provision will start from an analysis of the risks that a nation faces. For some States risks may be from internal disorder, for others there may be real or potential external threats. The first priority of any government must be to ensure the safety and security of the nation, and in particular the preservation of the democratic institutions. Security is increasingly seen as a much more complex issue than can be addressed merely through the provision of armed forces.

Military capability is certainly an important aspect of defence of a state from external threat, and, with the police, can have a key role in internal stability operations. Nevertheless, international crime is becoming a more dangerous threat to the survival of some states in various parts of the world. There are other security issues which are of a quite different nature: environmental degradation, migration, disease, famine, pollution, water availability, economic instability and globalisation of markets can all have profound effects on the viability of nation states.

In this paper, the way in which the United Kingdom addresses its security needs is considered and compared with the parallel concerns of Brazil. The paper will identify where there may be common or similar requirements where industrial, political or doctrinal activities offer opportunities for co-operation. The paper will focus on the military aspects of security, but will highlight the wider security aspects where appropriate.

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The Comparative Statistics[1]

Brazil and the United Kingdom are geographically very different countries, and this means that they have had a very different set of security concerns over the years. The United Kingdom is a relatively small (245,000 sq. km), densely populated (58 million people) temperate island separated from an equally populous western Europe by only a few km of sea. It has adequate water resources; its own oil and gas reserves; nuclear, coal, oil, gas and hydro-electric power; a stable, mature, low inflation, steady growth economy (GDP/capita of US$ 18,000). Brazil, a continental state is vastly greater in land area at some 35 times the land area. It has a significant coastline about half the length of that of the UK. The Brazilian population has grown from being much the same as that of the United Kingdom half a century ago, until is now almost 3 times as large. Brazil is also rich in energy resources and water (although not self-sufficient in oil). Its economy is in steady growth (2.9% in 1996) and a GDP/capita of US$ 4,764. Very high inflation rates have been a difficult problem.

We have therefore two very different nations. Brazil a vast fast growing continental nation, and the United Kingdom a small European island nation with a mature economy. Yet a comparison of the statistics on the armed forces shows a number of interesting similarities. Brazil fields 295,000 military personnel compared with 236,900 for the United Kingdom. Brazil divides these so that half are in the army and the other half are equally divided between the navy and the air force. The proportions for the United Kingdom forces are broadly similar. The UK spends some US$ 35 billion per year on defence, and expenditure has declined from 5% of GDP to 3% of GDP since 1985. Brazil's defence expenditure has doubled in real terms over the same period, but at US$ 6.5 billion in 1995 is only 1.6% of GDP.

The next part of the analysis in this paper will look at the defence requirements for the two nations. It will seek to show whether there is a common basis for the derivation of force requirements.

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[1] The defence economic statistics in this paragraph are the latest available from The Military Balance 1995/96, OUP for IISS.

The Defence Requirement for the United Kingdom

The process by which the United Kingdom derives its defence policy is very transparent. In broad terms an annual analysis is carried out of the security and foreign policy requirements. The forces in being are allocated to the tasks (both potential and real), and areas of duplication or lack of resource are identified. All this analysis is constrained by the available resources from government for defence, and the government in the end has to make choices about priorities. This process of development of defence policy is from time disrupted either by major change to the international scene (such as the end of the Cold War), or by a major change in resources available for defence. When this happens a more fundamental review takes place.

Following the end of the Cold War, the British Government put in hand a complete review of the type and scale of forces that it would need for the new security order. The assumptions that were made in that review have been modified slightly in subsequent years, but have remained broadly the same since. The philosophy behind the structure and resourcing of the defence forces is published each year in an official government paper, called *The Statement on the Defence Estimates,* but more widely known as the Defence White Paper. The description that follows is taken from the most recent of these papers.[2] British Defence policy identifies as its aim:

> *The goal of our security policy is to maintain the freedom and territorial integrity of the United Kingdom and its Dependent Territories, and the ability to pursue its legitimate interests at home and abroad.*[3]

This goal is addressed through three different requirements:

a Helping where necessary to sustain the rule of law within the United Kingdom and its Dependent Territories.
b Working to reduce the risk of, or if necessary deterring and defending against, external aggression against the United Kingdom, its Dependent Territories or its vital national interests.

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[2] Statement on the Defence Estimates 1996 Cm 3223 HMSO London. No Statement was published for 1997 because of the change of government.
[3] Ibid para.101

c More broadly, promoting an international framework that favours freedom and democratic institutions and open trading relationships, and that allows people everywhere to pursue and enhance their well-being, in the belief that this will not only be to the national benefit, including greater security, but also to the benefit of the international community as a whole.

The United Kingdom's interests are derived from a number of historical as well as geostrategic factors. Although the legacy of the British Empire has reduced substantially over the years, there still remain 13 Dependent Territories after Hong Kong has been returned to China. In addition the world-wide trading tradition has led to large numbers of British citizens living and working in areas of potential instability around the world. The United Kingdom has therefore a number of distant national obligations, which remain regardless of its obligations under treaties.

In the post World War 2 world, the United Kingdom saw its own security from external aggression as being based on its membership of NATO. It has been a leading contributor to NATO, and has taken it membership obligations very seriously. It is also a permanent member of the United Nations Security Council, and this has had implications for the international military contributions that it has felt necessary to provide.

The defence planning process takes the goals of British foreign and security policy and translates them into a number of possible military mission types. Currently the government identifies seven mission types:[4]

a Military Aid to the Civil Authorities in the United Kingdom, including Military Aid to the Civil Power, Military Assistance to Civil Ministries and Military Aid to the Civil Community.
b A challenge to the internal and external security of a Dependent Territory or overseas possession.
c A British contribution to NATO's and the Western European Union's (WEU) new missions.
d Other military assistance and limited operations, characteristically of lower intensity and longer duration, to support both British interests and

[4] Ibid Table 3 page 18

international order and humanitarian principles, the latter most likely under United Nations auspices.

e A serious conflict (but not an attack on NATO or one of its members) which, if unchecked, could adversely affect European security, or could pose a serious threat to British interests elsewhere, or to international security.

f A limited regional conflict involving a NATO ally who calls for assistance under Article 5 of the Washington Treaty.

g General War - a large scale attack against NATO.

These seven possible mission types in turn generate a range of military tasks, which are identified, published, and the necessary forces can be allocated. It is not necessary to provide separate forces for each task, as judgements are made over the likelihood of concurrent operations being necessary. Some fifty different tasks[5] are quantified and the number of combat units necessary for each is assessed.

In looking at the size, type and equipment for the military, assumptions must be made about whether particular tasks will be carried out in concert with allies, or whether the capability must be truly national and independent. Successive governments have sought to provide forces for national protection and security, and for the security of Dependent Territories, which are independent of support from allies. These capabilities are required even when there is no perceived threat, and therefore must be considered first to ensure that adequate provision is made.

A major element of this national capability is the provision of an independent nuclear capability. This is provided by four ballistic missile submarines, which ensure that there is a continuous deterrent patrol. National airspace and territorial waters protection and defence are other key tasks in this respect. A demanding part of the national task is that of military aid to the civil power in Northern Ireland. The continuing terrorist activity in the province means that British armed forces are used in significant numbers in a support role to the police.

The requirements stemming from the task of protecting Dependent

[5] Ibid pages 106 to 109

Territories are carried out in a number of different ways. Forces are stationed on some of the territories and their numbers can be substantial. The most demanding of these is the security of the Falklands and South Georgia.

> *Military Task 1.18: The United Kingdom continues to maintain a defensive capability in the South Atlantic. The garrison is tasked with maintaining the integrity of Mount Pleasant airfield as an airhead for reinforcement; defending other military installations in the Falkland Islands; providing for the safety of shipping and aircraft within the area; countering military action against South Georgia and the South Sandwich Islands; and providing 24-hour military Search and Rescue (SAR) cover and, when military cover is not affected, SAR for the civil community.*[6]

If the national requirements must be provided so that the United Kingdom can carry them out unaided, the insurance against the emergence of some major external threat is provided by membership of NATO. This carries with it obligations to the defence of all other NATO members. Some of the forces required for national purposes are also available to contribute to the tasks in support of NATO. While in theory it might be possible for the United Kingdom to specialise in some military capabilities, while other Allies take on different roles, it has decided that it should field a broad spread of high intensity conflict combat systems.

Land, sea and air forces are allocated to NATO's forces. Some are held for the immediate reaction element, some for main defence forces (at lower states of readiness), and at the lowest readiness are a number of augmentation forces. A large component of these forces are based in Germany, although the numbers have declined in recent years. A particular responsibility stems from the fact that the United Kingdom takes the lead in the multinational Allied Command Europe Rapid Reaction Corps (ARRC). The ARRC brings together the forces of 12 nations, and some 55,000 British Army troops are assigned to the formation. It represents high readiness forces available to NATO, and can deploy quickly up to 4 divisions from the 10 divisions that are allocated to it. This combination of

6 Ibid Annex A page 107.

availability, capability and multinationality has meant that it is seen as the natural military arm of NATO for peace support operations.

After national and alliance tasks, the third group of military tasks are those that contribute to promoting the United Kingdom's wider security interests throughout the world. These tasks will include humanitarian and disaster relief, UN sponsored operations, and operations under bilateral arrangements with other states. British forces also provide significant military assistance and training around the world.

Future Developments in British Security Policy

This paper is written at a time when a number of factors have come together which may cause significant change in British Defence policy. The most significant internal factor is the change of government, which has followed the election of 1 May 1997. The Labour Party was elected with a large absolute majority, replacing the Conservative Party which had been in power for some 18 years. The Labour Party manifesto had promised that a full-scale review of defence would be undertaken and completed within 6 months of assuming power. In the first weeks of the new government, this defence review was confirmed by the Defence Secretary George Robertson. At the same the new Foreign Secretary, Robin Cook, launched his approach to a new ethical foreign policy.

It is not yet possible to say what difference this will make to the military capability that the United Kingdom fields. Externally there are also a number of events which will affect security thinking. The enlargement of NATO is unlikely to have an immediate effect on the way the United Kingdom approaches its contribution to the Alliance. The United Kingdom supported the three prospective new members (Poland, Hungary and the Czech Republic) for accession in 1999. At the same time the European Union is pressing for a greater commitment to a common security and defence identity for Europe. While some nations see this as possible through a direct relationship between the European Union and the Western European Union, the United Kingdom government is pressing for European security to continue to be based on NATO.

The parameters of the defence review are becoming clear. There is (as is usually the case) a statement that it is not a cost saving exercise. It is seen rather as a balancing exercise to ensure that commitments and resources are matched. Nevertheless, a number of features of the defence programme appear to have been excluded from the review process. Perhaps most surprisingly has been the exclusion of the nuclear capability from consideration. It may be that an examination of readiness requirements will make some changes at the margins, but the new Labour government is committed to continuing the four Trident submarine nuclear deterrent force. The large project for a new air defence fighter (the Eurofighter 2000) has also been excluded from the Review process. This four nation project (UK, Germany, Italy and Spain) is designed to deliver an agile multi-role fighter early in the next century. The new government has made it clear in negotiations with Germany that it is as committed to the purchase as was the last government.

Some had thought the breadth of British capability might be under question. The forces are increasingly being used in police type operations, whether in Northern Ireland or overseas on UN adventures. There are those who argue that the maintenance of the full range of high intensity warfighting capabilities is no longer necessary, and that a rebalancing towards low intensity operations is overdue. In public statements, the new Defence Secretary has made it clear that he does not wish to lose the high intensity warfighting capability. The author also attended the first seminar held to discuss the Review with both the Defence and the Foreign Secretary. It was clear that the new government continued to see the need for the United Kingdom to play a world role. Putting all these factors together, it is difficult to see how the United Kingdom's approach to Defence policy is likely to change very greatly.

For the South Atlantic, it is likely that the arrangements in the Falkland Islands will continue as before. While relationships with Argentina have warmed, the British Government will maintain the defence arrangements as long as the inhabitants of the islands wish to remain so protected.

Brazil's Defence Requirements

At first sight one might expect there to be little in common between Brazil's approach to Defence policy and that of the United Kingdom. In fact that are some interesting parallels in the approach of the two nations. The United Kingdom has had more than fifty years of peace without an attack on it since World War 2. Brazil has experienced an even longer period of peace, although it did provide forces on the side of the Allies during World War 2. Yet both nations devoted much effort to preparations for a possible war with a continental power. In the case of the United Kingdom, the Cold War enemy was the Soviet Union, and in the case of Brazil, it was Argentina that represented the perceived threat. The coming of democracy to Russia, and the end of the Warsaw Pact has taken away that threat in Europe; and the end of military rule in both Brazil and Argentina has taken away the perception of risk of war in South America.

We have seen above how the United Kingdom has approached the change in the security situation in its defence planning. A parallel change has occurred in Brazil. The National Defence Policy of November 1996 lists seven objectives:[7]

a to guarantee sovereignty while preserving the Nation's territorial integrity, heritage and interests;
b to guarantee the rule of law and democratic institutions;
c to maintain the Nation's cohesion and unity;
d to protect individuals, goods and resources that are Brazilian, or under Brazilian jurisdiction;
e to achieve and maintain Brazilian interests abroad;
f to give Brazil a significant role in international affairs and a greater role in the international decision-making process; and
g to contribute to the maintenance of international peace and security.

These objectives are very similar to those stated by the British Government for its defence policy. The Brazilian National Defence Policy develops the objectives into strategic guidance. It makes it clear that forces are required primarily for national security, both during peacetime and in

7 Brazilian National Defence Policy para 3.3- translation provided by Brazilian Embassy Washington - http://www.brasil.emb.nw.dc.us/fpst10de.htm

time of conflict. The strategic posture is a deterrent one, which is defensive in nature. It states the strategic principles[8]: agreed international borders; good relations with neighbouring states and the international community; rejection of wars of conquest; peaceful resolution of disputes; and force only in self defence.

The strategic guidance in the policy makes it clear that such a policy does not mean that the forces will be equipped and trained only for defensive operations. The need to have a capability to defeat an armed attack means that Brazilian armed forces must be able to conduct operations which would conclude any conflict in the shortest time and with the minimum possible damage to national interests and integrity. Brazil is therefore, like the United Kingdom, clear that it needs balanced forces capable of conducting high intensity warfare if it were necessary. Keeping up with technological developments is also seen as an important factor:

> *It is essential to strengthen the national capabilities in the area of defence, in a balanced manner. with the involvement of the industrial, University, scientific and technical sectors. Scientific and technological development is fundamental in order for the Armed forces to attain greater strategic autonomy and better operational capabilities.*[9]

Just as the British Defence White Paper translates its strategic policy into a set of military tasks, so the Brazilian National Defence Policy document lists some 20 Directives[10]. These could be broadly grouped in terms of international roles, regional roles, national requirements, support of civil agencies, and wider interests.

International Roles

The role of defence policy in the international arena includes contributing

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8 Ibid para 4.2

9 Ibid for 4.5

10 Ibid for 5.I

to international order and sustainable development. This is coupled with a wish to improve Brazil's negotiating capabilities on the international scene, as well as participating in significant international decision-making processes. Similar rationales are deployed in the United Kingdom, which centre on the permanent membership of the UN Security Council. Brazil is believed to aspire to eventual permanent membership of the Security Council. Both countries see participation in international peacekeeping operations as an important element.

Global disarmament features as a separate international issue directive in the Brazilian policy document. Here, while the aims are similar, the position of the two countries is rather different. The United Kingdom is a declared nuclear weapon state and a signatory of the Non Proliferation Treaty (NPT). Brazil, which in the past had been seen by the international community as a potential nuclear proliferator, had, until very recently, refused to become a signatory of the NPT. This had been somewhat puzzling to international observers given that it is clear that Brazil today has no intention of becoming a nuclear weapon state, and it abides by all the constraints of the NPT regime. One commentator[11] has suggested that it is more a reflection of the cautious and prudent approach that Brazil takes to the development of foreign policy. President Cardoso announced on 20 June 1997 that he was sending a law for congressional approval so that Brazil could at last become a signatory to the NPT.

The policy document also identifies Brazil's interest in the Antarctic region as a specific item. The directive seeks to promote scientific knowledge of the region, and also active participation in the decision making process for the future of Antarctica.

Regional Roles

The directives associated with regional affairs are concerned with the fostering of friendly and co-operative relationships. Defence policy is seen as being able to contribute to the strengthening, expansion and

[11] *Brazil and the NPT: Resistance to Change?* by P. S. Wrobel in Security Dialogue Vol. 27 No 3 Sep 1996

consolidation of regional integration. The military are required to take actions to maintain a climate of peace and co-operation along all of Brazil's borders and to foster solidarity within Latin America and the South Atlantic region. One method of doing this is through exchange programmes with the Armed Forces of friendly nations.

Brazil was the force behind the founding of the Zone of Peace and Co-operation in the South Atlantic (ZPCSA), with the first meeting of representatives in Rio de Janeiro in mid 1988. The ZPCSA is a quite different organisation from NATO, and has developed into more of a forum for environment and development issues, than a collective security body. [12]

Again, this approach to regional security has similarities with the British approach in Europe. Of course, the major difference is that European co-operation can be enhanced in the security field through two existing organisations: NATO and the WEU. Nevertheless, the United Kingdom not only supports the efforts through Partnership for Peace (PfP), where NATO and non-NATO nations strengthen relationships through such things as joint training and exchanges, but it is also carrying out bi-lateral training and exchanges. There seems no doubt that one of the most effective ways of reducing tension and misunderstanding between states is for their armed forces to work together.

National Roles and Support of Civil Agencies

The directives give a number of requirements which are specific to improving national defence capabilities. These include enhancement of the land, sea and air surveillance, control and defence of Brazil's territorial limits. Enhancement of command, control and intelligence capabilities is another aspect of military capability which is highlighted for attention. The third of these internal military aspects, which is given a separate directive, is the requirement to improve the organisation, materiel, training and co-ordination of the Armed Forces. Such enhancements are common requirements amongst the military of most nations. It is however of interest

12 For a description of the development of the ZPCSA, see *South Africa and Brazil* by S. P. Guimarães, IPRI 1996 pp. 32-47

that they have been singled out by Brazil as being of special importance. To an outside observer, this seems to be a possible reflection of the higher level organisation for the management of the three Services.

It is often the case that requirements for better co-ordination and for the shared strategic assets, such as surveillance and intelligence, reflect strong Army, Navy and Air Force headquarters or Ministries, without a powerful overarching joint Ministry of Defence and Joint Headquarters. In the United Kingdom, as in other NATO countries, there has been a steady move towards the joint operational organisation and away from the independent power of each of the military arms. This eases the problem of deciding on priorities for resources, and also makes for more efficient use of the available military resources. Much work is going into the training of the aspirant NATO members from Central Europe in this particular aspect of restructuring their military. It appears that, while planning for a single unified Ministry of Defence in Brazil has started, progress remains slow.

One part of Brazil is identified as being of specific importance in the National Defence Policy. The Brazilian Amazon is to be protected, with the support of all Brazilian society, and a high value is given to the military presence. The Amazon basin represents nearly 60% of Brazil by area, yet is sparsely populated and the border is ill defined and difficult to defend. The nature of the threat is also diffuse. The remoteness of the Amazonian border makes it attractive for drug traffickers and other smuggling operations. It is also a possible route for guerrilla insurgents. From an economic protection aspect, illegal gold prospectors may be attracted to an unprotected border. Finally, the international community takes an increasing interest in the management of the husbandry of the rainforests.

The task of controlling such a region is not an easy one, but it does provide a role for the military, which could not be done in any other way. It is likely therefore, that given a commonality of interest between State and military, this will be an increasingly important aspect of operations.[13] The only parallel that can be drawn with the United Kingdom in this respect is

13 For a discussion on the merits see *State and Soldier in Latin America* by Wendy Hunter Peaceworks No 10 Oct 1996 USIP

the amount of effort that British forces deploy in Northern Ireland for the policing of one region. The problems are very different, and the land areas involved vastly different. Yet some 20,000 soldiers are absorbed by the Northern Ireland counter-terrorist task. There may be a common problem in the need in both the Northern Ireland and the Amazon task to provide relief troops on a regular basis. This increases the drain on military manpower.

The directives also make specific proposals for the support of some civilian activities. The policy seeks to strengthen national transportation, energy and telecommunications systems. More generally, the Armed Forces are to maintain their participation in support activities with the aim of national integration, and the social and economic integration of Brazil. In addition, there is a directive to stimulate and inform public opinion. This is aimed at encouraging *a National Defence consciousness by means of encouraging patriotism and dedication to the motherland.*[14] These directives are somewhat different from the aims that are found in British Defence Policy. Nevertheless, there are some common features. In the United Kingdom, the military is tasked with supporting the civilian authorities for the provision of essential services and utilities, if they are interrupted by unpredicted happenings. They do not however provide the services in competition with the commercial sector. This difference may reflect the difference in balance of government and private ownership of essential services between the two countries.

Resources

Brazil's Defence Policy statement is somewhat restrained when it comes to the question of resources. While all the improvements and enhancements that are required have financial implications, there are only two of the directives which address directly the resource allocation question. The policy directive guarantee *resources that are sufficient and continuous to provide the means for effective preparedness of the Armed Forces and all other entities involved in national defence.*[15] There is also a requirement to

14 National Defence Policy *op cit para* 5.1u

15 Ibid para 5.1p

seek a level of scientific research and development and production capacity which will minimise dependence on foreign sources for defence strategic resources. Both of these directives appear to give wide scope for defence spending to rise, particularly when taken with the other improvements that are itemised above.

In reality, it seems that along with Britain, Brazil is unlikely to be increasing spending on defence significantly. The end of the Cold War, the moves towards co-operative regional relations, and the pressures on the economy are common factors for both nations. Brazil's recent history of military government could make provision for the armed forces a more important topic in electoral terms than in Britain. Yet, the signs are that military spending will have to take its place in the queue with competing demands, just as in Britain. President Cardoso speaking at the launch of the new national defence policy said:

> *I am counting on the professionalism of the military to reconcile defence requirements with the availability of the wherewithal, as approved by Congress.*[16]

Alliances and Security

The major difference between the United Kingdom's approach to defence requirements and that of Brazil is its dependence on sharing major security requirements with other nations. NATO was founded in 1949 with the United Kingdom as a founding member. It has successfully prevented conflict in Europe through the dangerous Cold War period, when forces of the Warsaw Pact and NATO confronted each other at high states of readiness for many years. As a vehicle for collective defence and security, it proved invaluable. The membership of the United States, with its powerful armed forces and strategic capabilities, was an important factor.

Following the end of the Cold War, many had expected NATO to fade in significance. It has however assumed an increasingly important role in the future of European security, and also in preparation for international operations under the auspices of the United Nations. The question is often asked as to what threat NATO is defending against. It no longer categorises

[16] Quoted in Latin American Weekly Report 21 Nov 96 p.533

Russia or other countries as a threat. The organisation provides insurance against the emergence of a major threat at some time in the future. It does a number of other important things as well. It has been developing links with Central and Eastern European states including the Russian Federation and the Ukraine. Some states are on the path to full membership of the organisation. All of this makes for reduction in tensions between member states and improvement in the efficiency of military forces. For UN sponsored operations, the joint training and standards are an invaluable asset, and allow rapidly deployable multinational forces to be put together. It also acts a conflict prevention device between its members.

Looking to the future, there is the question of how this type of alliance structure might develop more into a European force as the European Union itself develops. There have been concerns over the years as to how long the United States would wish to stay so closely engaged in European security. As Europe grows to be both more populous and richer than the United States, these worries will become stronger. There is however no agreed way ahead at present for matching the European Union economic membership with a parallel effective military organisation operating under a common foreign and security policy.

For Brazil, security has not been provided by a military alliance membership. The formation of ZPCSA was discussed earlier, but it has not developed into a collective security organisation. Yet there are some interesting parallels in Latin America with the European experience. Mercosur was created in 1991 as an economic community between Brazil, Argentina, Paraguay and Uruguay. The increasing co-operation on the economic side between the members has led to better understanding of common foreign and security policy aims.

The particular development of good relations between Argentina and Brazil has been the most important factor in future security co-operation in the region. It is very early days yet, and the difficulties that the European Union has had in developing its security arrangements, despite a much longer history of economic integration, should indicate that a formal security alliance arrangement for the Mercosur countries is likely only as a long term possibility. Nevertheless, the Brazilian National Defence Policy has a

number of initiatives, which should enhance the possibilities for co-operation and the development of security relationships. In particular, the exchanges and visits between military personnel at all levels, when coupled with the day to day activities of officials in the economic sphere, could offer the prospect of the development over time of a more formal Alliance structure. The first joint military manoeuvres were held in 1996 in Entre Ríos, and were compared by one commentator[17] to the spirit of the Franco-German co-operation in Europe.

The announcement of a joint declaration on security in 1997 following a state visit by the Argentinean President to Brazil is another indication of progress. This declaration states a common perception of regional and international security, and establishes a permanent mechanism of consultation for security and defence issues between Argentina and Brazil.

Arms Control and Confidence Building Measures

The arms control process in Europe in the 1980s was an essential precursor to the end of the Cold war, and the process itself was important in building confidence and understanding. The process continues, but has to an extent been overtaken by the other co-operative activities that are happening in Europe as the Central and East European states come closer to the European Union and to NATO and the WEU. There are however continuing important roles for both the global and regional arms control regimes, and Brazil and Britain have similar aims in this respect. We discussed earlier, the difference of context over the NPT, but this is a special case. Brazil's signing of a full-scope safeguard arrangement with the IAEA in 1991 and its accession as a contracting party of the Treaty of Tlatelolco in 1994[18] put it under the same restraints as being a signatory of the NPT, which it is now expected to become. The Mendonca Agreement has extended arms control to cover other weapons of mass destruction in the form of chemical and biological agents.

With arms control agreements on the key nuclear, chemical and

17 Ibid p532
18 Wrobel Op Cit p.340

biological weapon systems, the most concerning aspect of Brazil/Argentina relationships has been solved. It is more difficult to see how conventional arms control agreements could do much to improve relationships further. The military forces in the region are scaled by the tasks that they are being given, and it could be argued in Brazil's case that the forces in being (without mobilising reserves) are small in numbers for the tasks to be undertaken.

The Defence Industrial Base

A dilemma that faces many industrialised nations in the post Cold War world is how to maintain national defence industries, both for strategic and export reasons, while the domestic weapon systems requirement is reducing. The problem is exacerbated by the number of nations in the same position, and the export competition becomes greater.

Britain has been very successful in exporting defence equipment. Nevertheless, the industry has been reduced over the years and has gone through a process of almost continuous rationalisation. The United States defence industries have moved quickly to rationalise their companies in order to remain competitive on the world market. To achieve mergers on the scale of Lockheed Martin, the United Kingdom needs to look to partners in the fragmented European defence industries. This is not an easy prospect as the different European nations have different arrangements of government or private involvement in their companies. The route that has been taken has been to form joint companies for particular projects. The Tornado aircraft was a good example of a German, Italian and British manufacturers co-operation. It produced an aircraft that was required by each of the nations and has subsequently enjoyed export sales. This formula is being repeated for the development of the new Eurofighter 2000 aircraft with Spain as an additional partner to the other 3 nations. Such methods of international co-operation can be made to work, but they are undoubtedly complex and do not allow the full economies of scale that a single commercial company could take if it wished.

In looking to the future of British defence industries, they appear to be more strongly based than many of their European competitors. The real competition to the industry comes from the United States. There is a danger

that the very much bigger domestic military market, and the focus on high technology solutions, will make the United States manufacturers able to offer to undercut other manufacturers in both cost and capability. If this were to lead to the end of national defence manufacturing capability, it would have significant strategic and economic implications.

Brazil also wishes to keep a strong defence industrial base and have the strategic independence that such a capability brings. In recent years it has shown itself to be a leading nation in terms of the scale of its defence industries and also the technological standards achieved. It has a successful aerospace company in Embraer, which was privatised in 1994 and has undergone significant restructuring to reduce costs. The Brazilian defence industries suffer from the same pressures felt in Europe, but given their much smaller home market find it even more difficult to compete. The success of the EMB-312 Tucano trainer, which was adopted as the basic flying training aircraft for the British Royal Air Force after a fierce competition, is an indication that the Brazilian aerospace industry can be a successful competitor in world markets. It will not get easier however, and the need for partner companies will become more important. In this respect the defence policy directive which seeks to maintain a national production capability across the spectrum of military capabilities may prove unachievable. It could be an area for greater co-operation within the region under Mercosur auspices.

Military Organisation

In looking at comparisons between British and Brazilian security arrangements, the way in which the military is structured and controlled is an important aspect. There have been a series of changes in both countries which affect the costs, influence and future of the armed forces. In Britain the move has been progressively towards structures which reinforce co-operation between the three services and give visibility to all aspects of the costs of defence. The aim is to produce a system where the military tasks that stem from defence policy can be objectively quantified and costed. It would then be possible to measure the relative costs of different methods of achieving an objective, and optimise the force mix to produce the most cost-effective combination. The development of these techniques is at an

early stage, and the process of measuring defence output in an objective way remains difficult. However, as essential part of such an approach is a strong central control of the individual armed forces, the defence research organisation, the equipment procurement system and the defence budget allocation process.

Britain established a unified Ministry of Defence thirty years ago, but it has been a long process for it to become the powerful central organisation. The individual Army, Navy and Air Force ministries continued to act in competition, as long as Ministers were given specific responsibilities for each military arm. Today, there are no independent ministries and no Ministers with specific responsibility for each of the Services. The Ministry of Defence is a unified headquarters and advises the Defence Secretary on the budget allocation process for both the operations of the Services and the new equipment programme over the next 10 years. The individual Chiefs of the Army, Navy and Air Force play an important role in this process, but the staffs that provide the planning and budgetary advice are a shared resource. When considering operational matters, they will be chaired by the Chief of the Defence Staff. When considering resource and budgetary matters, they are chaired by the senior non-political civilian in the Ministry of Defence (the Permanent under Secretary). The advice from either group will then be considered by the Defence Secretary, who is a Minister in the Cabinet of the Government. This system ensures that alternatives are explored in an objective way, and that a case is not simply made on the grounds that one particular Service should carry out a particular task.

In Brazil, the move from military government to democratic government has been remarkably smooth. The military still hold a special place in the culture of the country and a number of factors ensure that this will be slow to change. The new defence policy gives the armed forces a continuing interest in a number of aspects of civil society. One commentator[19] asserts that allowing the military to retain control of technological and industrial programmes constitutes a significant re-inforcing component of military autonomy. In the writer's view, the move

19 *Technology, The Military, and Democracy in Brazil* by Ken Concha in Journal of InterAmerican Studies and World Affairs Vol. 34 (P) 1992 p. 161

towards a centralised Ministry of Defence with powerful civilian control is the most important way of ensuring that limited funds for defence are spent in a way that buys the greatest security for any nation. Brazil has a Joint Chief of Staff, but as yet retains individual ministries for the Army, Navy and Air Force. It may be that the Secretary for Strategic Affairs will be able to develop into a Secretary of Defence with a unified Ministry of Defence in time.

Opportunities for Security Co-operation

The analysis above has shown that there are a surprisingly large number of approaches to security policy which are shared between Brazil and the United Kingdom. There are also many common interests in the security area. This suggests that there may be opportunities for extending the formal and informal links between the nations. The areas that are likely to be most productive at the practical level are in military exchanges and joint exercises and training (particularly navy and air force). There are already a number of defence equipment co-operative ventures, and there is scope for deepening this relationship given the international pressures on defence industries. As the competition between defence manufacturers intensify, there may be merit in building on the success that the United Kingdom and Brazil have enjoyed when co-operating in weapon system projects.

Both nations wish to assist the United Nations to become better able to enhance international peace and security. There are different perspectives, but nevertheless some common ground which could be developed. The need to train and equip for peace support operations gives a basis for co-operation. The good relations at a personal level between military personnel from both countries also offer the possibility of increasing joint training, exchanges and meetings at all levels to discuss common problems.

Conclusion

The approach to security by Brazil and the United Kingdom in the post Cold War world has a number of similarities. Despite the differences

in size, population, economies and geostrategic considerations, both nations have adopted internationalist foreign and security policies. Both have a set of policy drivers, which lead to the promotion of international peace and security. Both consider their armed forces as an important element in their standing in the international community. However, in both cases, the military have significant internal tasks in support of the civil authorities. Both have difficult decisions to make over resource priorities. The approach taken in both cases has been to review the aims of foreign and security policy and derive the necessary defence force structure. In both cases there may be a lack of willingness to fund all the necessary requirements of such an approach.

Second Panel - Bilateral Economical Relations: Brazil and United Kingdom

Dilemmas of Belonging Britain and the EU/Brazil and Mercosur

*Andrew Hurrell**

Comparing regionalist arrangements is a highly problematic enterprise. What dimensions of regionalism are to be compared? What standards of comparison might be most appropriate? The problem is especially acute because the analyst can never stand outside history. Our understanding of regionalism is inevitably shaped by the immense shadow cast by the relative longevity and success of the EC/EU. This means, for example, that the analytical categories developed within integration theory are often little more than the translation of specifically European factors into a different and allegedly more generalizable idiom. In policy terms, it means that it has proved extremely difficult to escape from the language of 'lessons' and 'models' — indeed a significant part of the external policy of the EU consciously seeks to extend the lessons of the European experience to other regions. This problem is not unique to integration. Think, for example, of the way in which the experience of Southern Europe indelibly shaped the ways in which subsequent democratic transitions in Latin America were understand — both in terms of what were identified as important variables and what sorts of processes and outcomes were considered 'normal' and 'successful'. Either explicitly or implicitly, then, the EU still serves as a yardstick by which other regionalist schemes are understood, compared and evaluated.

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Whether or not the problem is any less acute, it has certainly become more open and more interesting since the end of the Cold War. This is partly due to the successful establishment of different forms of regionalism in other parts of the world (NAFTA, Mercosur, but also APEC, ASEAN and the ARF) within very different economic and political contexts. But it is also the result of the changes that have occurred within Europe and the immense challenges currently facing the EU. Indeed many of the forces that have helped to create new patterns of regionalist alignment in the Americas (and elsewhere) are the very same forces that have worked to complicate and, in some cases, undermine, what had appeared to be stable and well-understood structures of regional cooperation and integration in Europe.

The end of the Cold War and the fall of the Berlin Wall, the dynamics of a globalisation, and contradictions within the process of integration itself have all served to open up (or in some cases reopen) many divisive questions about the character of European integration. The present crisis of European integration is best understood in terms of the disjuncture between the old agenda of integration (built around questions of economic and monetary integration) and the new agenda (the reemergence of questions about boundaries, membership and identity [Where is Europe? What is Europe?]; the reappearance of difficult and divisive questions about defence and security; the awareness that power politics has not been transcended and that the German problem has not gone away; and the gulf that has opened up between an increasingly elaborate institutional structure on the one hand and issues of political legitimacy and national identity on the other).

These developments have helped to make plain what was true all along but what often obscured by the economistic and institutionalist emphasis of so much analysis: namely that regionalism is an extremely complex process made up of not one but a series of competing logics — logics of economic and technological transformation and societal integration, logics of power-political competition; logics of security; and logics of identity, community and sovereignty. For the early theorists of integration, especially the neofunctionalists, this produced tensions, but tensions were assumed to lead ultimately to both deeper integration and to an eventual

transfer of political loyalties. The experience of Europe does not wholly undermine such a view but suggests that integration is best viewed as an unstable and perhaps indeterminate process of multiple and often conflicting logics.[1]

From this emerge the two core questions addressed in this paper. In the first place, how do these logics play out in Europe and South America and in what particular ways are they reflected in the foreign policies of Britain and Brazil? Secondly, and more important, how far have the old logics of power politics, security, and international society been displaced by the newer logics of economic and technological integration, of societal interdependence, and of community and identity? Are we playing an old regional game essentially recognizable from the diplomatic histories of Europe or of Latin America? Or has a new game emerged with very different objectives, rules, and dynamics? Many of the day-to-day issues that emerge in the context of Mercosur or the EU are in fact reflections of this fundamental question.

The subject is enormous and this paper makes no pretence at being comprehensive. Its aim is rather to select some of the most important and interesting dilemmas around which Brazilian and British foreign policy towards their respective regions are structured and to suggest how they might be related to this overarching issue of continuity against change.

The great differences in the economic, social, geopolitical, and security circumstances of Brazil, Britain and their respective regions are clear. But it is perhaps worth pausing to underline an important similarity — **the historically deep-rooted exceptionalism** that characterizes the policies of both Britain and Brazil towards their respective regions.

The distinctiveness of Brazil within Latin America results in part from its historical development: a country that was linguistically distinct as a Portuguese-speaking country; culturally distinct as a result of the differing patterns of Portuguese colonialism (and, very importantly, decolonisation);

1 On the many dimensions of regional integration in Europe see in particular Helen Wallance and William Wallace eds., Policymaking in the European Union (Oxford University Press, 1997), and more generally, Louise Fawcett and Andrew Hurrell eds., Regionalism in World Politics (Oxford University Press, 1995).

racially distinct because of the small size of the Indian population and the large section of the population of African origin. For cultural models and for political ideas Brazilian élites looked (and still look) not to their neighbours or to indigenous traditions but first to Europe and subsequently to the United States. The separation of Brazil from the rest of the region also resulted from the pattern of economic development established during the colonial period and the extent to which economic ties both in the colonial and post-colonial periods were tied firmly to the core capitalist countries. In addition, Brazil's very size and apparent natural dominance led to a deep-rooted and persistent fear within Spanish-speaking America of Brazilian expansionism and its potentially hegemonic position within the region. And finally, from the time of Barão do Rio Branco in the early 20th century down to the 1970s, Brazil looked to the United States as a prime means of balancing the power of Argentina, a tactic which only served to reinforce the distance and difference between Brazil and its neighbours.

Of course this was never the whole story and Brazil's engagement with the continent, and especially with its southern neighbours, has been far more intense than this sketch would indicate. Of course distance and distinctiveness have been increasingly balanced by the progressive Latin-Americanisation of Brazilian foreign policy that goes back to the second half of the 1970s. Of course, Mercosur has dramatically increased the political and economic salience of the region to Brazil. And yet important elements of this distinctiveness remain, evidenced in the consistently reiterated self-image of Brazil as a 'larger than regional international actor' and 'as a global trader'; and in the breadth and range of the country's international interests and ambitions.

Brazil's regional distinctiveness is also apparent in the extent to which it has adopted its own particular understandings and variations of the dramatic changes in economic, foreign economic and foreign policy that have characterised Latin America since the late 1980s. Yes, external liberalisation, but only in a controlled and negotiated way and with recourse to unilateralism when feasible; yes, a rebalancing of the old goal of autonomy, but still an emphasis where possible on technological capacity and protecting industrial development; yes, increased market orientation,

but still a critical role for the state; yes, an acceptance of many emerging international norms, but still the objective of reforming international institutions and of building a coalition of like-minded governments. Finally yes, a desire to avoid confrontation with the US, but still an attempt to build up an expanded Mercosur as the basis on which to negotiate the terms of an possible expansion of NAFTA. Thus for all the talk of reform and the end of eras (whether the Vargas era or the era of the Cold War) there remain significant elements of continuity in Brazilian foreign policy and those elements tend to become more pronounced as economic stability and success is restored.

In Britain a great deal of the recent discussion of national identity has focused around the alleged distinctiveness of the country's political, legal, social and cultural traditions and the characteristics that divide Britain (or more usually England) from Europe. Whatever (little) truth there may be in this, one can certainly point to the long tradition of British foreign policy that runs from the late 17th century down to the 1940s: the selective manipulation of the continental balance of power so as to leave the country free for overseas and imperial expansion. It is often forgotten that the continental commitment of the 1940s embodied in the Brussels Treaty and NATO constituted as great a revolution in British foreign policy as NATO did for the United States. But even though now committed in security terms, Britain's political and economic attitude towards Europe remained equivocal and ambiguous. Britain emerged from the Second War with a global outlook and with the belief that Commonwealth and the Atlantic relationship represented viable foreign policy options. After the debacle of Suez the special relationship assumed an even more central role which the very particular conditions of the Cold War allowed to flourish. Despite membership of the Community and progressively deeper enmeshment in Europe, ambiguity remained and the Thatcher years in particular saw both increasingly virulent anti-Europeanism and, of course, a vigorous reassertion of the special relationship.

For all the soothing mood music that has accompanied Labour's first ventures into Europe, the distinctiveness of the British view remains and indeed appears rather central to recent government pronouncements:

the idea that Britain should serve as a bridge between Europe and the wider world; the idea that the success in Britain of a more flexible and innovative brand of capitalism has lessons for the rest of Europe; and the idea that Europe's old practices and ideologies of integration are changing in ways that will work fundamentally to Britain's advantage.

Exceptionalism, then, is an important shared characteristic, as is the common tradition of foreign policy pragmatism and a shared difficulty that in adapting to the exigencies of a more collective style of regional foreign policy-making. But what of the specific dilemmas of belonging? Let us look at these under three headings relating to the logics of power politics, of security, and of economic integration.

Especially in the European case, these political, economic and security issues need to be viewed within the context of debates about identity and political community. Successful integration is immensely destabilizing and disruptive of traditional patterns of identity, partly because it involves intensified horizontal interaction and higher levels of societal interdependence; and partly because it involves a vertical transfer of authority over some of the most difficult and divisive issues of national sovereignty (for example questions of citizenship, justice, immigration and matters that reflect variations in national tastes and values). This has led to the erosion of the permissive consensus allowed the project of European economic integration to be created and managed from above; to a widening gap between the success of economic integration and the failings of political integration; and to a disjuncture between an ever denser societal integration and the absence of a European political space, of a European demos and of institutions capable of fostering political legitimacy. Identity issues of this kind have yet to figure in the debates on Mercosur, although, as I will suggest, questions of identity are not entirely irrelevant.

Logics of Power and Power Politics

Power politics and the long European tradition of **raison d'etat** were central to both the origins and historical development of European integration. As Ian Davidson puts it so nicely: 'There are still many people in Britain who suffer under the illusion that the primary raison d'être of the

European Community is the promotion of trade liberalisation'.[2] European integration was a response both to the Cold War and to the German problem that had bedeviled Europe since 1870 and had brought Europe to its knees. The dominant continental response, and the one that has remained fundamental to all French thinking, was hegemonic enmeshment: Europe needed Germany and German power; but living with Germany necessitated the creation of entangling institutions and a combined process of political and economic integration with its accompanying ideology and mythology.

This strategy worked, above all, because of the particular circumstances in which Germany found itself. For Adenauer, the conditions of German history made **Westbindung**, institutional enmeshment and the acceptance of some supranational authority the only viable road to the recovery of, first, German sovereignty and, then, its capacity for international action. (Note the close association between European institutions and the **recovery not loss** sovereignty and autonomy). A little later, as Brandt recognised so clearly, **Ostpolitik** was only viable because the security of the western anchor removed the memory of Rapallo and fears of a return to **Schaukelpolitik** of the past.[3]

For all the transformations brought about by integration and despite the fact that the latest manifestation of the project for monetary union emerged within the context of the single market, this old power-political logic did not go away. Rather German reunification refocused the attention both of France and of Germany (or at least of Helmut Kohl) on the need to constrain a united Germany still further within an enlarged and more tightly integrated community — on the French view balancing the increased power of Germany by wresting control of monetary policy from the Bundesbank.

It is the precisely the degree to which this geopolitical logic behind EMU has to be set against competing economic and domestic political logics that makes the dilemmas facing Britain so extraordinarily difficult. To what extent are these political objectives being pursued in the face of incompatible market realities and on the back of economic illusions? Who will provide

2 Ian Davidson, 'Where's the Strategy?', Prospect (May 1997), p.17.

3 See Timothy Garton Ash, In Europe's Name. Germany and the Divided Europe (Vintage, 1994).

the political legitimacy for the economic decisions that will be taken by the European Central Bank and for the transfer of power that will be involved in its creation? Can the still great divide between French and German views of EMU be bridged: Germany's strict anti-inflationary goals on the one hand against France's determination to secure political influence over the European Central Bank and to promote coordinated fiscal policy at the European level on the other? Above all, does the idea of hegemonic enmeshment still make any sense at all? This is especially important because of the growing number of people (in Britain but also elsewhere) who believe that EMU and further associated steps will in fact cement German influence rather than subject it to effective constraints. Does EMU reinforce the influence of Germany as British Eurosceptics maintain? Or does it provide the basis of open bargaining and compromise as integrationists have for so long argued?

It is important to note the extent to which Britain has tended to adopt a very different view of these matters. British governments in the 1950s completely failed to understand the strategic rationale for economic integration and held to the view that the Cold War division and limited sovereignty would solve the German problem. Specifically, there remains a tendency to believe that breaking the Franco-German axis and concentrating on Anglo-French relations will naturally work to Britain's advantage. More generally (and especially in the writings of leading Eurosceptics) one can detect an alternative image of Europe's future, one that is peculiarly English and resonates with nostalgia for the 19th century. This is the image of a Britain within a loosely institutionalised free-trade area in Europe but with global economic interests, and with peace and stability provided not by the strength and depth of its institutions, nor by external threats from the East, nor by pressures from the United States, but rather from a functioning of a restored, moderate, and moderating balance of power between the major states.

There are four flaws with such a view. First, it neglects the extent to which the rules of the global economy are set by powerful states or blocs of states (which in turn of course reflect the interest of economic actors within them). The illusion of Britain as a free-floating Greater Switzerland is that,

without the protection and political power of Europe, there is no reason to suppose that those norms and rules would continue to reflect British interests.

Second, if Europe were to return to a much looser grouping of states, then traditional understandings of power would matter more and Britain's influence would inevitably suffer. The power resources that were useful if allowing Britain to 'box above its weight' during the Cold War (special strategic relationship with the US, nuclear status, membership of the UN Security Council) are already of declining salience and would decline still further. Institutionalised regionalism is important for Britain because it creates different kinds of power and allows a wider range of states to achieve voice on issues on which they would otherwise be silent. EU policymaking is fragmented and open and usually reflects broad inter-state and intra-state compromises. Thus, for example, Labour's fond hopes of pursuing a more ethically-driven foreign policy are far more likely to be effective as part of a collective European policy.

Third, if the old agenda is indeed dead, where does this leave Germany? What are the consequences for Britain of a situation in which Germany undergoes a fundamental rethinking of its relations with Europe (note the degree not just of public opposition to further integration but also the reservations of both the Bundesbank and the Constitutional Court). The issue is emphatically not about the resurgence of a hostile and aggressive Germany, given the range of domestic political transformations that differentiate post-war German state from its predecessors — although it is important to underline how much the restructuring of German identity and values has been both reflected in and reinforced by the process of integration. The dilemma for Britain comes rather from a Germany that acts more hard-headedly in pursuit of its more narrôwly focused national interests, and whose definition of those interest increasingly lie to the East. In addition, a more unilateral Germany would be even more the natural focus of United States attention in Europe, eroding still further the position of Britain as a favoured European ally — a trend that has been already visible in the US's reengagement in Europe in the period since 1991.

Finally, such a view implicitly claims that the dense institutional structures that have developed in Europe have no impact on national policy

or on national societies. They could be taken away, or at least scaled back, and Europe could return to the past with all the nasty bits taken away. This is quite simply wishful thinking. Institutionalised regionalism does modify the logic of power politics, not because the costs of fighting become too high according to some abstract measure or because potential hegemons are constrained in some mechanical fashion; but rather because it anchors and promotes processes of socialisation and enmeshment through which definitions of interests and identities shift, altering the values of members and the ways in which costs/benefits and rational action are construed. It does this through a double process of internalisation, the first element of which involves material changes in bureaucratic procedures, domestic legal arrangements, domestic coalitions; and the second subjective element of which involves changes in the way in which politically salient individuals think and act. Economic regionalism may then stabilize particular constructions of interest, influence how the game of regional politics is understood, and shape what kinds of reputation matters (contrast the value given to reputation for toughness in pre-1914 Europe with the very different kinds of reputational assets that bring benefits within the EU).

What, then of Brazil and South America? Twenty years ago any account of the region that did **not** give pride of place to power politics would have appeared quite absurd. Indeed it is not exaggerating much to argue that the international relations of the region could be reduced essentially to the dynamics of a double set of strategic triangles: Argentina, Chile and Brazil on the one hand, and Argentina, Brazil and the United States on the other. And yet by the mid-1990s it was clear that a major break had taken place in the character of relations between Brazil and Argentina in the sense that previous disputes had been settled; that diplomatic, military and economic resources were no longer committed to opposing the other side; and that the two countries were enmeshed in an increasingly dense process of cooperation and integration across a range of issues.[4]

4 I explore these changes in more depth in 'An Emerging Security Community in South America?, in Emanuel Adler and Michael Barnett eds., Governing Anarchy: Security Communities in Theory, History and Comparison (Cambridge U.P. forthcoming).

Power and relative power have not wholly disappeared, especially to many in Argentina who fear that deep integration with Brazil is bringing excessive dependence, who believe that too much autonomy has been given up, and who are keen to maintain direct reciprocity, both in terms of economic exchanges and other areas of cooperation. Yet, the problem of Brazilian power is no longer understood in strategic, let alone, military terms and the idea of actively opposing Brazilian power has largely disappeared. One might be tempted to argue the balance of power has shifted so far against Argentina that conflict has become impossible and that élites in Buenos Aires are merely bowing to the inevitable. Yet whilst such an approach may help explain why rivalry ended, it is unclear that it could explain Argentinean willingness to embark on both increased security cooperation and deep economic integration with the erstwhile threatening hegemon. Rather the process needs to be understood in terms of a range of factors at the national, regional, and global levels. These factors include both democracy and economic liberalisation but are by no means limited to them.

A further important aspect of these changes concerns the idea of a powerful core to which outside states no longer respond by balancing behaviour, but rather view as a zone of peace and security in which membership is valued. There are some signs that this is happening in the region as Mercosur becomes more firmly established and the process of expansion has moved forward, first with the 1996 agreement on Chilean association and then with the advanced negotiations for Bolivian and Venezuelan membership.

The extent of change over the past twenty years is immense and often underappreciated outside the region. Compared to the past there appears to be far greater stability both in the overall relationship and in the underlying changes in the two societies.

Yet there are still challenges to the region which, in turn, give rise to dilemmas for Brazil. In the first place, the political relationship has had to confront persistent divergences in the foreign policy interests of Brazil and Argentina. Since 1991 the degree of divergence has varied but not disappeared. Divergence has reflected the distance between Argentina's

heavily ideological stance as a member of the 'western strategic relationship', its very clear pro-US alignment, and its strong commitment to market-liberalism on the one hand, and Brazil's more ambivalent and ambiguous position especially in terms of relations with the US on the other.

Second, the politics of Mercosur remain extremely dependent on **Brazilian self-containment** and its willingness to curb the temptations of unilateralism that go with marked asymmetries of power. Historically Brazilian policy towards the region has been characterised by relative reticence and a disinclination to project power and to assert what many have seen as the country's 'natural' dominance in the region. This is especially true of power in a traditional military sense and was the case even under Brazil's military rulers whose minds were clouded by the paranoia of their own geopolitical doctrines. And yet, despite the positive weight of the longer past and the successes of the more recent past, unilateralist tendencies on the part of Brazil have been consistently visible throughout the development of Mercosur and continue to be a central political issue. Here there is surely a lesson to be learned from the experience of Germany in Europe: the benefits of self-consciously accepting political and institutionalised limits on freedom of action in the interests of a more autonomous and more effective regional role.

For the moment there continue to be very real constraints on Brazilian unilateralism. But these do not come from the structure of Mercosur itself, nor from its (still weak) institutions. Mercosur cannot in itself 'discipline' Brazil, either in terms of limiting the range of domestic economic policy choices nor in terms of enforcing a common voice on foreign policy issues. However the pattern of state interests does work to move things in this direction, above all because, in addition to its concrete economic stake in Mercosur, Brazil's international credibility depends on the continued successful development of Mercosur. This is true of Brazil's relations with the United States for both political and economic reasons. But it is also true of relations with Europe given the extent to which these depend on the continued development of the region-region relationship. Brazil, then, has a powerful self-interest in managing the economic and political problems that arise within the grouping, even when these involve concessions to the weaker members.

However there is an obvious difficulty with focusing exclusively on changes in the character of relations **within** Mercosur, namely that this neglects the role of 'outside-in' pressures to cooperate that come both from the constraints of economic globalisation on the one hand and from the continued centrality of US power on the other. The internal constitution of the relationship between Brazil and Argentina has certainly changed and Mercosur has altered the pattern of international relations at the sub-regional and regional levels. And yet at least part of these changes have to be viewed as responses first to changes in the global political economy (discussed below) and second to the continued power and importance of the United States. This reflects a very old and traditional diplomatic story — the notion that a strong regional grouping will be better able to negotiate with the US. But it clearly still represents a very important pattern of foreign policy behaviour when we consider both the thinking of Brazil on Mercosur and the attitudes of surrounding states towards Mercosur. I will return to this briefly in the conclusion.

Logics of security

There are two kinds of challenges both of which provide the strategic justification for both EU and NATO enlargement. The first reflects the fear of instability on Europe's borders. Even if a security community has been created within a given region, security will depend crucially on what happens around its boundaries. The basic idea here is to manipulate both the prospect of eventual membership and the creation of specific criteria for admission in order to lock surrounding states into policies that are deemed to promote stability: economic liberalisation, human rights and democracy, and changes in military structure and organisation (through PFP). The second is to tie in the states of Central and Eastern Europe as protection against the possible reemergence of a Russian threat.

There are, however, three dilemmas for all EU members, including Britain. First, there is the problem of the weakening core. On the one hand, enlargement undermines the value of membership for those seeking to be included. In practical terms, for example, enlargement will drastically reduce the EU's capacity for redistribution through the CAP or the regional

programmes and force a restructuring of the community budget. But far more important given the degree to which membership is seen as a credible symbol that the West will offer support if things go wrong, enlargement runs the risk of undermining the very capacity for effective action that gives credibility to that symbol. On the other hand, enlargement will dilute the very socializing pressures and tight institutional binding that has reinforced the differences between the 'nicer', 'gentler' character of post-war European states and their earlier far less attractive selves.

Second, there is the question of legitimacy and effectiveness. On the one hand, political legitimacy presses towards inclusiveness, towards involving all the members of a region. On the other, effectiveness depend of restricting effective decision-making to a small number of states that have both the capability and willingness to act. One increasingly common solution to resort to diplomatic 'contact groups' or to ad hoc coalitions dominated by a smaller number of states with the power and interests to take effective action, but embedded within a regional grouping — perhaps leading in Europe to a (disguised) concert of major powers within an expanded EU. Yet, although undeniably useful (and perhaps especially tempting for Britain), this road opens up the possibility of a hierarchy of membership and threatens to replicate within the region many of the issues of legitimacy and accountability that currently affect the workings of the UN.

The third difficulty concerns boundaries. The liberal logic of inclusion finds it hard to fix on outer boundaries. Indeed in an important sense it depends on the denial that such boundaries exist, because to fix boundaries is to define insiders/outsider and to separate friends from potential foes. The internal logic is one of benign liberal hegemony — the magnetic attraction of Kant's expanding pacific federation which, for its own members, is able to break the realist logic that automatically equates power with threat and which serves as the focal point for gradual expansion. Yet the dilemma is precisely the one identified by Rousseau already in the 18th century when working through the ideas of the Abbé Saint-Pierre: how to prevent a federation that successfully protects smaller state and secures peace within, from, at some point, inevitably generating a logic of exclusion and competition amongst states that are too large or too incompatible to be

included? And, if they (Russia? China?) are to be included, how to prevent the resulting institutions from being so loose, so lacking in effectiveness and reflecting such a thin sense of community that their 'institutionalisation' provides the thinnest of thin cloaks to the old practice of power politics.

There are also two dimensions of security that of interest in the context of Mercosur: security management within Mercosur and security management around its borders. As noted above, twenty years ago any survey of the region would have had a great deal to say about security issues between Brazil and Argentina and in the southern cone more generally. The fact that security is mostly ignored is a reflection of the changes that have taken place in the relationship and the degree to which the possibility of economic integration represented by Mercosur rested on a prior political and security rapprochement. Central to this rapprochement was the gradual strengthening of a series of confidence building measures, especially in the nuclear field with the eventual construction of an institutionalised system of control and confidence-building. In addition, there have been signs of a gradual move towards more active cooperation between Brazil and Argentina with increased bilateral discussions and denser military exchanges, as well as with the (still largely symbolic) joint naval exercises and the forthcoming joint army exercises (although Argentina has been rather keener to move in this direction than Brazil).

Is there a dilemma here for Brazil? Dilemma is probably too strong a word. But there are certainly issues that need to be managed: the need to protect what has been gained from external shocks (eg the resumption of US sales) and from the need to secure technological modernisation of the armed forces across the region; the need to manage the difference that exist in attitudes toward regional and hemispheric security; the need to consider the implications of the professed objective of developing Mercosur into a functioning political community; and the need to adapt to new kinds of security issue in the region (cf the tensions caused by recent fears of a spill-over from Brazil of rural violence). Unlike traditional threats which press allies together, it should be remembered that problems such as drug-related criminality, migration and terrorism tend to undermine regional consensus because of the enormous difficulties of defining state interests and, especially, deciding upon the appropriate role for the use of military force.

Outside of the Brazil-Argentina relationship, regional security has not figured at all prominently in Brazilian debates. The public and political debate on security is far less advanced than in, say, Chile or Argentina. However it is interesting to note that this is now changing and that the creation of a ministry of defence in a second Cardoso term could be the catalyst for further change. I would suggest that the security dimension of regionalism is going to become more prominent and more problematic for Brazil in the future, as Mercosur comes to include those parts of the region in which security challenges, of both traditional and non-traditional kinds, are far more acute and worrying. The expansion of Brazil's global political role (for example through membership of the UNSC) and the continued development of a more extensive regional role will bring the need for a more considered and coherent security policy far more sharply into focus.

Logics of economic integration

If the logics of power politics and of security have not gone away, they have been joined and to a certain extent (but by no means entirely) superseded by the importance of economic integration. Clearly a great deal of contemporary regionalism has to be seen as a response to changes in the global economy and to processes of technological change. Economic regionalism is viewed by many as representing the most viable level at which to reconcile the integrative market and technological pressures towards globalisation and integration on the one hand, and the equally visible trends towards fission and fragmentation on the other. Equally, the domestic politics of regional economic integration are often best understood in terms of a convergence of interest between state élites and firms in response to structural changes in the world economy.

Brazil's policy towards Mercosur clearly reflects the changes in Brazilian economic and foreign economic policy which began to visible in the late 1980s. Although in large measure a response to domestic economic difficulties, these involved a radically revised view of the international economy: the idea that deep economic change and globalisation are real and inevitable; that dynamic economies are internationalised economies; that growth depends on successful participation in the world economy; that

increased foreign investment is central to the effective transfer of modern technology; and that the increased rate of technological change has undermined projects that aim at nationally-based and autonomous technological development. Out of this emerged the picture of Mercosur as a reflection of the more general need for competitive modernisation, as 'a platform' or a 'regional laboratory' for modernisation and competitive insertion in the world economy' — as the new discourse expresses it — and as a way of bringing together the internal and external agendas of economic liberalisation.

On the other side, Brazil has also been inevitably influenced by the increased emphasis on economic regionalism on the part of the United States. NAFTA and the possible expansion of NAFTA undoubtedly helped to shift the groundrules of economic debate. Pressure therefore did not come simply from perceptions of changed **global** conditions, but also from the way in which a US-inspired set of market liberal policies and norms was becoming ever more central to **regional** arrangements. Despite Brazil's policy of developing Mercosur as a both a partial defence against the constraints of globalisation and as a platform for greater international insertion, there has been progressive tightening of this hemispheric process since the Miami Summit which has brought regionalist alignments into sharper focus. Whilst Brazil has sought both to influence the nature of hemispheric integration and to delay any moves towards an FTAA, the greater regionalist emphasis on the part of the United States has undoubtedly acted as a major factor shaping Brazilian foreign policy.

The logics of economic integration give rise to a wide range of dilemmas for national governments in both Europe and South America. For Britain an especially important dilemma concerns the relationship between states, markets and institutions. The process of successful integration, combined with the more general developments associated with globalisation, have led to profound changes in the role of the state. How far the restructuring of the state represents a weakening of the state is, of course, a contested issue and one whose answer varies greatly from case to case. Nevertheless the allocation, stabilisation and redistribution functions of the state have all been deeply affected and the transfer of authority from state to market has

been as least as important as the transfer from state to EU.

This has created dilemmas for all European states.[5] It has intensified the difficulty of managing the trade-off, firstly, between economic efficiency and both economic and social stability; and secondly, between economic efficiency and social equity. Europeanisation and globalisation have unpicked the old bargain: Europe as the vehicle for liberalisation abroad; the state as the framework for welfare at home. On the one hand, globalisation, the single market and trying to meet the convergence criteria for EMU have forced European states to compete against each other squeezing public (and welfare) expenditures. On the other, political acceptance of Europeanisation is undermined as the losers in many parts of Europe look to Brussels as the source of their problems.

Shifts in power and authority between states and markets and between member-states and central institutions pose particular dilemmas for Britain. Thatcher's European policy was marked by paradoxes: first, that she agreed to such a major deepening of the integration process; but second, that Conservative policy was so successful, despite all the antagonism and animosity that it engendered.[6] The single market, after all, represented a triumph of Thatcherite thinking and Britain played a leading role in its creation. Britain's willingness to be isolated helped ensure that the single market was overwhelmingly about carrying through the process of negative integration that goes back to the Treaty of Rome. Positive integration, the effective regulation of the market at the European level was consistently blocked and has remained limited — for all the rhetoric of the social chapter. Again perhaps paradoxically, EMU has furthered this process, forcing governments to follow Britain's lead in reducing the size of the state and undertaking large-scale privatisation.

This opens up dilemmas for the Labour government. Does it actually agree with those in Europe who do indeed perceive the need for more positive integration and market regulation in order to help safeguard social stability

5 See Loukas Tsoukalis, The New European Economy. The Politics and Economics of Integration (Oxford University Press, 3rd ed., 1997).

6 This section draws on the ideas in Anand Menon, 'Labour and the Paradoxes of Britain in Europe', unpublished paper, August 1997.

or social equity? If so, what sorts of economic philosophy might guide this: Is Britain best suited to an Anglo-American type of flexible capitalism or should it try and move towards the more regulated 'stakeholder' system of Germany? Is Britain politically able to accept that positive integration necessarily implies more integration and that, within the context of enlargement, this necessarily entails further reduction of the ability of a single state to block progress?

Much hangs for Britain on the political and economic viability of a differentiated pattern of integration in Europe. Inherent in all previous practice and in the language of a multi-speed Europe has been the idea that all states would move ultimately in the same direction; that where there was an inner core, that core would exercise a magnetic attraction that would eventually drawn in all around. The shared agenda was clear. The only question was one of timing. Yet the emergence of opt-outs, the uncertain prospects of EMU and the process of enlargement have opened up the prospect of a much longer period of convergence or even of permanent differentiation. The political and economic relationship between 'ins' and 'outs' is already one of the most pressing issues in the context of monetary union but it is only one example of broader pattern and one that is of critical importance to Britain. Part of the argument for early membership of EMU is that, if monetary union goes ahead, the agenda on a whole range of issues from external trade policy to enlargement will be decided by the core grouping.

The dilemma facing Brazil that I would highlight is rather different but also concerns the character of integration and the scope and nature of regional institutions. Brazilian commentators and officials frequently argue that this is one area where Mercosur is different and where European lessons should not simply be assumed to be applicable. Certainly the revival of regional cooperation in Latin America from the mid-1980s tended to downgrade institutions, not least because there seemed to be so little relationship in the Latin American and inter-American past between elaborate organisational structures and successful cooperation. In addition, the success of both Brazil-Argentina rapprochement and Mercosur seemed to vindicate the view that a loose inter-governmental set of arrangements could be both flexible and very successful.

Institutionalisation within Mercosur remains very limited. Does this matter? Are there dilemmas here for Brazil? Arguably, yes and these will become more acute as Mercosur develops. One way of understanding these dilemmas is not think in terms of the 'lessons' of Europe but rather to ask: what are the basic of functions of international institutions? I would suggest that three core functions are relevant here. The first concerns the management of conflict, involving both formal dispute settlement procedures and the institutionalised negotiation of political differences. Whilst the habits of dialogue are certainly well established, forms of management that are not subject to contending foreign policy interests or to immediate, day-to-day political interference (whether from São Paulo industrialists or regional politicians) are only weakly established. As the arguments over car exports, industrial policy, import financing have demonstrated, conflict management relies on overtly political bargaining at the highest political level rather than on institutionalised processes, both formal and informal.

Second, institutions will become more important as the agenda of integration expands and becomes more complex and more technical. Although certainly different from the EU or NAFTA, Mercosur is much more than a trade agreement. In theory, and increasingly in practice, it is about 'deep integration', encompassing investment, dispute settlement, physical integration, labour issues, energy and macro-economic coordination. And, to this agenda of deepening has of course been added a increasingly rapid process of widening.

Third, regional institutions are important to the extent that they help provide, first, a locus of bureaucratic momentum and, second, the platform for political support for integration. It is important to remember that active interest group support from within member states (but especially within Brazilian society) has been growing but remains thin. It may be that the deepening of integration will lead to the creation and organisation of new interest groups and there are signs that this may already be happening (increased societal contacts, the importance of sub-national regional and state politics). Yet Mercosur remains a heavily statist and state-led project and very dependent on definitions of interest at the central government level.

Conclusion How might one begin to compare the scope for an effective regional foreign policy? There are, broadly speaking, three kinds of foreign policy: a policy that creates trends and sets agendas; a policy that anticipates trends; and a policy that reacts to, and follows, trends. Of course all states are ever more constrained by the external factors but the extent of these constraints remains highly uneven.

One of the most consistent criticisms of British foreign policy towards Europe has been that it has consistently 'missed the European bus' and been force to scuttle off in pursuit of trends and initiatives set elsewhere. The most common response is to argue that pragmatism and pragmatic adaptation will win out in the end. Hugh Thomas once compared British foreign policy to a coach and horses being driven through a forest in a thunderstorm. The occupants had little clear idea of where they were going, but thanks to the skill of the coachman, his sound judgement and reliance on traditional instincts, the coach somehow always manages to arrive safely at its destination. Exaggeration no doubt. But elements of this instinct remain, combined with the more general belief doing little might work in the end to Britain's advantage; that Europe has been changing dramatically; and that many of those changes have worked to Britain's interest.

As indicated above, this view of the changing European agenda is not wholly wrong. And yet it fails to grasp the extent to which the big ideas and grandiose rhetoric, at which British officials so love to scoff, have in fact repeatedly played an important role in setting the regional agenda and shaping the development of the Community. And it also fails to appreciate the arguments for activism: based on the domestic strength of the Labour government (certainly compared to both France and Germany); on the possible role for Britain in mediating between French and German views of EMU; and on the need to shape from within the core grouping the ways in which the Union adapts over the next few years. If, then, there is a case for activism, the most important target for activism will remain Germany and the cultivation of the Anglo-German relationship. Most of the answers to Britain's European dilemmas will depend on the future of German foreign policy and the extent to which the strength and continuity of Germany's commitment to integration falters or changes character.

Within Latin America the scope for effective Brazilian policy seems assured. Not only does relative power give it an inevitably central role but, as mentioned above, Mercosur has altered the pattern of relations within the region. In terms of opening up possibilities for effective action this has worked to Brazil's advantage. But, as the paper has tried to argue, it also raises a series of dilemmas for the government that will become more acute over the next few years. Perhaps the most important of these dilemmas relates to the divergence that has opened up within the Brazil-Argentina relationship between secure and successful economic integration on the one hand and political and foreign policy differences on the other. Material interests certainly seem to point to continued stable cooperation. But questions of identity as well as domestic political changes can do strange things to understandings of national interest.

At the same time Brazil's capacity for effective and autonomous action remains constrained: first, by the country's high and increasing vulnerability to external economic shocks and by the need to maintain the momentum of economic reform; and second, by the position and policies of the United States. It has become very common to talk rather glibly of the reassertion of US hegemony over the region as a result of the end of the Cold War and the processes of economic and political liberalisation. Certainly if the United States were truly hegemonic, then Brazil's scope for a effective and autonomous action would indeed be very limited. And yet to be sustainable hegemony needs three things: power resources (both material and ideational); a clear hegemonic project; and firm domestic political support. Whilst the enormous asymmetry of US power towards the region remains self-evident, the other two factors are far less clear-cut and need far more careful and nuanced analysis. And it is precisely this fact that provides Brazil with the diplomatic and economic space to influence the ways in which the hemispheric integration agenda is played out in the future and to seek to carve out a constrained but still autonomous and wide-ranging foreign policy in the late 1990s.

Brazil and the United Kingdom in Relation to the European Union and Mercosul: Notes on Commercial Relations+

*Lia Valls Pereira**

Introduction

This article analyses trade relations between Brazil and the United Kingdom since the two countries have entered into their main agreements on economic integration - Mercosul and the European Union. The celebration of the European Union Inter-regional Agreement and Mercosul, on December 15th, 1995, suggests that relations between the member states of these regions may come to be influenced by the framework of negotiations being set up in the inter-regional sphere.

The first section describes the main characteristics of Mercosul-European Union trade relations, emphasising the structure of Brazil-United Kingdom trade. The second analyses in particular the evolution and perspectives of Mercosul from the Brazilian point of view, concentrating on the aspect of foreign relations. The third section presents some reflections on possible scenarios for the Mercosul-European Union relationship and its possible impact on the Brazil-United Kingdom relationship.

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Main Aspects of Trade Relations Between Brazil and the United Kingdom in the Context of Mercosul and the European Union

A Brief Background

The political, economic and cultural links between countries in the European Union and those in Mercosul are present in varying degrees in the history of these two regions. In particular, the United Kingdom had a dominant role in the Mercosul economies until the first half of the 20th century.

The history of Brazil-United Kingdom trade relations began in colonial times through a series of agreements between Portugal and the United Kingdom which gave the latter privileged access to markets that were extended to include Brazil. Even after Brazilian independence in 1822, United Kingdom imports benefited from preferences that were abolished only in 1844.

During the 19th century British presence was dominant in Brazil. England was the main supplier of imported products and practically the only supplier of overseas capital. This situation began to change at the end of the century. Thus, for example, the English share of Brazilian imports fell from 50% to 30% between 1870 and 1900. As for exports, the North American market was already tending to be more important than the English during the 19th century and this tendency increased at the start of the 20th century[1]. The United States took 40% of Brazilian overseas sales, while the United Kingdom took between 15 and 20% (Abreu, 1982).

As for British investment in Brazil, the declining trend is clear after 1930. In 1913, 60% of total foreign investments in Brazil came from England. In 1950, this percentage had fallen to 12%, while the amount of North American capital was 44%. Certain reasons are put forward to explain this situation (Abreu, 1982). The first is associated with the concentration of British investment in railways, which became less important in comparison to road-building and public utilities that tended to be controlled

1 The increase in exports to the North American market is associated with the growing importance of coffee in the list of Brazilian exports.

by the State with the aim of guaranteeing low prices. The second was the concentration of British investment in the form of shares, which facilitated the movement and sale of these assets.

We find that the preference for portfolio investments in infrastructure and public utilities occurred also in Argentina, where, in 1913 59.3% of foreign capital in the country was British in origin (Fischer, 1973). However, nationalisation policies and the repatriation of public foreign debt meant that British investment declined to 19.4% in 1949. As for market activity, until the First World War the United Kingdom was the main receiver of exports and origin of imports. From the mid-20s the United States came to be the main exporter, providing 24.6% of imports, and the United Kingdom 19.6% in the years 1925-1929. In terms of exports the United Kingdom was still ahead during this period, with 29.6% as this was the main market for meat exports[2]. In time however, the British market lost this position (Díaz-Alejandro, 1970)

Main Aspects of the Mercosul-European Union Structure

The GDP of the European Union (prices current in 1994 and dollars in 1990, OECD, 1996) is about US$ 8,216.47 billion, with the United Kingdom having a 14.4% share of of this total. Germany, which has the largest GDP in this common market, has 25% of the Union's GDP. The GDP of Mercosul (prices current in 1995 and dollars in 1990, Banco Central, 1996) is US$ 971.47 billion, with the Brazilian GDP making up 70% of this total and that of Argentina, 24%.

The flow of trade in the European Union in 1996 was US$ 3,978.90 billion, with that of the United Kingdom valued at US$ 546.173 billion, representing 13.7% of the total flow. Mercosul's trade flow in the same year was US$ 162.110 billion with Brazil's share at 65.8%.

Mercosul's GDP is, therefore, 11.8% of the of the European Union's GDP and its trade flow is 4% of the European Union's. These are figures of

2 In 1929 about 99% of exports of refrigerated meat went to the British market, a fact which is in part explained by the prohibition of this type of import to the United States (Díaz-Alejandro, 1970).

very different proportions which represent the respective positions of the regions on the world stage. The data also indicate the high level of imbalance in the Mercosul sub-region, in terms of the weight of the Brazilian economy. This imbalance, in terms of production and participation in trade flow comes from the presence of a group of countries in leading positions such as Germany, Italy, France and the United Kingdom. When we consider, however, the weight of the Brazilian economy, the main trade indicators will mirror to a great extent the form of Brazil's export trade.

Mercosul displays a trade system that is multilateral in nature. In 1996 about 23.4% of exports from this region went to the European Union, 28.7% to the Association for Latin American Integration (Aladi), 15.9% to North America and 16.8% to Asia. Intra-Mercosul exports accounted for 19%. If we think, however, in continental terms, 44.6% of Mercosul exports go to the markets of the western hemisphere (Table 1).

The same picture is repeated with regard to the flow of imports, with a greater participation, however, from the developed regions (European Union and North America - Canada and the United States) as compared to the participation of these regions in the system of exports (Table 2).

The multilateralism of Mercosul trade reflects the structure of Brazilian exports, which make up 63.6% of the total exports from the region, and those of Argentina, which are 31.5% of the total. The main difference is in the relatively greater importance of the Aladi market to Argentina, which results in a smaller proportion being exported to the European, North American and Asian markets than is exported from Brazil. Paraguay and Uruguay direct their external sales to Mercosul.

European Union trade has a high level of inter-regional transactions which account for about 60% of total exports and also of the total imports in the area (Table 3). All the countries in the bloc have levels of intra-regional trade practically equal to or over, 50%. Mercosul accounts for only 1.08% of European Union overseas sales and even if we include all the Aladi countries this percentage only comes to 2.4%. Thus, in the western hemisphere the most important market in terms of destination of exports, is North America (United States and Canada).

Table 4 summarises the trade relations between Mercosul and the European Union, While Mercosul's share of the European Union's external trade is small, in the region of 2 to 3%, the relative proportion of the European Union in Mercosul is from 28 to 30%. Although this figure reflects mainly the huge difference in the value of trade between the two regions, it also shows, in part, the relatively smaller involvement of Mercosul in commerce outside the region.

Data for 1992 show that the list of exports from Mercosul to the European Union was mainly composed of foodstuffs and live animals (38%) and agricultural raw materials (21.3%), followed by manufactured goods and machinery and transport equipment, which made up 29.4%. In contrast, the list of exports to the United States, foodstuffs, live animals and agricultural raw materials make up 24.3% of total Mercosul sales to that country, while the manufactured goods and machinery and transport equipment constitute 59.4%. As for imports, purchases of machinery and transport equipment appear as frequently on the list of goods coming from the United States as from the European Union, followed by chemical products. (Mello, 1996).

The same composition is found in the Brazilian list (Table 5). While 58.2% of exports destined for the European Union are basic products, and 29.4% manufactured, 63.8% of exports to the United States are manufactured goods. So, the European Union is the main market for Brazil's basic goods (55.8%) followed by Asia (20.7%). As for manufactured goods, 41.4% of exports go to the Aladi market, 22.7% to the United States and 16.6% to the European Union. Considering that in the same period (January to July, 1997) the list of Brazilian exports was made up of 33.1% basic goods, 15.4% semi-manufactured and 50.4% manufactured, the list of sales to the European Union was very different from that of the Brazil's general list of sales.

When trade relations between Brazil and the United Kingdom are analysed separately from the blocs they belong to, the following results are found. Brazil accounts for 70% of Mercosul's exports to the European Union, with the United Kingdom taking 11.3% of total Brazilian exports to the region. A similar result is found in the flow of imports, with 61.8% of import flow from the European Union to Mercosul going to Brazil, the United

Kingdom accounting for 9.3% of that total. The United Kingdom is responsible for 9.2% of total European Union exports to Mercosul, with Brazil's share of export sales to that market standing at 65.1%. As for imports, the United Kingdom purchases 12.3% of goods bought by Mercosul countries in the European market, with Brazil taking 72% of these purchases. It is noticeable, however, that Mercosul accounted for only 0.78% of total United Kingdom exports in 1996, while the European Union took 28% of total Brazilian overseas sales.

The results described above serve to emphasise the amount of imbalance that has already been referred to. Mercosul plays a small part in the European Union export trade (1.08%) and the European Union has a large share of Mercosul's (23.4%). From the point of view of market potential, Brazil has a dominant position, either in relation to the European Union or the United Kingdom in any Mercosul-European Union negotiations. Nevertheless, Mercosul has very little influence either in terms of European Union trade (1.08% of exports) or of the United Kingdom's (0.78%). With regard to market potential there is much less concentration in the relative significance of the various markets that make up the European Union, either from the point of view of Mercosul or of Brazil. For example, in 1996 Germany took 4.4%, Italy 3.2% and the United Kingdom 2.8% of total Brazilian exports. On the other hand, the European Union is a major receiver of overseas sales from Mercosul (23.4%) and from Brazil (25.8%).

Bilateral trade between Brazil and the United Kingdom is relatively insignificant for both countries. However, trade relations show a relatively greater involvement of England in Brazil's trade than of the latter in Britain's (Table 6). Thus, for example, while Brazil's share of total United Kingdom imports was 0.97% in 1996, the United Kingdom's share of total Brazilian imports was 2.7%.

The decline of the United Kingdom in Brazilian trade noted at the end of the 19th century may also be seen in a more recent period. In 1970 the United Kingdom accounted for 4,7% of Brazilian exports and 5.8% of its imports. In 1996 these percentages were respectively 2.9% and 2.5% (Table 7). It becomes clear, however, that on the imports side there has been a reverse of the declining trend if we take into account that in 1985 the

United Kingdom share of Brazilian overseas sales was 1.9%. If we analyse the average annual increase between 1990 and 1996, imports from the British market increase to a level of 21.1%, which is more than the level of imports from the European Union and of total imports (16.7%) as will be seen in Table 8. The increase of exports to the United Kingdom (6.7%) is also greater than that shown for the European Union (3.15%) but is less than that for total exports (7.23%).

Looking at the ten major products imported from the United Kingdom to Brazil the majority are in the area of transport materials (38%), chemical products (30%) and medical products (13.4%) which have also been found to have increased in the total list of Brazilian imports[3]. Exports are predominantly basic products such as tobacco, soya, and wood, although one manufactured product, shoes, heads the list, accounting for 9.6% of total Brazilian exports. Sales of piston engines are noticeable, which suggest there is some intra-industrial commerce (Table 8 and 9).

When we reflect on the increase in trade between the United Kingdom and Brazil, as well as preferential concessions, the important factors are of necessity the regional agreements in which these countries are involved, with certain points standing out.

The first of these concerns the increase in products which already dominate the lists and are basically associated with the agricultural area. An exercise simulating a free-trade agreement between Mercosul and the European Union carried out by Brandão and Lopes de Pereira (1997), starting from a general balance model, showed that the gains from such an agreement are in overall terms greater than those from the proposed Alca (Free Trade Association of the Americas). Nevertheless, the gains from the European Union are mainly explained by the increase in exports of agricultural products. In the case of Alca the industrial sector makes more gains. Thus, a crucial question in the proposal to form a free trade area between Mercosul and the European Union is the possibility of greater liberalisation of the agricultural market. From this point of view, the agricultural negotiations

3 The variation from January to August, 1997 compared to the similar period in 1997 was 37% in medical imports and 45% in vehicles and spares, while total imports increased by 25.5%.

within the World Trade Organisation that will take place in 1999 are fundamental, given that the Uruguay Round imposed discipline on the market but brought about relatively little liberalisation. This is because it is difficult to imagine, in principle, that Mercosul will obtain special concessions on products considered to be sensitive in the European Union (meat, dairy products and wheat among others, which are of interest to Mercosul), except within a scenario of new changes in the Common Agricultural Policy.

The second question refers to the smaller share of industrialised products in Mercosul's exports to the European Union as compared to the United States. This situation may be explained by more successful marketing strategies, competition and demand structure, among other points that have to be better identified. In the Brazilian case, it is noticeable that 48.34% of the exports of industrialised goods took place through multinational companies in 1996, which indicates the important role played by the policies of these companies. Firms financed with North American capital accounted for 32.64% of the total of these exports, while European firms were responsible for 45.85% (Barros, 1997). So one of the factors affecting the lesser participation of Brazilian industrialised products in the European Union may be connected to the activities of the multi-national companies, in particular the European ones which direct their exports more towards the regional market and/or smaller intra-industry deals.

From the point of view of Mercosul countries, thoughts on the possibilities of expanding trade with the European Union are part of a more general picture. One part refers to the extension of Europe into the countries of Eastern Europe, for example, which have a profile of manufactured and semi-manufactured exports in some way similar to those of Mercosul in the European market (Freitsch and Teixeira, 1994). Given its geographical proximity, even with the low tariffs Mercosul offers compared to the rest of the world, Eastern Europe constitutes a great incentive to increased competitiveness of Mercosul products.

The other part refers to the proliferation of regulations in the form of technical, plant health and environmental rules which, among others, often tend to act against Brazilian exports.

Institutionalisation, through signing preferential trade agreements, reflects basically two non-exclusive realities. One is the economic dimension, expressed in the pre-existence of strong links of economic inter-dependence between countries. The other is the political dimension, which reflects the interests of the states in creating a regional area of influence.

From the strictly commercial point of view there is a certain imbalance in the links between Mercosul and the European Union, which is revealed in the different degree to which each figures in the trade figures of the other. Nevertheless, Mercosul's multi-lateralism, especially that of Brazil, suggests that there is no zone of preference that is dictated purely by commercial considerations.

In political terms, the European Union's priorities concentrate on strengthening the Union itself, either in relation to the development of monetary union or to the inclusion of new members. It must not be forgotten, however, that strengthening the European Union in terms of political leadership and the world economy demands consideration of relations with Latin American countries. In particular insofar as the countries of this region consolidate the process of stabilisation and economic growth. From this perspective, Mercosul, by virtue of being a regional agreement and containing the largest economy in the region would have in principle, a leading role. It is clear that the establishment of possible special relations between the United Kingdom and the countries of Mercosul would above all be viewed in the context of Mercosul-European Union.

As for Mercosul, the priorities of its political agenda will be analysed in the next section, from the Brazilian point of view.

Mercosul: Results and Perspectives from the Brazilian Point of View

The Asunción Treaty of March 26th, 1992, having established as an objective the creation of a common market - Mercosul - made up of Argentina, Brazil, Paraguay and Uruguay, from January, 1995, was received with a certain scepticism by some sectors of Brazilian society. From the economic point of view, various points were raised. The markets of the Mercosul partners accounted for only 7.3% of Brazilian exports in 1991.

The Brazilian GDP constituted about 66% of the Mercosul GDP and also there was no expectation of a significant increase in economies of scale from free access to the markets of the Mercosul partners. Also, there could be no expectation of significant direct foreign investment coming to the Brazilian economy from Mercosul countries. In addition to this, there were doubts as to the development of the negotiations, given the collapse of previous attempts at economic integration in Latin America.

In essence, the Asunción Treaty can be seen as an instrument allowing the establishment of negotiations with a view to setting up a common market without creating supra-national ambitions. The treaty set out, however, a timetable for tariff levelling in intra-regional business and while the timetable was being implemented, there was a feeling that the political decision to establish Mercosul was irreversible. At the same time it was becoming clear that it would not be possible to set up a common market within the period laid down, so priority was given to forming a customs union by negotiating a common external tariff.

The negotiations to establish a common external tariff were concluded within the time laid down and, from 1995, Mercosul formed a customs union, even if still an imperfect one. In other words, there is free trade between the member countries although with some exceptions (the adjustment lists), and the countries operate a common external tariff with regard to imports from the rest of the world which reaches about 88% of overall tariffs. Nevertheless, the time-scales for ending exceptions in intra-regional trade and for the full adoption by member countries of the common external tariff have already been agreed. By the year 2000 intra-regional trade will be completely free and full customs union will be operating from 2006.

The result, however, which contributed most to Mercosul being represented to Brazil as a successful project, was the significant growth in trade in the region. Intra-regional trade increased from 8% to 19% between 1991 and 1994. Brazil's trade flow (exports plus imports) with its Mercosul partners went from US$ 4,577.7 million to US$ 10,579.9 million. The average annual growth in Brazilian exports to the region has reached 37%, which reflects the increased participation of Mercosul in Brazil's external

sales from 7.3% to 13.6% between 1991 and 1994. Argentina has become the second biggest overseas trading partner with Brazil after the United States.

Nevertheless, the growth in Mercosul trade cannot be explained only by the tariff levelling programme. Between 1991 and 1994, while the Argentinian economy demonstrated systematic rates of positive and relatively high economic growth, the Brazilian economy experienced negative rates or positive rates that were lower than those of Argentina[4]. In addition to this, the Argentinian exchange policy of fixed parity with the dollar as opposed to Brazil's policy of exchange correction to keep up with inflation rates that reached figures of more than 2,000% in 1993 and 1994, created an exchange rate that was extremely favourable to Brazilian exports. The index of the real rate of exchange between the Brazilian currency and the Argentinian reached 155.6 in December, 1993 (base March, 1991). The result of the macro-economic cycles being out of phase was the accumulation of surpluses with Argentina. In 1993 the balance of trade between Brazil and Argentina showed a surplus of US$ 1,030.03 million.

Considering the framework of divergent macro-economic paths, the results obtained from negotiations since 1994 have been surprising. This same framework, however, can be seen as one of the main factors impeding the progress of negotiations in co-ordinating macro-economic policies or in other, non-commercial areas.

For the Mercosul economies, above all those of Brazil and Argentina, 1995 was notable for the attempts at consolidation of the respective stabilisation plans, the first being started in July, 1994 (the *Plano Real* - the Real Plan) and the second in March, 1991. The Mexican crisis raised fears in the international market that a similar phenomenon could happen in the Mercosul countries and was an indication, principally, that international capital was not ready to finance growing deficits in the current accounts of Latin American countries.

Measures for altering the common external tariff structure, the creation of new lists of exceptions in intra-regional trade and the imposition

4 For example, in 1992 the Argentinian GDP grew by 8.4% and Brazil's fell by 1.1%.

of quotas on textile products were some of the frequently quoted indicators of Mercosul's "weak discipline". However, given the priority of stability in the national agendas, this was going to be an inevitable result.

In December, 1995 the commitment to the integration plan through Mercosul's Action Plan to the year 2000, was confirmed. This prioritises the implementation of the necessary mechanisms to consolidate and perfect customs union and mentions also as a priority the establishment of negotiations which lead to greater integration like foreign relations and other selected areas[5]. Another part of the Action Plan is the carrying out of studies to bring about a greater agreement on tax policies and on more substantive negotiations in the area of services.

It is beyond the scope of this essay to describe the state of the negotiations set out in the Action Plan for the year 2000. Nevertheless this marks the beginning of a new round of negotiations, which were intense during 1996.

What are Brazil's prospects in relation to Mercosul?

The multi-lateral nature of Brazilian trade and the size of the Mercosul market indicate the on-going need for efforts to strengthen relations with other regions. On the other hand, strengthening Mercosul as an integrated sub-regional area demands a development of the economic integration process. Without putting multi-lateralism into a subordinate position, Mercosul would be a privileged area for starting regional enterprises, for building an integrated infrastructure that would increase the competitiveness of regional products in the world markets, for establishing disciplines to consolidate the process of stabilisation in the region and for being a magnet to attract direct overseas investment.

Considering, however, the strength of the Brazilian economy in Mercosul, the negotiations tend to a great measure to be influenced by the rhythm and the shape of Brazilian internal reforms, especially in relation to policies that demand the harmonisation of macro-economic measures. In contrast to the European process, where the creation of community

5 These are: the environment; labour relations; employment and social security; culture; health;education; science and technology; police co-operation and migration.

organisms and policies demands a relative discipline and agreement between national policies, Mercosul' strategy has been different. This different behaviour shows that Mercosul in itself is not seen as a frame of reference for economic reform. In reality, reforms are placed in a framework of re-structuring the national economies which then enable the implementation of measures consonant with a possible common market, such as the liberalisation of the service and capital markets.

The Brazilian agenda in relation to Mercosul contains, however, an important element that shows the importance of strengthening the plans for integration, which is Mercosul's foreign relations agenda.

In 1993 the Brazilian government proposed the creation of the South American Free Trade Area (Alcsa), which was endorsed by the other members of Mercosul. The proposal foresaw the implementation of a programme of automatic easing of restrictions from January, 1995, aimed at creating a free trade area within the space of ten years that would encompass Mercosul, the Andean Group and Chile. This structure of simultaneous negotiation did not materialise and came instead to be a means of forming separate agreements between Mercosul and the countries of the other groups. Thus agreements with Chile (June, 1996) and Bolivia (December, 1996) have already been negotiated and agreements with the countries of the Andean Community are being negotiated [6].

Widening the network of free trade agreements with South American countries gives greater bargaining power in negotiations concerning integration agreements with the developed countries. And, on the other hand, it requires smaller adjustment costs in the production sectors, especially the industrial ones. At the same time widening the market brings about economies of scale which can translate into situations of greater efficiency

6 It has not been completely agreed how the agreements with the Andean countries will be formulated. A Mercosul-Venezuela agreement was almost completed but there was resistance from the other members of the Andean Community, especially Colombia. Peru, for its part, showed interest in taking part in the Mercosul customs union. It is noticeable that the creation of these agreements is linked to the negotiation of the "historic heritage" of Aladi (Latin American Association for Integration), the bilateral preferential agreements that exist between Mercosul countries and the Aladi countries. When they form a customs union the Mercosul countries have to implement the same protective measures with regard to the rest of the world and so have to make uniform the preferential systems already agreed on.

which in turn could offset the probable increase in adjustment costs if Free Trade Agreements with the United States and/or the European Union came about. These hypotheses will be true however, if Latin American integration is carried out in a context of openness with regard to the rest of the world and with agreements that are not marked mainly by exceptions to intra-regional free trade. In the mean while, for Mercosul to be really attractive to its partners and to consolidate the building of a possible South American position in international debates, it is essential that Mercosul be visible by means of wider commitments regarding integration.

This same question is raised in relation to the Free Trade Association of the Americas (Alca), a proposal set out by the United States at the Miami Summit in 1994 and accepted by 34 countries in the hemisphere.

The United States wanted negotiations to be carried out by nation states. While the Brazilian proposal, agreed with its Mercosul partners, was that negotiations could be carried out by means of the already existing regional groups, what was eventually accepted in the meeting of the Trade Ministers of the Americas (Denver) and in the ministerial meeting in Belo Horizonte was the idea that this route was available for those countries that preferred to take it. Again, for Mercosul to be credible, it is essential to consolidate and mark out the process of increasing sub-regional integration. In the absence of prior agreements between Mercosul members on the more divergent areas there is a possible risk of Nafta (North American Free Trade Area) patterns being presented as frames of reference for free trade agreements in the hemisphere, should such negotiations come about.

In the same way, if the European Union recognises Mercosul as a relevant body to promote a possible free trade agreement with the member countries of this bloc it is one more factor that indicates the importance of strengthening the process of sub-regional integration in Brazil's foreign affairs.

The priority for the Brazilian integration agenda is Mercosul, the process being influenced by the already mentioned factors. Meanwhile the Mercosul area is already understood as a unit which is pressing for greater integration in South America. There is a clear interest in uniting positions, at least, South American ones, especially in the process of building a

negotiating framework for Alca. As for the Alca-European Union agreement, the situation is partly characterised in terms of the possible pace of the negotiations when they happen. There exists a certain perception that under the Alca plan, greater importance will be given to the ideas of increased access to the market as well as the fact of Mercosul's identity being possibly diluted on the hemispheric level. An agreement with the European Union would strengthen Mercosul's identity and probably themes such as technical co-operation and the setting up of possible common business enterprises would, to begin with, be more prominent.

The basic point, however, is that from the point of view of existing economic links, Brazil's agenda for integration with developed countries is principally found within a multilateral framework, particularly in the themes of access to markets and trade regulations. From this point of view the proposal for a Millennium Round under the auspices of the World Trade Organisation, would suit the interests of Brazil and Mercosul by ensuring multilateral discipline within a scenario of greater liberalisation.

Final Considerations

The United Kingdom and Brazil belong to regional agreements which are at different stages in the integration process. While the European Union is preparing for a possible monetary union, Mercosul is trying to consolidate its customs union.

The manner in which the countries belong to their respective agreements is rather different. The European Union, with its organs and its community policies, exercises a greater discipline over its members, which gives it a common position in the face of other countries, especially in the area of international economic relations. In this sense the establishment of special links between Brazil and the United Kingdom depends to a great extent on the foreign policy of the European Union itself.

As a disciplinary frame of reference for its member countries, Mercosul, is much less effective than the European Union, its most visible aspect being the common external tariff. As it is still made up of only four countries, with one of them having almost 70% of the region's GDP, setting up common organs has become a point of contention at the present stage of

integration. It is difficult, however, to say that a common policy on international economic relations exists within Mercosul.

The analysis of Brazil's economic agenda, from the Mercosul perspective, shows the following characteristics. Priority is given to making agreements within South America. This is an inevitable result of renegotiating Aladi's "historic heritage" but which, being renegotiated in a framework of free trade agreements, indicates also a geopolitical strategy to strengthen Mercosul and Brazil on the continent. In economic terms, given that the Aladi market accounts for 41.4% of Brazil's total manufactured exports, this strategy is seen as a powerful incentive to Brazilian industry in a scenario of growing global liberalisation.

The Alca proposal came from the North American government and its priority in the Brazilian agenda will depend on the pace of the negotiating process that is being created, in which it is understood that the concession of 'fast-track'status by the North American Congress will have a decisive role. An eventual Alca negotiation could affect Brazil-United Kingdom relations only in the case of the European Union feeling the process would discriminate against its interests not only in terms of the diversion of trade, but also in terms of establishing special rules for the service industry or investment regulations, which the United States would also probably like to avoid, keeping alive a scenario of openness in the process of European integration. From this point of view it is important to continue negotiations on different topics within the WTO so that regional agreements can be made compatible with multilateralism.

It is also noticeable that until now the Alca proposal has been answered from the common positions of Mercosul governments and business sectors. This suggests that there exists a certain degree of cohesion in the region with regard to positions on external trade policies when there is a real need for it. As has been pointed out, it is common sense that Mercosul's credibility on the international stage depends on building common positions, which to a certain extent forces the member countries to learn to share their sovereignty, a development which is still in progress.

As for the future of the Mercosul-European Union agreement, it is premature to foresee what shape it will take. In a general way Mercosul

does not belong to the European Union's agenda of priorities. Nevertheless, in its role as one of the leaders on the world stage and considering the importance of Latin American markets, which were later in starting the process of trade liberalisation and of providing new opportunities for investment (through privatisations), the European Union might be able to concede a relatively greater priority to the region.

The Inter-regional European Union and Mercosul Agreement, including perspectives not only of trade negotiations, but also channels of co-operation, could establish a more general framework for the interests of these regions.

Brazil and the United Kingdom have interests that go beyond trade and commerce. From Brazil's point of view exports are mainly products with less value added, although there are signs of some intra-industrial trade. The United Kingdom has a significant share of direct investment in Brazil, English experience of privatisation has lessons for Brazil, in the area of technical and scientific co-operation, for example. The milestone of the Mercosul-European Union agreement could stimulate the search for ways of strengthening relations between the two countries.

Table 1 - Mercosul exports by main markets of destination 1996 %

Countries	EUROPEAN UNION			WESTERN HEMISPHERE			ASIA			Others	Global Total
	England	Others	Total	Mercosul	LAIA (*)	USA and Canadá	Total	Japan	Others		
Argentina	1,72	17,33	19,05	23,56	36,40	10,01	46,40	2,01	9,70	22,84	100,00
Paraguay	2,09	18,89	20,98	54,26	60,27	3,78	64,05	6,99	4,47	3,52	100,00
Uruguay	4,50	15,34	19,84	48,11	54,40	11,07	65,47	1,18	6,78	6,73	100,00
Brazil	2,92	22,86	25,78	14,47	22,79	19,40	42,19	7,15	12,85	12,03	100,00
Total	2,58	20,81	23,39	19,06	28,70	15,93	44,62	5,33	11,53	15,13	100,00

Source: IMF - Direction of Trade Statistics - (Quaterly), June/97
(*) includes the countries of Mercosul

Table 2 - Mercosul imports by main markets of origin 1996 %

Countries	EUROPEAN UNION			WESTERN HEMISPHERE				ASIA		Others	Global Total
	England	Others	Total	Mercosul	LAIA (*)	USA and Canada	Total	Japan	Others		
Argentina	2,46	32,01	34,47	15,45	22,44	22,04	44,48	2,22	10,49	8,34	100,00
Paraguay	2,38	8,65	11,03	44,44	47,96	20,00	67,96	4,85	14,25	1,91	100,00
Uruguay	2,90	21,20	24,09	39,51	44,88	13,97	58,85	2,93	7,89	6,23	100,00
Brazil	2,56	25,46	28,01	13,97	19,84	26,39	46,23	4,27	10,56	10,93	100,00
Total	2,54	26,44	28,98	16,56	22,63	24,45	47,08	3,68	10,55	9,72	100,00

Source: IMF - Direction of Trade Statistics - (Quaterly), June/97
(*) includes the countries of Mercosul

Table 3 - European union and England exports by main markets of destination - 1996

%

Countries	European		Western hemisphere				Asia	Others	Global
	Union	Mercosul	LAIA (*) and Canada	USA	Total	Japan	Others		TOTAL	
England	54,35	0,78	1,63	13,26	14,89	2,56	8,64	19,56	100,00
Others of EU	60,91	1,13	2,49	6,95	9,45	2,16	6,64	20,85	100,00
Austria	59,06	0,78	1,40	5,32	6,71	1,84	4,69	27,70	100,00
Belgium-Lux.	65,53	0,46	1,04	4,42	5,46	1,22	4,91	22,87	100,00
Denmark	62,60	0,46	1,47	4,59	6,06	3,52	5,51	22,31	100,00
Finland	53,45	0,69	1,65	8,55	10,20	2,65	9,67	24,03	100,00
France	61,45	0,95	2,55	6,62	9,17	1,85	6,48	21,05	100,00
Germany	55,63	1,21	2,55	8,20	10,75	2,70	7,95	22,96	100,00
Greece	53,53	0,79	1,46	5,24	6,70	0,80	3,35	35,62	100,00
Ireland	71,06	0,37	1,02	10,59	11,61	3,11	4,32	9,90	100,00
Italy	54,64	1,89	3,61	8,27	11,89	2,29	8,10	23,08	100,00
Netherlands	75,45	0,62	1,40	4,41	5,82	1,30	5,00	12,43	100,00
Portugal	80,38	1,18	1,66	5,07	6,73	0,76	1,68	10,46	100,00
Spain	71,07	224	6,04	4,65	10,69	1,20	3,75	13,30	100,00
Sweden	55,18	1,09	2,05	9,29	11,34	3,21	8,11	22,16	100,00
Total	60,07	1,08	2,38	7,76	10,14	2,21	6,89	20,69	100,00

Source: IMF - Direction of Trade Statistics - (Quaterly), June/97
(*) includes the countries of Mercosul

Table 4 - Trade relations Mercosul and European Union 1996

%

(1)	Mercosul Imports from European Union / Total Exports of EU	3,10
(2)	Mercosul Exports to European Union / Total Imports of EU	2,25
(3)	European Union Imports from Mercosul / Total Exports of Mercosul	28,52
(4)	European Union Exports to Mercosul / Total Imports of Mercosul	30,39

Source: Direction Trade Statistics.
Obs.: The values of regional intra-trade are excluded from the total of the regional trade.

Table 5 - Main markets of destination January / July- 1997

%

	Basics	Semimanuf.	Manuf.
European Union	58,20	12,40	29,40
USA	13,50	22,68	63,82
LAIA	5,63	3,66	90,72
Mercosul	6,30	3,36	90,34
Asia	41,96	33,98	24,06

Source: Brazilian Trade Balance

Table 6 - Trade relations Brazil and England 1996

%

(1)	Brazilian Exports to England / Total Imports of England	0,97
(2)	Brazilian Imports from England / Total Exports of Engiand	1,22
(3)	England Exports to Brazil / Total Imports of Brazii	2,70
(4)	England Imports from Brazil / Total Exports of Brazil	3,75

Source: Direction Trade Statistics.
Obs: The values of regional intra-trade are excluded from the total of the regional trade.

Table 7 - Brazilian exports and imports by main markets

%

Years	United Kingdom		European Union		United States		LAIA		Asia (*)		Others		Global Total	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
1970	4,74	5,83	34,93	29,48	24,68	32,86	11,06	10,52	8,25	7,00	16,34	14,32	100,00	100,00
1975	3,92	2,71	27,82	24,98	15,42	25,28	13,81	5,88	9,89	9,60	29,13	31,54	100,00	100,00
1980	2,73	1,91	26,55	15,31	17,43	17,87	17,18	11,73	9,87	6,82	26,23	46,38	100,00	100,00
1985	2,47	1,91	24,29	14,21	27,13	19,78	8,70	12,27	12,38	8,61	25,04	43,22	100,00	100,00
1990	3,01	2,04	32,54	23,55	24,62	20,00	10,17	16,80	16,78	10,34	12,89	27,26	100,00	100,00
1995	2,92	2,02	29,38	26,91	18,68	21,48	19,18	15,41	18,73	16,21	11,11	17,97	100,00	100,00
1996	2,92	2,56	25,79	27,98	17,69	24,53	21,67	19,61	20,00	14,83	11,94	10,49	100,00	100,00

Source: Brazil - International Trade, statistics series - 1953/76, 1978, 1981 e 1985
IMF - Direction of Trade Statistics - (Quartely) March/96, March/97, June/97 e Yearbook/ 1995.
(*) Excludes Middle East and includes China and Japan

Table 8 - Anual average groth by periods

Period	United Kingdom		European Union		United States		LAIA		Asia (*)		Others		Global Total	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
1970/80	15,53	11,59	18,78	16,87	17,90	17,41	27,57	26,15	24,28	24,45	28,00	40,35	22,08	24,79
1980/90	5,57	0,50	6,70	4,20	8,22	0,94	-0,79	3,47	10,24	4,06	-2,62	-5,35	4,55	-0,19
1990/96	6,68	21,16	3,15	20,12	1,49	20,76	21,64	19,76	10,42	23,95	5,88	-0,46	7,23	16,72

Source: Brazil - International Trade, statistics series - 1953/76, 1978, 1981 e 1985
IMF - Direction of Trade Statistics - (Quartely) March/96, March/97, June/97 e Yearbook/ 1995.
(*) Excludes Middle East and includes China and Japan

Table 9 - Brazilian exports main exported products to United Kingdom January/July - 1997

Products	Value	Part. %
Footwear	69.567.200	9,60
Tobacco	62.429.401	8,62
Bovine meat preparations	50.793.002	7,01
Wood chemical past	48.855.645	6,74
Piston engine	41.173.006	5,68
Soya beans	39.150.594	5,40
Wood	31.297.003	4,32
Iron ore	26.407.649	3,B4
Furniture and parts	16.573.979	2,20
Bovine meat	15.927.259	2,20
Other products	322.468.506	44,50
Total	**724.643.244**	**100,00**

Source: Brazilian Trade Balance.

Table 10 - Brazilian imports main imported products from United Kingdom January/July - 1997

Products	Value	Part. %
Piston engine	59.936.702	6,96
Road vehicles parts	52.929.953	6,15
Medicine	44.809.458	5,20
Heterocyclic compounds	41.166.903	4,78
Nitrogen functions compounds	39.708.548	4,61
Transmitting and receiving equipments	31.721.457	3,68
Carboxylic and polycarboxylic acids	20.173.066	2,34
Measure and control instruments	18.089.392	2,10
Printed books, magazines, newspapers and others	16.498.933	1,92
Road vehicles	15.855.454	1,84
Other products	520.459.058	60.42
Total	861.348.924	100,00

Source: Brazilian Trade Balance.

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Financial Flows, Including Direct Investment, between the United Kingdom and Brazil

*Stephen Fidler & Peter J. West**

Introduction

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British influence on the Brazilian economy began in the early 17th century as English traders spread through Brazilian cities, especially Rio de Janeiro, Recife and Salvador. Brazil was completely dependent on imports from Britain in the mid-19th century, and British investors dominated important sectors of the economy, such as banking, railways and ocean-going shipping. The first foreign bank to operate in Brazil was British: the London and Brazilian Bank opened its first branch in Rio de Janeiro on February 1, 1863 with the purpose of financing Brazilian coffee exporters and companies importing into Brazil.

These historical links were emphasised by the Brazilian president Fernando Henrique Cardoso on a visit to London in February 1997. In the last century, Mr Cardoso said, Britain was the leading investor in the emerging Latin American nations, and the Brazilian government now wanted to revive this interest. [1]

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[1] M Binyon and R Campbell- Johnston, British Investors Wooed by Brazil, The Times, 10 February 1997.

Indeed, in the early part of the 19th century, Great Britain was the only country in the world with a surplus of capital for export. By the end of the century the list of capital exporters had grown to include France, Germany and the United States, though small sums were occasionally available from other countries.

This capital arrived in Latin America in two ways, either as portfolio or direct investment. Portfolio investment consisted largely of bonds floated on stock exchanges of the advanced economies, the first being launched in London in the early 1820s to cover budget deficits. Most of these had been renegotiated - but access to the capital markets was reopened to most countries in the 1850s.

Brazil was one of five countries that could issue foreign bonds regularly, at least after the 1870s, to fund government expenditures. (The others were Argentina, Chile, Mexico and Uruguay.) By 1913, more than 90 per cent of British capital in Latin American government bonds was invested in these five countries.

Of the US$717mn of Brazilian government foreign bonds outstanding on the eve of the First World War in 1914, 83.4 per cent was issued through the United Kingdom and just 0.7 per cent through the US. Brazilian bonds held in the UK thus amounted to almost US$600mn - 40 per cent of the Latin American bonds issued in London. At this point, of all the Latin American governments, only Argentina had issued more foreign bonds than Brazil - US$784mn - but a smaller proportion (50.8 per cent) was held in the UK. Thus Brazil was the most important destination in Latin America for British fixed income investment.

Foreign bonds were not the only means for a government to fund a deficit, but the conditions attached to new bond finance were often loose and it was often an attractive source of finance for these governments. In the five years before 1914, some 70 per cent of the service payments on Brazil's public debt were ascribed to foreign loans. However, for other less favoured countries, bonds were mainly issued to refinance existing debt rather than to fund expenditures.

Foreign direct investment (FDI) was a significantly more important

source of capital for Latin America than was bond finance in 1914, and Britain was again the main investor. The stock of bond debt to governments was some US$2.23bn (67.8 per cent held by Britons), while the stock of direct foreign investment in the region was US$7.57bn, of which 47.4 per cent was in British hands.

Brazil was again the second most important destination for all foreign direct investment. Argentina had attracted the most - US$3.22bn, while Brazil had drawn US$1.20bn, slightly more than Mexico's US$1.18bn. For British investors, however, Brazil was the third most favoured investment destination after Argentina and Mexico. Argentina had attracted US$1.50bn of British investment (and US$39mn of US investment). Mexico had attracted US$636mn of UK investment (and US$541mn from the US). Brazil, meanwhile, had lured US$609mn of British investment - 17 per cent of all British FDI in Latin America - compared with just US$50mn from the US (table 1).

Table 1: Direct & Portfolio Investment in Latin America circa 1914:

	Public external debt			Foreign direct investment		
Country	**US$mn**	**UK%**	**US%**	**US$mn**	**UK%**	**US%**
Brazil	717.4	83.4	0.7	1,196	50.9	4.2
Argentina	784	50.8	2.4	3,217	46.7	1.2
Mexico	152	92.1	7.9	1,177	54.0	46.0
Latin America	2,229	67.8	13.8	7,569	47.4	18.4

Source: Bulmer-Thomas, Economic History of Latin America

FDI was attracted to areas where technological barriers and access to capital restricted the participation of local firms. The preponderance of the investment flowed into railways, public utilities, mining, banking and shipping. In areas such as agriculture for the home market, FDI played only a minor role in most countries. British FDI in Latin America was dominated by investment in the railways: some US$1.67bn was directed towards railways, 46.6 per cent of UK investment in the region. (By 1913, Brazil had the third longest railway network in Latin America after Argentina, and Mexico, though in proportion to its population and surface area, the density of railways was significantly less than in either country.) The stock of British

investment in the next most important sector - public utilities - amounted to US$546mn, 15 per cent of the total. [2]

According to one British authority, the contribution of FDI and foreign bond issues to the economic development of Latin America was positive, if not as crucial as is often supposed. The trade statistics of Brazil, Argentina and Mexico, which attracted the bulk of foreign investment, show all three countries usually maintained a trade surplus in the years leading up to the First World War. This surplus was needed to finance the outflow of interest and profit on foreign capital. Foreign investment helped Latin American development in this era, in part by transferring technology and new management techniques and encouraging innovation, but could not substitute for the inadequacies of the region's domestic capital markets. [3]

The relative decline of the UK as an industrial power compared with its faster growing neighbours dates back to the 19th century, but 1914 marked the apogee of British investment in Latin America and in Brazil. The First World War put a stop to new bond issues: new long-term bond issues to Brazil reached US$19.2mn in 1913, fell to US$4.2mn in 1914 and to zero in the following year. FDI from Europe also ended with the hostilities, while that of the United States, out of the conflict until 1917, increased substantially.

The cost of war had forced the UK, along with other European countries such as France, to disinvest from Latin America. And although direct investment from Britain eventually restarted after the war, it was on a modest scale, in line with Britain's weakened balance of payments position. In the 1920s, therefore, the US emerged as the main source of foreign capital for Latin America and Britain's decline as a capital exporter continued and was accelerated by the Second World War of 1939 to 1945. Another factor slowing the export of British capital to the whole region was a gathering pace of default on bonds by Latin American governments during the 1930s. Most outstanding bonds were still held in Great Britain, where stock exchange rules forbade countries in default from issuing new bonds.

2 V Bulmer-Thomas, The Economic History of Latin America since Independence, Cambridge, 1994. Figures cited from External Financing in Latin America, UN Economic Commission for Latin America, New York, 1965.
3 Bulmer-Thomas, op cit. Much of the historical section draws heavily on this work.

However, most additional finance at that time was coming from the US, so that the temptation to default became almost overwhelming. Default was unilateral, but debts were not repudiated. Brazil itself established seven grades of bonds with treatment varying from full service to complete default on interest and principal.

These defaults ensured that in the initial period after the second world war, portfolio capital flows to the whole of Latin America remained extremely modest. The small amount reaching the region was mainly in the form of short-term trade credits at commercial interest rates. FDI increased after the 1940s and was initially welcomed by Latin American governments, but the financial contributions from the multinational corporations were to disappoint many. This and a general shift over time in economic policy in Latin America created a more inward-looking model of economic development and an environment that was less hospitable to FDI from all sources.

As a result much of the region was heavily dependent on official sources of capital, including the multilateral financing institutions such as the World Bank. Official capital sources accounted for 60 per cent of the region's public external debt in 1968.

However, around this time, flows of private capital began to reemerge. During the 1970s, Brazil was the developing country that benefited most from FDI, with an annual average inflow of US$1.4bn, twice as much as Mexico, the second country in the list.

International commercial bank lending to Latin America also began to expand. This was a result of two changes in lending practices led by US banks. The first was the development of the syndicated loan, which allowed loans to governments to be split among a large number of banks - as many as 500 in some cases - thereby spreading the risk. The second was the introduction of floating interest rates - where the interest rates on loans were charged at a margin over a reference rate, for example the US prime lending rate, which was reset usually six-monthly.

The emergence of the international Eurodollar market - a large pool

of international liquidity controlled by international banks - also facilitated the growth of such lending. In fact, London became the centre of this great pool of capital, though the funds transmitted through the London market may have resided there only momentarily. The benchmark used for a large majority of these loans was the rate on three or six-month deposits in interbank market in London - the London interbank offered rate or Libor.

In the 1970s, when oil price rises resulted in a sharp expansion of the pool of Eurodollars, as governments from oil producing countries placed their increased income on deposit with international banks, such lending expanded rapidly. While governments were the main recipients of such loans, private companies were also significant borrowers. At the end of 1982, when the threatened default by Mexico put a stop to nearly all voluntary bank lending to Latin America, one quarter of all debt to Brazil was in the form of private, non-guaranteed long-term loans.

What followed the Mexican crisis was a period of resource transfer from most Latin American economies, as Brazil followed other countries into bank debt reschedulings. These transfers were aggravated by capital flight, though this was generally been viewed during the 1980s as a more serious problem in other large Latin American economies than in Brazil. Brazil declared a unilateral moratorium in February 1987 on its foreign commercial debts - following a failed economic stabilisation programme - but the country suffered the penalty in a reduction in short-term loans including trade credits from international banks. Other countries followed the Brazilian example, however.

In May 1987, Citicorp of the US - the largest bank creditor to Brazil and most of the main Latin American governments - announced it would make loan loss provisions of up to 30 per cent on its loans to Latin American governments. This move, emulated by banks in many parts of the world including Britain where banks had also been important lenders to Latin America during the 1970s, encouraged the emergence of a secondary market in the bank loans, the prices of which were often substantially below face value. Legislation in a number of debtor countries, including Brazil, encouraged the conversion of these loans into equity.

However, Brazil and Mexico suspended their debt-equity schemes

because of concerns that the domestic currency issued under such arrangements had potentially inflationary consequences. Furthermore, it was widely argued that the debt-equity swaps - effectively subsidising foreign investment - did not add much to the total FDI. Indeed, FDI did remain low throughout the 1980s in Brazil and most of the rest of Latin America. The inflow to the whole region dropped, according to figures from the Inter-American Development Bank, from US$8bn in 1982 to US$2.8bn in 1986 before recovering to US$10.9bn in 1991.

The recognition of the discounts on the bank loans in turn inspired a 1989 US initiative which was to put an end in many respects to the 1980s debt crisis for Brazil and other countries: the Brady Plan. The plan, named after the then US Treasury Secretary Nicholas Brady, allowed debtor governments to obtain some of the benefits from the discounts on the bank debt in return for policy reforms. Brazil completed its restructuring agreement under the aegis of this plan in 1994, converting debt with a face value of US$46.8bn into Brady bonds valued at US$43.2bn.[4] Relief came not only in the form of a 35% write-down in that portion of the debt converted into discount bonds but also through below-market interest rates for pre-existing obligations swapped into the other bonds offered in the "menu of options". For example, the coupon on the fixed-rate par bonds was only 4% initially, rising gradually to 6% from year seven onwards.

The 1990s heralded a new era. With the debt defaults of the 1980s formally settled by the Brady Plan, economic policy changes of the kind favoured by international investors also encouraged inflows of FDI and portfolio capital to Brazil and other economies in Latin America. Furthermore, high domestic interest rates in Brazil - a consequence of tight monetary policy aimed at bringing down inflation - encouraged inflows of short-term capital. Flows were undoubtedly encouraged too by the easy monetary policy regimes being pursued through much of the 1990s by some of the main industrialised economies as they sought to spur economic growth in their own economies.

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4 Maria Cristina T. Terra, The 1994 Brazilian Debt Renegotiation: A Cure for Overhang, Texto para Discussão No. 345, Departamento de Economía PUC-Rio.

For Brazil itself, this meant sharply rising capital inflows, according to Brazilian government statistics. The net monthly inflow of private capital between 1988 and 1991 of an average US$39mn increased 25-fold between 1992 and 1995 to an average US$970mn. During this later period, a majority of the capital was either portfolio investment, often of a volatile nature, and short-term investments. In 1995 - despite the Mexican financial crisis - net capital flows amounted to more than US$30bn, of which US$2.3bn were equity and special investment funds and US$19bn consisted of unclassified short-run capital.

In 1996 and the first half of 1997 the quality of capital inflows improved notably as investments of a longer-term nature replaced 'hot money'. The clearest sign of this was a surge in FDI. A boom in mergers and acquisitions activity helped FDI to increase to a record US$9.9bn in 1996, according to official figures, while net short-term capital inflows fell to US$4bn. FDI has surged even further in 1997, reaching US$8.8bn in the first seven months of the year alone. For the whole year, it is expected to top US$15bn.

However, the emergence of the Eurodollar market has significantly complicated the task of seeking country-by-country breakdowns of the source of capital flows to emerging markets like Brazil. Many non-UK banks book loans through their London branches to gain tax or other advantages not available in their domestic jurisdictions, while British banks and others use offices in other countries, and in offshore centres such as the Cayman Islands, to book loans. Therefore it has become difficult to view an increase or decrease in exposure of banks in London to other countries as necessarily having any bearing on capital flows between the UK and that country.

The pool of Eurodollars also became the source of capital for the Eurobond market. However, though most Eurobond activity takes place in the London market, a majority of the Eurobonds sold through London does not end up in the hands of UK investors. Even if those bonds are issued in pounds sterling, UK investors are not necessarily the final holders.

Furthermore, the increasing internationalisation of the share holdings of large companies - as institutional investors diversify their

portfolios - also complicates issues relating to direct investment. A company may have its headquarters in London but the owners of that company may well be spread around the world. Similarly, UK pension funds and other institutional investors are large holders of shares in non-UK companies which may be large direct investors. Thus, as time has passed, it has become harder to identify capital flows as emanating from one country and settling in another.

There are other questions of definitions too and many statistical inconsistencies arise in studying the capital flows data. One question is whether the definition of capital inflows, as defined by Brazilian government balance of payments statistics, represents their true use. Because it is easy to divert capital flows from one form to another, balance of payments statistics may not accurately reflect the actual use of these inflows. There is, for example, some evidence that controls imposed in the 1990s to limit inflows of short-term capital have encouraged some investment in fixed-income assets to be officially registered as foreign direct investment, at least since early 1996. Because of a 7 per cent tax rate on investment in fixed income funds, there have been suggestions that businesses were bringing in dollars for investment in fixed income assets and registering the inflow as FDI. [5] This is now less of a problem, as the tax rate was lowered to 2% in April 1997.

Short-term Flows

Inflows of short-term funds into Brazil have been substantial during the 1990s. The main reason for this is clear: high real interest rates in Brazil. According to the Bank for International Settlements, real interest rates - ie interest rates adjusted for consumer price inflation - averaged 10.6 per cent in the years 1990-1994. After the introduction of the Real anti-inflation plan, this increased to 25.5 per cent in 1995, before falling to 10.3 per cent in 1996. In the first quarter of 1997, real interest rates were 12.7 per cent. This led to average annual returns in US dollars of 20.6 per cent in 1990-1994, 33.1 per cent in 1995 and 19.3 per cent in 1996. These were

5 See, for example: E Cardoso, Brazil's Macroeconomic Policies and Capital Flows in the 1990s, World Institute for Development Economics Research, United Nations University, January 1997.

significantly higher returns than those available in any other large developing country noted by the BIS. Despite attempts by the Brazilian government to discourage such short-term flows, the BIS said "interest rate differentials also accounted for continued large inflows into Brazil" in 1996. [6] Much of these inflows were parked in domestic bonds issued by the public sector, the volume outstanding of which had grown close to R$200bn by March 1997. However, the extent to which UK investors were responsible for these flows is not easy to estimate.

Inflows of such magnitude have posed important monetary and fiscal problems for the Brazilian authorities. They responded in the second half of 1993 by imposition of restrictions on capital inflows, initially taxing fixed income investments and then, in the second half of 1994, imposing a transaction tax on stock market investments. These restrictions were subsequently and frequently adjusted, though Brazilian policy-makers have made plain that they view them as a temporary expedient that impose costs on efficiency. Brazil's well developed financial futures and options markets have also made it hard to prevent foreign investors from profiting from high real interest rates.[7]

The UK remains the world's leading centre for cross-border banking, with a market share of 17.6 per cent at the end of 1996, compared with 16.7 per cent at the end of 1995. For comparison, the Japanese share of the market at the end of 1996 was 14 per cent, that of the US 8 per cent and that of France and Germany 7 per cent each. Total cross border lending by banks in the Bank for International Settlement (BIS) reporting area at the end of 1996 was US$9,646bn.

Lending of all BIS area banks to Latin America rose in 1996 by US$22bn or 9 per cent to around US$224bn, and there was a sharp increase of US$10bn or 14 per cent in lending to Brazil, which at the end of 1996 equalled around US$83.4bn. This was the largest of any developing country, ahead of China with liabilities of US$79.7bn. However, deposits by Brazilian

6 Bank for International Settlements, Annual Report 1996.
7 D Días Carneiro and M G P García, Private International Capital Flows to Brazil, Texto Para Discussão No 333, Departamento de Economía, Pontíficia Universidade Católica do Rio de Janerio, March 1995.

residents in BIS area banks also rose during 1996, by US$8bn or 13 per cent, to about US$68.3bn.

The stock of external lending of banks in the UK totalled US$1,460bn at the end of 1996, of which a total of only US$27bn was outstanding to Latin American countries, 12 per cent of lending from all BIS area countries.

Brazil was the most important Latin American borrower of funds from banks in the UK with US$9.5bn in outstanding loans, 11.4 per cent of loans from all BIS area banks. However, it took over its leading position - from Mexico - only in 1996. Among developing countries at the end of 1996, Brazil was second only to South Korea as a borrower from UK banks.

Of the total claims on Brazil from UK banks at end-1996, some US$4.6bn had a contractual repayment date, US$2.1bn of which was to banks in Brazil and US$1.8bn was to public sector entities. Of the total contractual debt, US$1.5bn was of less than six months' maturity and US$2.4bn of under a year. However, after a sharp rise in the mid-1990s, liabilities of UK-based banks to Brazilian lenders equalled US$7.8bn. [8]

Lending to Brazil ran in the 1990s below the levels of most of the 1980s. The 1980s was a period when most international banks were unwilling to expand lending to Latin American borrowers, which were considered already highly indebted. Furthermore, banks were required to set aside reserves for their lending to rescheduling countries, a factor which discouraged an increase in lending to the region. Even into the 1990s, Bank of England rules required banks to set aside reserves to Brazil, along with other countries that had rescheduled their debt since 1982. However, international banks were also constrained in reducing their exposure to Latin American countries - at least until the development of the secondary market in bank loans in the late 1980s - by the various official approaches taken by industrialised country governments to try to resolve the 1980s debt crisis (see tables 2 & 3).

8 Bank of England statistics.

Table 2: External Claims and Liabilities of UK-based Banks to Brazil (US$mn)

Year	Claims	Liabilities
1980	10,196	1,664
1985	13,211	1,834
1986	13,125	993
1987	12,588	918
1988	10,186	1,741
1989	9,327	1,016
1990	7,202	1,302
1991	6,433	1,225
1992	6,253	1,577
1993	7,365	2,128
1994	7,182	2,102
1995	7,095	10,894
1996	9,531	7,765

Source: Bank of England

Table 3: Maturity Profile of UK-based Bank Lending to Brazil (end-year, US$mn)

Year	Debt *	under 6 mos	6 mos-1 yr	1 yr - 2 yrs	2 yrs +
1982	7,937	1,228	403	679	5,627
1985	9,140	2,241	573	983	5,344
1990	4,694	2,140	399	374	1,781
1995	2,424	1,403	628	180	2,032
1996	4,552	1,531	782	115	2,124

* Total contractual debt - includes unanalysed

Source: Bank of England

Bond Investment

The UK plays a major role in supplying fixed-income finance to Brazil in a variety of guises such as bonds, notes and commercial paper. The UK's importance does not stem from the participation of domestic investors in the capital flows involved. In fact, the amount of UK money committed to such investments, while not negligible, is probably quite modest. This is partly the result of the penchant of UK institutional investors for equity rather than fixed-income securities, in sharp contrast with

continental European countries such as Germany. Rather than being the ultimate source of the investments, the UK's function is based instead on its position at the hub of the large pool of offshore finance referred to as the euromarket. In other words, the City of London is a major conduit through which large amounts of bond finance are channelled to borrowing countries such as Brazil.

The placement of bonds and other fixed-income securities in the euromarket has certainly been a vital element in the external financing of Brazil and other Latin American countries. The international capital markets all but closed to Latin American borrowers following the 1982 debt crisis, but access began to be restored in the late 1980s. International bond issuance by Latin American entities soared between 1990 and 1993 (table 4). Brazil was at first slow to participate in this upsurge, mainly because investor confidence was still low given that macroeconomic stability had not been achieved and negotiations for the restructuring of old commercial bank debt under the Brady plan had not been completed. Latin America's return to the international capital markets was instead led by Mexico. Brazilian issuance did rise appreciably in 1992 and 1993 as the country's Brady agreement neared finalisation. In the latter year, it reached US$5.5bn. However, this was far less than issuance by Mexico, and also a little lower than the amount raised by Argentina whose economy is appreciably smaller than Brazil's.

Table 4: Latin American International Bond Offerings (US$mn)

Country	1990	1991	1992	1993	1994	1995	1996	1997*	Total
Mexico	1,174	2,148	4,056	10,279	6,602	7,551	17,961	10,829	60,601
Argentina	21	765	1,489	5,901	5,319	6,348	14,011	10,155	44,009
Brazil	0	1,409	2,705	5,501	3,318	5,223	11,023	12,195	41,374
Venezuela	197	577	966	3,732	248	729	965	1,515	8,928
Colombia	0	0	0	567	872	1,201	1,826	1,000	5,465
Chile	0	0	0	322	155	500	2,020	950	3,947
Other	0	85	100	200	570	545	225	1,879	3,604
Total	1,392	4,984	9,316	26,503	17,083	22,096	48,030	38,524	167,929

* Through August 20

Source: Capital DATA Bondware

Bearish sentiment gripped the global bond markets in 1994 as a result of the successive interest rate hikes implemented by the US in that year as the Federal Reserve acted decisively to head off inflationary pressures. In Latin America, the negative sentiment was compounded by the string of events in Mexico, including the assassination of major political figures, which culminated in the balance of payments crisis at the end of the year. A series of bank failures in Venezuela and what would turn out to be unfounded fears of a left-wing victory in the Brazilian elections added to the gloomy mood. Hardly surprising, then, that bond offerings by Latin American issuers declined sharply in 1994.

The situation worsened even more in the early part of 1995, when there was a virtual hiatus in Latin American bond offerings in the wake of the Mexican debacle. However, in contrast with 1982, access was re-established in a matter of months rather than years. There were a number of reasons for this. At the international level, the pre-emptive monetary tightening in the US proved to be successful, and by 1995 interest rates were heading downwards again. Meanwhile, in Latin America Mexico and Argentina responded to the "tequila crisis" with highly orthodox financial policies, causing much pain in the short term but preventing a suspension in debt payments accompanied by a collapse in confidence. At the same time, the enormous success of the *Real* plan in controlling inflation in Brazil was becoming apparent, and confidence was further bolstered by the initial steps taken by the incoming Cardoso administration to reform the country's unwieldy Constitution.

After an extremely weak start, Latin American bond issuance picked up notably as 1995 progressed, and for the whole year was somewhat greater than in 1994. With the international context remaining supportive and the country fundamentals in Latin America showing growing signs of improvement, the amount of finance raised by the region in the international bond markets surged to a new record in 1996. It reached no less than US$48bn, far more than the previous peak seen in 1993. Even after taking account of higher redemptions of US$11.7bn, net issuance of US$36.5bn was well up on the US$24.7bn recorded three years before. Issuance remained very strong in the first eight months of 1997, amounting to US$38.5bn in the period through August 20 in

gross terms. It is probable that the total for the entire year will surpass the 1996 level.

An important change that has occurred in the geographical distribution of bond offerings from Latin America in 1997 is that Brazil has moved up from third place in the regional ranking to occupy the top position. Boosted by a jumbo-sised US$3bn placement in June, US$2.2bn of which was utilised to retire part of the country's Brady bond debt, Brazilian offerings jumped to no less than US$12.2bn in the first eight months of 1997. This compares with US$11bn for all of 1996, and just US$5.2bn the previous year.

Over the years, Brazilian offerings have predominantly been denominated in US dollars. The major exception was in 1995 when the dollar share fell to only 56%, possibly reflecting a reluctance of dollar-based investors to take on emerging markets risk in the aftermath of the losses sustained as a result of the Mexican crisis. However, the proportion of Brazilian offerings booked in dollars subsequently recovered, and in the first eight months of 1997 was back up to over 80%.

During the period under consideration, Brazil made just two issues denominated in pounds sterling, the first for £100mn in June 1996 and the other for £150mn in July 1997. There is nothing exceptional about the lack of Brazilian offerings in the UK currency, as the eurosterling bond market has for long been a backwater for emerging market issuers. The two flotations which have been made account for a paltry 1% of Brazilian bond issuance since 1990. Furthermore, not all the paper was placed with UK buyers, as at least 20% of the first issue went to Asian investors while the takers for the second included investors in Germany, Austria, Switzerland and the Middle East. [9]

Although UK institutions have undoubtedly been significant investors in Brazilian bonds denominated in dollars (and perhaps in other currencies), the relative insignificance of sterling issues highlights the point made earlier that the importance of the City of London in the external bond

9 Information on the sterling issues is from: International Financing Review, June 1 1996 and July 19 1997.

market rests on its position as Europe's leading international financial centre rather than as the ultimate source of investment flows. Indeed, the international financial market is now so integrated that it has become virtually impossible to decipher where capital resources precisely originate from.

Brazilian balance of payments statistics clearly reveal how important bonds and other forms of fixed-income inflows such as commercial paper have been in financing the country's growing current account imbalance in recent years. Indeed, in 1996 bonds and commercial paper regained their former status as the single most important element in net capital inflows, a position which they had lost to short-term inflows in 1995 (table 5).[10] Together with the rising tide of FDI, this has led to a substantial improvement in the composition of the country's capital account.

Table 5: Better Quality Capital Inflows (US$bn)

	1992	1993	1994	1995	1996	H1 1997
Foreign Investment (net)	3.1	6.3	8.2	5.0	16.0	12.9
Outward	-0.1	-1.1	-1.0	-1.6	0.1	-0.7
Inward	3.3	7.4	9.3	6.6	15.9	13.6
Direct	1.6	0.7	2.0	4.3	9.9	7.4
Portfolio	1.7	6.7	7.3	2.3	6.0	6.2
Medium and long term borrowing	9.5	12.2	12.8	17.9	27.1	16.9
Loans *	3.4	3.3	5.1	6.4	7.6	n. a.
Bonds and commercial paper	6.1	8.9	7.8	11.5	19.5	n. a.
Amortisation payments *	-7.1	-9.3	-11.0	-11.0	-14.4	-11.4
Short Term	2.6	0.9	0.9	18.8	4.0	-3.7
Other **	0.4	-0.8	-2.0	0.1	0.3	-1.1
Capital Account Balance	8.5	9.3	8.9	30.9	33.0	13.5
Change in Reserves (- = increase)	-14.7	-8.7	-7.2	-12.9	-8.7	2.1

* Excludes refinancing operations

** Includes errors and omissions

Source: Banco Central do Brasil

10 The amounts shown in tables 5 and 6 for "bonds and other fixed-income securities" are considerably greater than those in table 4 for "international bonds" because they not only include bonds and notes but also commercial paper and certificates of deposit.

Not only has bond issuance grown rapidly in volume since 1994, but there has also been a considerable improvement in the terms and conditions under which the offerings have been made. The average maturity of new issues increased from about five years in 1995 to eight years in the first half of 1997 (table 6). And, in spite of this lengthening in tenors, there was a clear downward trend in the average cost of financing, as measured by the spread over equivalent US Treasuries at the time of launch.

Table 6: Terms and Conditions of Brazilian Offerings of Bonds and Other Fixed-Income Securities

	1995				1996				1997	
	I	II	III	IV	1	II	III	IV	I	II
Total										
Number	42	57	91	68	66	113	77	110	71	79
Value (US$mn)	1,496	3,325	5,866	3,630	4,688	6,488	3,735	6,657	3,712	9,433
Average Tenor (years)	5.1	4.4	4.1	6.2	6.6	7.0	7.2	7.7	8.1	7.9
Spread over US Treasuries (basis points)	436	527	529	517	462	465	465	407	352	436
Financial Private Sector										
Number	16	28	54	35	28	36	16	30	21	25
Value (US$mn)	517	1,696	3,076	2,278	2,065	1,925	1,017	2,068	524	1,550
Average Tenor (years)	4.4	3.0	3.5	5.7	5.5	6.0	5.8	6.7	7.2	6.6
Spread over US Treasuries (basis points)	437	561	549	495	469	478	525	400	378	393
Non-Financial Private Sector										
Number	26	27	34	32	34	72	61	76	48	45
Value (US$mn)	979	585	1,814	1,017	1,668	3,220	2,718	3,189	2,29	13,219
Average Tenor (years)	5.5	5.9	5.3	6.8	7.8	7.6	7.5	8.2	8.5	7.8
Spread over US Treasuries (basis points)	435	505	563	568	476	495	443	455	394	451
Public Sector										
Number	-	2	3	1	4	5	-	4	2	9
Value (US$mn)	-	1,044	976	335	955	1,342	-	1,400	897	4,665
Average Tenor (years)	-	2.5	3.0	5.0	4.8	4.4	-	7.1	7.5	12.4
Spread over US Treasuries (basis points)	-	483	404	513	422	374	-	307	229	440

Source: Banco Central do Brasil

Apart from the absolute increase in the issuance of external bonds and other fixed-income paper since 1994, there has also been a major change in the sectoral composition of the offerings. In 1995, private financial institutions still accounted for over half of new issues, as they took advantage of the large interest rate differential to on-lend relatively cheap foreign money at a substantial premium in the domestic market (table 7). The financial institutions' share fell to a third in 1996 and then to only 16% in the first half of 1997, partly because of a significant shrinking in the interest rate differential over the corresponding period. The chief growth area in 1996 was in new issues by private non-financial corporations, which have been turing increasingly to the international market to finance their investment needs. The public sector participation in international bond placements has traditionally been much lower in Brazil than in other Latin American countries. It did, however, rise appreciably to 42% in the first half of 1997. Although this did reflect a greater resort to external financing sources by the public sector, the figures were partly distorted by the use of US$2.2bn of the US$3bn mega-bond issued in June to re-purchase outstanding Brady bonds. Excluding this buy-back, the public sector share in the first half of 1997 was 31%. The participation of private corporate borrowers remained at just over 50% as in 1996, while the financial sector share of 19% was still well down on the year before.

Table 7: Sectoral Composition of New Issues

	1995		1996		1H 1997	
	Valor (US$mn)	% total	Valor (US$mn)	% total	Valor (US$mn)	% total
Financial Private Sector	7,567	52.9	7,075	32.8	2,074	15.8
Non-Financial Private Sector	4,395	30.7	10,795	50.1	5,510	41.9
Public Sector	2,355	16.4	3,697	17.1	5,562	42.3
Total	14,317		21,568		13,145	

Source: Banco Central do Brasil

Portfolio Equity Investment

Apart from being the home of the euromarket, London is a major centre for the management of financial assets. Certain regional cities, in particular Edinburgh in Scotland, also play an important role in this respect. Reflecting a long-standing historical preference, UK fund managers tend to allocate a larger proportion of their assets to equities rather than fixed-income securities. Over time, a growing share of the funds under management have been invested overseas, with emerging markets increasingly coming into purview. Statistics on the investment flows involved are not easy to come by, but some useful insights can be gained from the limited information available.

Data have been obtained on equity allocations to Brazil by two sets of institutional investors: Pension funds and second stockmarket-listed investment funds. This by no means represents the entire universe of UK equity investments in Brazil and other emerging markets. Positions are also held by other types of institutional investor (such as insurance companies), by financial institutions operating on a proprietary basis and by wealthy individuals. Offsetting this, there may be an element of double-counting between pension and listed funds, to the extent that the former use the latter as investment vehicles. However, as emerging markets have progressively entered the mainstream of investment locations, and with the growing availability of ADRs, pension funds would seem to be ever more eschewing the indirect route of country and regional funds and instead investing directly.

There are currently around 1,500 UK-based pension funds, which manage in excess of US$600bn. Table 8 shows how the asset mix of these funds has changed over the past ten years. As can be seen, a comparatively high 20% of pension fund assets was already invested abroad in the mid-1980s. By the end of 1996, the overseas share had grown even more to almost 25%. Investment in foreign bonds grew at a far quicker pace than that in foreign equities, but in absolute terms the latter still dwarfs the former.

Table 8: Asset Allocation Mix of UK Pension Funds (%)

At End Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Equities											
UK	50.6	53.9	52.8	53.4	54.1	56.2	57.6	56.1	54.3	53.6	53.3
Overseas	19.6	14.3	16.4	21.3	17.9	21.1	21.5	24.0	22.3	22.7	21.8
N America	6.3	4.7	5.6	6.6	5.4	6.0	6.0	4.9	4.4	4.3	3.7
Europe	2.5	3.1	4.1	7.1	6.8	7.5	7.9	9.1	7.6	7.9	8.5
Japan	4.3	3.1	4.8	5.0	3.2	4.7	3.9	3.6	4.9	4.6	3.8
Pacific	0.7	0.6	0.7	1.1	1.3	2.1	3.0	5.3	4.2	4.6	4.4
Other	-	-	-	-	0.7	0.7	0.7	1.1	1.2	1.2	1.3
Bonds											
UK	13.0	12.5	10.4	6.2	6.1	4.9	4.4	4.0	5.8	6.1	6.0
Overseas	0.4	0.7	0.9	1.5	3.0	3.8	3.9	3.8	3.5	3.6	2.9
Index-Linked	3.1	2.8	2.6	2.2	2.6	2.2	2.5	3.0	3.7	4.3	5.0
Cash/Other	4.0	6.0	6.1	5.7	6.9	4.0	3.7	3.7	3.8	4.5	6.0
Property	9.3	9.8	10.9	9.6	9.1	7.9	6.3	5.4	6.4	5.3	4.9

Source: The WM Company

Much to their chagrin, UK pension fund managers have reduced their exposure to the US since the late-1980s, thereby missing out on the stellar performance by Wall Street over this period. Allocations to Europe have been raised further, after a large increase in the late 1980s. But the fastest rate of growth in exposure has been in the Pacific and other international categories, which consist primarily of emerging markets. By the end of last year, 5.7% of pension fund assets (or about US$35bn) were invested in the stock markets of these countries. Most of this, however, was in the Pacific Basin excluding Japan, conformed essentially by south-east Asia and Australia, with Hong Kong having the heaviest weighting. As well-respected financial commentator Barry Riley has noted, this reflects the fact that, "British institutions have long favoured south-east Asia as a source of exotic growth and glamour".[11] UK fund managers feel comfortable investing in this region, tending "to have offices in Hong Kong but not in, say, Brazil". But, as is well known, investment returns in this region have of late been disappointing. Markets such as Thailand have suffered steep declines. Hong Kong has not been afflicted by the troubles of some of its neighbours, but even there the Hang Seng index was up by only 5.9% in dollar terms in the year to August 22. This pales against the gains registered

11 B Riley, London Fund Managers and the End of Empire, Financial Times, July 1997.

by the major Latin American markets, with Mexico up by 47.2% and Brazil by 40.3% in spite of the wobbles sparked off in July by the currency problems in south-east Asia.

The "other international" category includes not just Latin America but also some major non-Latin emerging markets such as South Africa. In spite of growing interest in such markets, at the end of 1996 they still only represented 1.3% of UK pension fund investments. Only 28 funds reporting to performance measurement specialists, the WM Company, separately identified Brazil as an investment location. These funds had a relatively modest US$170mn invested in Brazil at the end of 1996. On the plus side, there patently is growing interest in the country. In fact, at the end of the previous year investment amounted to just US$70mn. The rapid growth in 1996 was not only brought about by capital gains, but also by fresh money allocations of some US$80mn. Furthermore, many other funds have investments in Brazil which are not disclosed separately but are included in emerging markets pooled vehicles. An additional 83 funds in fact report investments in such vehicles. Assuming that Brazil has the same weighting in these allocations as in the ING Barings global emerging markets index, a further US$780mn of UK pension funds assets would have been committed to the Brazilian equities market at the end of 1996.

Even accepting that there may be a degree of double-counting, investments by UK-based equity funds in Latin America substantially exceed those by pension funds. There are two types of equity funds: unit trusts and investment trusts. In unit trusts or open-end funds, investments in the underlying assets class vary directly in accordance with subscriptions and redemptions, while buying and selling prices are based on the net asset value of the asset portfolio. In contrast, investment trusts or closed-end funds manage a fixed pool of resources, with bid and offer prices determined in market trading and often standing at either a premium or discount to net asset value.

Whether they be unit or investment trusts, equity funds can have either a country, regional or international focus, reflecting the different types of exposure sought by investors. Table 9 gives information on the asset allocations of UK equity funds which have a purely Latin American regional

focus. As can be seen, equity holdings by these funds has grown rapidly in the past two years, driven both by capital appreciation and by new money inflows into the funds in question. By mid-1997, the amount under management had grown to almost US$3bn, double that of only eighteen months earlier.

Resources committed to Brazil have grown even more rapidly than the regional aggregates, such that by the end of June of this year it accounted for 45% of the total as against 38.6% in December 1995. As a result of both the rapid growth in the portfolios of the Latin America equity funds and the re-weighting towards Brazil, holdings in the region's largest economy had risen to US$1.3bn at the half-way point in 1997.

Substantial amounts have also been put to work in the Brazilian stockmarket by specialist funds which have a global rather than a regional emerging markets remit. At the end of the first half of 1997, such funds had invested almost 16% of their assets in Brazil, representing some US$0.9bn (table 10). Thus, taking into account both the regional and global emerging market funds, investments in Brazil totalled around US$2.2bn. The total would rise even more if investments by international funds not specialising in Latin America were also factored in.

Table 9: Investments of UK-based Latin America Equity Funds (US$mn)

	Total			Brazil		
	IVQ 95	IVQ 96	IIQ97	IVQ 95	IVQ 96	IIQ97
Abtrust Latin American Investment Trust	22.0	27.6	38.5	7.3	10.9	18.0
Baring Puma Fund	158.7	188.0	252.4	52.4	71.4	111.1
Edinburgh Inca Trust	37.1	42.0	53.3	14.2	16.4	21.1
Latin American Investment Trust	138.3	174.9	288.9	55.8	78.5	146.8
Morgan Grenfell L. American Cos Inv Trust	69.9	87.8	116.4	20.5	33.0	45.4
Scudder Latin American Inv Trust	60.6	77.0	106.6	22.2	36.4	51.0
Templeton Latin American Investment Trust	60.3	76.8	103.3	10.1	17.6	26.6
Abbey Life Latin America Trust	-	-	32.5	-	-	13.7
Abtrust Latin American Investment Fund	8.9	20.6	25.0	3.2	8.9	10.6
BG Latin America Unit Trust	48.2	114.6	166.6	19.1	46.2	79.9
FFF Fleming Latin American Fund	116.8	124.2	187.2	45.3	49.8	80.9
Latin American Investment Company	8.8	11.8	19.0	3.5	5.4	9.5
Latin American New Growth Fund SA	-	-	39.0	-	-	17.9
MST Latin American Fund	14.2	10.0	49.5	4.8	3.9	22.8
Morgan Grenfell Latin American Fund	129.2	29.1	34.8	48.6	12.0	14.6
NPI Latin American Unit Trust	-	-	3.3	-	-	1.3
Schroder Latin American Fund	531.4	854.0	1279.0	191.3	333.9	521.8
Brazilian Smaller Cos Investment Trust	70.4	100.7	110.7	70.4	100.7	110.7
TOTAL	**1474.8**	**1939.0**	**2906.0**	**568.8**	**825.1**	**1303.7**
% change yoy		**31.5**	**49.9**		**45.1**	**58.0**
% Brazil / total				**38.6**	**42.6**	**44.9**

Source: Own calculations based on information obtained directly from the listed funds

Table 10: Investments of UK-Based Global Emerging Market Equity Funds

	Assets US$mn	Brazil US$mn	Allocation %
Abtrust Emerging Economies Investment Trust plc	84.9	13.6	16.0
Beta Global Emerging Markets Investment Trust plc	205.5	23.4	11.4
Emerging Markets Country Investment Trust plc	70.4	10.8	15.3
Fleming Emerging Markets Investment Trust plc	336.2	54.8	16.3
Foreign & Colonial Emerging Markets Inv. Trust	449.0	105.3	23.5
Genesis Emerging Markets Fund Limited	595.1	70.8	11.9
Govett Emerging Markets Investment Trust	82.9	13.9	16.8
Kleinwort Emerging Markets Trust	67.4	4.5	6.7
Montgomery Emerging Communications Fund	41.8	4.7	11.3
Murray Emerging Economies Inv. Trust	92.7	7.4	8.0
Schroder Emerging Countries Investment Trust	168.1	23.5	14.0
Templeton Emerging Investment Trust	1319.1	212.4	16.1
Aberdeen Emerging Markets Fund	41.6	5.7	13.6
BG Emerging Markets Trust	8.3	1.7	20.0
City of London Emerging Markets Country Trust	78.6	10.3	13.1
Fidelity Institutional Emerging Markets Fund	72.0	9.1	12.6
Five Arrows PF Emerging Markets	13.5	2.0	15.0
Foreign & Colonial Global Emerging Markets Exempt	51.1	10.5	20.5
Framlington Emerging Markets Fund	42.9	6.6	15.5
Gartmore Emerging Markets Fund	48.5	7.0	14.5
Gartmore PSF Emerging Markets Strategy Fund	345.0	64.3	18.6
Henderson Emerging Markets Exempt Fund	15.0	2.3	15.0
Hill Samuel Global Emerging Markets Fund	82.0	10.7	13.0
INVESCO Global Emerging Markets Fund	67.1	14.2	21.1
Martin Currie Emerging Markets Fund	93.2	15.9	17.1
Mercury Emerging Markets Fund	417.2	75.7	18.2
Portfolio Emerging Markets Fund	11.6	1.0	9.0
S&P Emerging Markets Fund	55.6	9.2	16.6
Schroder Global Emerging Markets Fund	501.3	73.2	14.6
Scottish Widows Emerging Markets Trust	54.8	7.2	13.2
Stewart Ivory Emerging Markets Fund	94.4	11.3	12.0
Sun Life Emerging Markets Fund	235.6	37.9	16.1
Thornton Global Emerging Markets Trust	2.7	0.4	15.2
Total	**5844.8**	**921.3**	**15.8**

Source: Own calculations based on information obtained directly from the listed funds.

Summing the holdings of both equity and pension funds would give a total of well over US$3bn of UK-controlled investments in the Brazilian stockmarket. This is not an insubstantial sum. But, to put it into perspective, it represented just 1% of the US$317bn capitalisation of the Brazilian market in June 1996.

Foreign Direct Investment

In spite of the lessening importance of Great Britain as an economic power in the 20th century, it has remained one of the most important foreign direct investors in the world economy - as well as being a recipient of important flows of direct investments itself. For example, in each of the years 1994 to 1996, the UK was the second largest foreign direct investor overseas after the US (table 11). The gross stock of British direct investment overseas equalled US$213.8bn at the end of 1995, according to the UK Office for National Statistics Sources.

Table 11: Direct Investment Outflows From Selected Countries (US$mn):

Country	1994	1995	1996 *
US	54,465	95,509	88,304
UK	28,251	42,676	43,717
Germany	17,134	38,573	27,883
Japan	17,938	22,628	23,468
France	10,896	10,694	17,734

* Provisional

Source: OECD, International Direct Investment Statistics Yearbook

Latin America has traditionally been the main recipient of FDI in the developing world, until it was overtaken by South and East Asia after 1986. In the 1990 to 1994 period, Latin America received 28 per cent of total FDI flows to developing countries as against 62 per cent for Asia, including China. In the years 1979 to 1990, Brazil had been the largest recipient of FDI in Latin America, receiving 51.7 per cent of FDI flows into the region, about twice as much as Mexico. The figure varied between 34.8 per cent in 1979-82, 59.6 per cent in 1987-90 and 89.9 per cent in 1983-86, when absolute levels of FDI in the region were low and where in some countries - for example, Venezuela, Colombia and Peru, there was significant disinvestment.[12]

12 Foreign Direct Investment in Latin America, Inter-American Development Bank/The Institute for European-Latin American Relations (IRELA), Paris/Madrid, 1993.

Brazil has also been the dominant recipient of European FDI in the region since 1980. The years of economic instability during the 1980s failed to produce net disinvestment: the size of the Brazilian market and the large pool of existing FDI apparently discouraging companies from exiting the country. However, Brazil's relative position deteriorated somewhat in the early 1990s as a result of increasing flows to Mexico, Argentina and Chile.

From 1991 to 1995, Brazil was the 18th most popular destination in the world for FDI, with total FDI inflows of US$12.4bn. This made it the third most popular destination for FDI in Latin America after Mexico, which received US$32.0bn, and Argentina, which received US$16.3bn.[13]

By the mid-1990s Brazil was again growing in importance as a location for FDI, with investment flows to the country reaching record levels, as noted earlier. This growth has several explanations. First and foremost, the success of Brazil's economic and price stabilisation programme - introduced later than either in Mexico or in Argentina - has provided for the more stable economic backdrop favoured by direct investors. In addition, the FDI regime has been liberalised and the passage of a constitutional amendment through Congress ended the division between foreign and domestic companies. Another amendment also opened previously forbidden areas, such as mining and petroleum exploration, to private and foreign investor participation though some activities such as television and publishing and airports are still reserved to Brazilians. Taxation on dividends remitted abroad was also reduced.

Furthermore, privatisation has been an important attraction to foreign direct investors in Latin America in the 1990s. While the process of privatisation officially began in Brazil in 1981, large scale privatisations began to gather momentum substantially later than in Mexico or Argentina. The National Privatisation Programme was launched in 1991 and initially focussed on the sale of assets in a number of industrial sectors, primarily steel, petrochemicals and fertilizers. Between 1991 and 1993, the programme generated US$9.6bn for the government, but only around 5% of this came from foreign investors. As the initial phase of the programme wound down,

13 OECD, Financial Market Trends, June 1967.

revenues fell to US$3.9bn in 1994 and 1995. [14]

However, the picture began to change dramatically in 1996. The programme picked up considerable momentum, centred on public utilities and infrastructure. At the same time, far greater foreign participation became evident. Foreign investment in privatisation was forbidden in the 1980s, and the upper limit on foreign ownership of privatised entities was set in 1990 at 40 per cent. In 1992, this limit was abolished allowing foreigners to buy 100 per cent of a privatised company. The sale in 1997 of the state mining company, Companhia Vale do Rio Doce - the world's largest iron ore producer and Latin America's largest gold producer - to a group including foreign investors, the development of a regulatory framework expediting the privatisation of public services, and the extension of privatisation from the federal government to states and municipalities are some of the factors lying behind the increase in foreign investor participation.

Asset sales rose to US$6bn in 1996 and then soared to US$15.5bn in the first seven months of 1997. From less than 5% in the early part of the programme, the foreign investor share rose to a cumulative 27% in the US$35bn of revenues generated between 1991 and July 1997. The tempo of privatisation should quicken even further in the next two years. It is estimated that the income to be raised from divestments in this period could reach no less than US$85bn. Of this, foreign investors could contribute around 40%, or US$34bn. [15]

With numerous studies indicating market size an important consideration for foreign investors, the attraction of Latin America's largest market is enhanced by the development of Mercosur, the southern cone customs union which also includes Argentina, Paraguay and Uruguay. Mercosur, created by the Treaty of Asuncion in 1991, also includes Chile and Bolivia as associate, or free trade, members, and negotiations are expected with other South American governments.

Furthermore, the increasing integration of Brazil with the world economy, following the lowering of tariff barriers in the early 1990s, has brought about a restructuring of the Brazilian private sector. (Customs duties

14 BNDES, Privatisation: Results, Rio de Janeiro, August 4 1997.
15 BBV LatInvest, Brazil: A Delicate Balancing Act, London, August 1997.

have fallen from an average 80 per cent in 1985 to about 12.5 per cent in mid-1997). Many companies - a large proportion of which were family-owned - have found it hard to compete in the global economy and some are seeking foreign partners to bring in both capital and new technology to their operations; others are simply seeking buyers from abroad. The result has been a mergers and acquisitions boom in Brazil. For example, stakes in more than three dozen Brazilian food firms were sold between 1994 and 1996, mainly to foreigners.[16]

According to figures compiled by IRELA, the Institute for European-Latin American Relations, preliminary estimates for FDI flows to all developing economies rose to US$109.4bn in 1996, a record, from US$24.6bn in 1990. Of this, 23.7 per cent went to Latin America and the Caribbean compared with 32.9 per cent in 1990. Brazil's share was 5.0 per cent compared with 4.1 per cent (table 12). [17] Britain's status as an important source of foreign direct investment is reflected in Latin America and in Brazil. According to IRELA: "The United Kingdom is the largest European Union source of global FDI, though it invests less than average within the Union and relatively more than average outside the OECD countries... Within Latin America and the Caribbean, the UK has been the foremost European investor since 1980. Unlike other major European investors, UK FDI flows to offshore centres were higher - throughout the period since 1980 - than to other parts of the region. But Brazil is the main destination for British FDI, accounting for 57 per cent of the flows from 1980-1994, though UK flows to other countries have risen - leading to a less concentrated pattern of investment. Added to significant flows to Argentina, Mercosur accounted for 62 per cent of UK FDI flows to the entire region from 1990-94." [18]

Table 12: FDI in Developing Countries (US$mn):

	1990	1991	1992	1993	1994	1995	1996 *
Developing countries	24.6	33.5	43.5	67.2	83.7	95.6	109.4
Latin America **	8.1	12.5	12.7	14.1	24.2	22.9	25.9
Argentina	1.8	2.4	2.6	3.5	0.6	1.3	2.0
Brazil	1.0	1.1	2.1	1.3	3.1	4.9	5.5
Chile	0.6	0.5	0.7	0.8	1.8	1.7	2.2
Mexico	2.5	4.7	4.4	4.4	11.0	7.0	6.4

* Provisional
** Includes Caribbean
Source: IRELA

18 Foreign Direct Investment in Latin America in the 1990s, IADB/IRELA, Madrid, 1996.

Between 1990 and 1994, IRELA said, Britain was "a substantial and consistent investor in Brazil, particularly in the petrochemicals and financial services sectors, supplying 42 per cent of European flows to Brazil". Germany's investment in the period was substantial from 1990 to 1992 and were concentrated in the automotive industry. However, there was substantial German disinvestment in 1993, followed by a dramatic recovery in 1994.

In an earlier study, IRELA also noted that: "The United Kingdom was the major European source of FDI flows to the region between 1979 and 1990, accounting for around a third of total flows (excluding Switzerland). It was followed by Germany which supplied a quarter of European investment and France (14 per cent)." It noted that European FDI flows "were more stable than those from either the United States or Japan" and did not show the same significant fluctuations. The coefficient of variation of FDI flows from Europe, the US and Japan respectively between 1979 and 1990 were 0.29, 1.08 and 0.78, respectively. [19]

Between 1980 and 1984, net FDI flows from Britain to Brazil averaged US$193mn, 15.6 per cent of total FDI flows to Brazil. This rose to an average US$385mn between 1985 and 1989, 22.3 per cent of the total, before slipping to US$250mn in the 1990-94 period, 8.4 per cent of the total. This prominent position is despite the absence of a double taxation treaty between the UK and Brazil, the signature of which is currently being negotiated. (There is no such agreement between Brazil and the US, but an agreement with Japan has been in place since 1967, with France since 1972 and with Germany since 1976.)

In fact, despite being responsible for the highest European investment flows to Latin America and Brazil, the UK has not featured in the 1990s so prominently in either place as it does in other parts of the world. For example, according to OECD figures, Britain was responsible in each of the years 1994 to 1996 for between 14.0 and 17.0 per cent of all outward FDI by OECD countries. However, according to IRELA calculations, between 1990 and 1995, Britain accounted for 6.3 per cent of all FDI flows in Latin America made by the European Union, US and Japan

19 Foreign Direct Investment in Latin America, IADB/IRELA, Paris/Madrid, 1993.

combined. The year in which the percentage was highest was 1995, when Britain accounted for 8.9 per cent of the total. Moreover, the data related to the stock - rather than the flows - of investment also suggest a slightly different picture. Figures of FDI stock for Brazil show that in 1994, Britain was the third largest direct investor (table 13). The stock of British FDI on a current cost basis was US$5.1bn, or 9.0 per cent of the total. This was behind the United States, which accounted for 32.5 per cent of the total and Germany which accounted for 11.2 per cent. But it was above the Japanese contribution of 7.4 per cent and the French of 4.2 per cent. The 1995 share of the European Union as a whole was 34.8 per cent of FDI and if Switzerland is included the European share rises to 41.3%.

Table 13: FDI Stock in Brazil by Country of Origin (US$mn)

	1980	%	1985	%	1990	%	1994	%
UK	1,111	6.4	1,430	5.6	2,470	6,6	5,107	9.0
US	5,004	28.6	8,055	31.4	10,436	28.0	18,388	32.5
Germany	2,448	14.0	3,547	13.8	5,567	14.9	6.315	11.2
Japan	1,725	9.9	2,385	9.3	3,782	10.2	4.161	7.4
Switzerland	1,768	10.1	2,073	8.1	3,524	9.5	3,696	6.5
France	702	4.0	926	3.6	1,966	5.3	2,388	4.2
EU	6,327	36.2	8,764	34.1	14,254	38.3	19,679	34.8
Offshore centres	1,153	6.6	1,908	7.4	1,823	4.9	6,562	11.6

Source: IRELA from ECLAC and Brazilian Central Bank statistics

Nonetheless, the British share in Brazilian FDI has grown in recent years and the UK has climbed higher in the table of foreign investors. For example, Britain's share of FDI stock in Brazil in 1980, 1985 and 1990 respectively was 6.4 per cent, 5.6 per cent and 6.6 per cent. In each of these years, it held the fifth largest stock of investment, behind the US and Germany, but also Japan and Switzerland.[20]

The sectoral distribution of FDI in Brazil reflects a number of factors. Unsurprisingly, the exclusion by law until recently of foreign investors from primary economic activities such as mining has meant that

20 Ibid.

FDI in those areas has historically been lower than in countries where such exclusions have not existed. For example, FDI in the primary sectors of mining, quarrying and petroleum amounted to just 1.7 per cent of all FDI in 1993. In Mexico and Argentina, where similar legal restrictions have existed, the percentage is 1.3 per cent and 6.5 per cent respectively. But where such restrictions do not apply the proportion was much higher: in Chile, for example, this percentage was 56 per cent and in Colombia 61 per cent. FDI in primary sectors in Brazil can be expected to increase following the lifting of restrictions against foreign investment in the mining industry, and in fact has already begun with the privatisation of the state mining company, Companhia Vale do Rio Doce (CVRD).

Agriculture accounted for 0.7 per cent of Brazilian FDI stock in 1993, while the secondary sector, including manufacturing, was responsible for 58.1 per cent of FDI. The tertiary sector, which includes services such as banking, accounted for 39.5 per cent.

Britain's participation in this reflects the strengths and weaknesses of its own economy. For example, while Britain remains an important producer of cars, no large car company has its headquarters in the UK. This is reflected in FDI flows to Brazil. In mid-1995, some 7.7 per cent of all FDI was directed to the automotive sector, but only 0.4 per cent of British FDI went into this industry, according to central bank statistics. Given the expected importance of greenfield investment in the Brazilian car industry in the years to the end of the century - at least 11 foreign companies have announced plans to invest more than US$13bn before the end of the century in the Mercosur vehicle sector - this could have a bearing on Britain's share of future FDI into Brazil.

However, Britain's strength in financial services and other aspects of the service economy are reflected in its investment in Brazil. This pattern seems set to continue, with important British investment taking place in the Brazilian financial sector during 1996. The largest was the acquisition by the UK-based Hong -Kong & Shanghai Banking Corporation (HSBC) of the assets of Banco Bamerindus. HSBC purchased R$10bn of assets and liabilities in Bamerindus, which had been facing growing financial difficulties. It capitalised Bamerindus to the tune of US$1bn, US$400mn

of which was to be paid over seven years to the former Banco Bamerindus, which will stay under intervention by the central bank.

HSBC previously had a 6.14 per cent stake in Bamerindus, the fourth largest private bank in the country, which it acquired in 1995. The purchase followed the acquisition announced in March 1997 by Lloyds TSB of the UK - which with its predecessor, the Bank of London and South America, has been one of the top three foreign banks in Brazil for decades - of the consumer banking business of its Brazilian associate, Banco Multiplic. [21]

These and other foreign banks have been attracted to the Brazilian banking sector by prospects for growth. The ratio of bank deposits to GDP - at 24 per cent - is low, as is the ratio of bank credit to the private sector to GDP, at 33 per cent.

HSBC described its move in Brazil as part of a strategy to seek growth in the "emerging markets" of Asia and Latin America. Sir Willie Purves, chairman of the HSBC group, has said the bank saw the greatest opportunities for future growth in these two regions and saw little attraction in acquisitions in Europe and north America. "We see Europe and America as being mature markets. It's not very easy to see how we would add shareholders' value at some of the prices that apply in those markets," he said. HSBC announced acquisitions of a total US$2bn in Latin America in the first half of 1997. In fact, an increase in HSBC's exposure to Brazil was offset by sales of Brazilian Brady bonds held in the banks' portfolio. Similar sales took place of Argentine and Mexican Brady bonds to finance HSBC's purchases of banks there. [22]

In a generally positive note, the Lex column of the Financial Times, which provides a respected daily commentary on companies traded on the stock markets of London and elsewhere, described HSBC's strategy as one of trying to replicate in Latin America its successful experience in Asia. It said "decent returns" from Brazil remained distant. But it provided one explanation of why companies in mature markets were looking to invest in countries such as Brazil: the assets remain substantially cheaper than those

21 G. Dyer, HSBC Acquires Bamerindus for £615m, Financial Times, 27 March 1997.
22 G. Graham, HSBC up 13 per cent in First Half, Financial Times, 5 August 1997.

in mature markets and the opportunities for growth higher.

"The risks in Latin America remain considerable, but prices are attractive compared with troubled banks in Europe, and growth rates much higher. It paid 0.7 times revenues for Brazil's third largest bank, while HSBC itself is valued at five times revenues." [23]

Mr Michael Geoghegan, the new president of HSBC Bamerindus, which has more than 1,200 branches, said the bank intended to become the largest in Brazil, though this would take time. The acquisition already made it easily the largest foreign bank. He said the group would have the edge over local competition in providing services such as telephone banking. The bank's international network would also attract more corporate business to Bamerindus. "We already do business with 300 of the top 500 Brazilian companies around the world," he said.

He also cited confidence in the future of Mercosur. HSBC also took in 1997 control of Banco Roberts of Argentina, paying US$600m to do so.[24]

The importance to the Brazilian government of the HSBC purchase - and purchases of other institutions by foreign banks - was outlined by a paper produced by the Secretariat for Economic Policy at the Ministry of Finance. "The stronger the financial institutions in an economy, the greater will be the ability of the financial system to absorb macroeconomic shocks. So, the entrance of foreign banks to act in the Brazilian economy meets our wish to strengthen our domestic financial system."

The entrance of foreign banks also increased competition with in the financial system, reducing margins and fees for banking services. It also helped in the restructuring of the Brazilian financial system, by encouraging the purchase of financial assets held by the central bank under liquidation procedures, the paper said.

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23 The Lex Column, Financial Times, 5 August 1997.

24 G. Dyer, HSBC Intends to be Biggest Bank in Brazil, Financial Times, 29 March 1997. G Dyer, Foreign Banks Vie for Pole Position, Financial Times, 11 April 1997.

However, the paper emphasised the particular importance of the HSBC move, because HSBC was the second largest bank in the world in terms of assets and had wide international experience. It stressed too the bank's intention to increase the number of branches from 1,200 to 1,500 and its emphasis on the retail rather than the wholesale market. [25]

Conclusions

The role of Britain as an international financial centre and an important provider of direct investment overseas coupled with important economic changes in Brazil appear likely to increase the volume and the quality of financial flows from the UK to Brazil in the future. The near-term prospects for these flows will depend to some extent on the success of the Brazilian government's current anti-inflation plan. Nonetheless, Britain along with its European Union partners has been a consistent investor in the Brazilian economy, through good times and bad. It appears that the size of the Brazilian economy and the important volume of FDI that has already entered the country will stimulate future investment.

Nonetheless, while Britain's role as an investor in Brazil is important, there is still room for it to grow since its share of FDI in other countries around the world is higher than in Brazil. This may reflect in part the weakness of Britain in certain industrial sectors that are important to Brazil, for example motor vehicles. It may also reflect a conservative approach among British investors and only slow recognition of the economic changes which have been undergone in Brazil during the 1990s. Efforts currently under way by both the UK and Brazilian governments may help to change this.

25 J R Mendoça de Barros & M Facundo de Almedia Junior, An Analysis of the Financial System Adjustment in Brazil, Brasilia, April 1997.

Brazil and the United Kingdom: Trade Relations

*Victor Bulmer-Thomas**

Trade relations between Brazil and the United Kingdom (UK) are long-established. Following the transfer of the Portuguese royal family to Rio de Janeiro in 1808, Britain used its influence to secure special terms for its exports while the British market soon became immensely important for the imperial government of independent Brazil[1]. By the middle of the 19th century (see Table 1), one-third of all Brazil's exports were destined for the UK and over half of all imports came from Britain.

This dominant position could not be expected to continue indefinitely, but as late as 1900 the UK was still providing nearly one-third of all Brazil's imports (the rise of coffee meant that the UK, where tea was the preferred beverage, was being displaced by the USA as a destination for Brazil's exports). Even in 1950 (see Table 1), Britain remained an important trading partner for Brazil, although the Brazilian market was not of great significance for the UK.

The subsequent (relative) decline in the trade links between both countries continued unabated until the early 1990s. The trade missions sent by Britain to Brazil in the 1960s and 1970s made little difference and trade relations dwindled to an insignificant level. As elsewhere in Latin America, Britain saw its share of the import market fall to less than two per cent, while Brazil's exports to the UK were overshadowed by its exports to many other countries in the European Union and had fallen to less than three per cent of the total by 1995 (see Table 1).

Trade relations between Brazil and the United Kingdom have therefore declined in importance. However, recent changes in Brazil have created expectations of a change in the relationship - at least as far as UK exports to

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[1] See Manchester (1933).

Brazil are concerned. Trade liberalisation in Brazil, beginning in 1990, has led to a sharp fall in tariff rates and a rapid growth in imports. This trend was accelerated following the introduction of the **Plano Real** in July 1994 as a result of real exchange rate appreciation. Indeed, so rapid has been the growth of Brazil's imports that between 1992 and 1996 it was the fastest growing market for British goods in the world with an increase in UK exports (valued in sterling) of 210%.

TABLE 1. Trade shares for Brazil and UK, C.1850 TO 1995. Exports/ Imports to/from partner as a percentage of total.

Year	c.1850	c.1900	c.1950	1990	1995
BRAZIL: export	33.5	15.9	8.3	3.0	2.8
BRAZIL: import	53.3	31.3	12.3	2.0	1.9
UK: exports	3.5	2.0	2.2	0.3	0.4
UK: imports	2.0	1.1	1.5	0.6	0.6

Sources: Derived from Platt (1972), IBGE (1987), Mitchell (1992), IMF (1996)

Since this explosion in British exports has coincided with an increase in trade missions sent by Britain to Brazil and much greater attention from British government ministers, it is tempting to conclude that Britain has reaped the benefit of its greater trade effort. However, the UK share of the Brazilian import market did not increase between 1990 and 1995 (see Table 1) so that Britain's "exceptional" performance is mainly a reflection of the UK maintaining its market share of fast-growing imports. Thus, if and when the rate of growth of Brazil's imports declines (see last section), the rate of growth of British exports to Brazil is also likely to fall.

The changes in the British economy in the last two decades, while not as spectacular as in Brazil, have also created new opportunities for exporters. The secular decline of Britain's manufacturing industry has continued giving rise to a substantial increase in manufactured imports as the British economy becomes ever more oil- and services-based. The Single European Market (SEM), formally adopted in 1992, has eliminated most of

the Non-Tariff Barriers (NTBs) between member states of the European Union (EU), creating opportunities for exporters to service the whole of the European market from one entry point. The pound sterling has also appreciated strongly in anticipation of European Monetary Union (EMU) in 1999 without British participation. There has been some growth in Brazil's exports to the UK as a result of these and other factors, but (see next section) the performance has been relatively undynamic and Brazil is set to lose its traditional surplus on visible trade with the UK this year.

Although the level of bilateral trade is very modest, there are limits on what can be done to improve it. Trade relations between both countries are increasingly governed by rules established in regional or international treaties. Brazil's external tariffs are, in most cases, subject to agreement with MERCOSUL partners with the Common External Tariff (CET) set to cover all imports by 2006. Even in the case of those goods for which no CET has been set, Brazil's degrees of freedom are limited (upwards) by membership of the World Trade Organisation (WTO) and (downwards) by powerful industrial lobbies.

Britain does not control its tariff rates while trade policy for goods (but not yet services) is the responsibility exclusively of the European Commission (EC). The latter organisation is responsible for determining the Generalised System of Preferences (GSP) for all EU members and is phasing out almost all preferences for Brazil on agricultural and agro-industrial exports to the EU between 1997 and 1999. Export credits are still a national responsibility, but the Export Credits Guarantee Department (ECGD) has to work within parameters established by the EC as part of its commitments to the OECD.

The bilateral trade relationship would undoubtedly be stimulated if the framework agreement signed between the EU and MERCOSUL in 1995 were to be converted into a Free Trade Agreement. However, while Brazil plays a dominant - not to say hegemonic - role within MERCOSUL, British influence within the EU is much more modest and the proposed FTA is likely to be very difficult to achieve. Furthermore, the EU appears more concerned with launching the third stage of EMU on schedule and enlarging membership to include the countries of central Europe. Both changes are

likely to create difficulties for the expansion of Brazil's exports to the EU in the medium-term (see last section).

In the next section, I explore recent trends in the bilateral trade relationship at both an aggregated and disaggregated level. I then develop an econometric model to explain British and Brazilian bilateral exports on a global basis, which demonstrates that both countries have 'under-performed' in their exports to each other. This is followed first by an analysis of British underperformance in the Brazilian market and then by an analysis of Brazilian underperformance in the British market. The final section looks at prospects for trade relations in the next ten years.

Recent trends

Although the long-run trade relationship between Britain and Brazil has been subject to secular decline, the short-run trend since 1990 has been very dynamic. The most spectacular evidence of this is provided by the growth of British exports to Brazil, which have risen from $481 million in 1992 to $1354 million in 1996 (see Table 2). Curiously, the Brazilian statistics on imports from the UK are not the same, although they tell a similar story. The Brazilian data (see Table 2), although they record the c. i. f. value of imports, consistently **undervalue** the UK data on the f. o. b. value of exports.[2]

Table 2. Brazil - UK trade, 1990-6 ($MN)

Year	1990	1991	1992	1993	1994	1995	1996
(A) Brazil							
Exports $mn	945	1057	1286	1140	1229	1326	1324
Imports $mn	460	489	406	560	755	975	1246
Balance $mn	+485	+568	+880	+580	+474	+351	+78
(B) UK							
Exports $mn	589	596	481	622	807	1067	1354a
Imports $mn	1269	1350	1562	1357	1408	1535	1573a
Balance $mn	-680	-754	-1081	-735	-601	-468	-219

(a) Converted from pound sterling at 1.60 exchange rate
Sources: 1990-5, IMF (1996); for 1996 DTI (1997) and SECEX (1997)

2 The fob value of exports from country A to country B is usually assumed to be 10% lower than the CIF value of imports of country B from country A.

The Brazilian market has been the most successful in the world for British exports since 1992, as mentioned in the previous section. Indeed, this trend continued in the first five months of 1997 with UK exports to Brazil rising by 33.6% over the same period in 1996. Britain, however, has not increased its market share significantly so that the rate of growth of UK exports to Brazil remains determined above all by the rate of growth of Brazil's imports.

The growth of Brazil's exports to the UK has been much more restrained (see Table 2) and Brazil has continued to lose market share - albeit modestly (see Table 1). As a result of the faster growth of her imports from the UK, the trade surplus has shrunk from $880 million in 1992 to $78 million in 1996; indeed, this year (1997) the trade balance will show a deficit if current trends continue. However, bilateral trade balances are of no great economic significance and little importance should be attached to them **per se.** Much more important is Brazil's loss of market share and this loss is likely to be accelerated in 1997 as figures for the first five months suggest a 10% drop in the value of Brazil's exports to the UK at a time when UK imports are growing rapidly.

Turning now to the structure of bilateral trade, we find that Brazil's exports to the UK are relatively diversified with the top ten products accounting for some 55 per cent of the total. The structure of Brazil's exports to the UK, however, is quite different from the structure of Brazil's total exports, as Table 3 makes clear. For example, the leading export (leaf tobacco and waste) represents some two per cent of total exports, but 11 per cent of exports to the UK; indeed, the top ten products to the UK account for less than 20 per cent of total Brazilian exports.

The different structures in Table 3 capture the over-representation of primary and agro-industrial products in exports to the UK and under-representation of manufactured goods. This would not matter if the market opportunities for such products were favourable. However, the opposite is true: many of them are subject to the withdrawal of GSP status in the next few years; some (e. g. wood products; leaf tobacco; processed beef) are susceptible to campaigns in favour of reductions in consumption; while one (non-monetary gold) is highly cyclical and may be subject to re-export.

Only one (piston engines, parts and components) is an important British import and in a listing of the 50 main UK imports with their leading suppliers Brazil appears just once (chemical wood pulp based on soda or sulphate).[3]

Table 3. The structure of Brazil's exports in 1996 (%)

	UK	TOTAL
Leaf Tobacco and Waste	11.0	2.15
Footwear, parts and components	7.7	3.46
Gold, in intermediate form (non-monetary)	6.4	1.22
Beef, processed	6.1	0.41
Chemical wood pulp, soda or sulphate	5.6	2.0
Piston engines, parts and components	5.5	2.15
Plywood or laminated wood and similars	5.1	0.52
Iron ore and concentrates	3.3	5.64
Printing paper	2.2	0.66
Carpentry assemblies for construction	2.2	0.26
Other products	44.9	81.5

Sources: SECEX (1997); Brazilian Embassy (1997).

The Brazilian export structure to the UK is therefore a matter of some concern. Many of the leading products are vulnerable to a downward trend in consumption patterns; Brazil does not export to the UK many of the most important British imports; and the changes in the European GSP can be expected to have a negative effect on several exports.

If Brazil's exports to other developed countries (other than the UK) had the same structure, it might be argued that little could be done to improve the situation in the short-term. However, this is not the case. Exports to the USA (19.23% of the total) include many manufactured products (particularly auto parts). Brazil in 1996 also exported more within the EU to Holland (7.43%), Germany (4.36%), Italy (3.21%) and Belgium/Luxembourg (3.0%) than to Britain (2.77%) and the structure in each case was quite different, although exports in all cases were dominated by primary and agro-industrial products. The most encouraging feature of Brazil's exports to the UK is the strong performance of piston engines, parts and components (see Table 3).

3 This product, fifth in the list of Brazil's exports to the UK, is 31st in the list of UK total imports. See Brazilian Embassy (1997), p.25.

Indeed, exports of auto parts is expected to grow with the decision by BMW to import engines for Rover assembly in the UK from Brazil. There has also been an aggressive and successful campaign to export poultry products in recent months. Overall, however, export performance is undynamic and likely to remain so in the short-term; the measures needed to boost exports in the medium-term are considered in the final section.

British exports to Brazil are dominated by capital goods (see Table 4). Indeed, machinery and transport equipment accounts for nearly 50% of total exports. This helps to explain the rapid growth of UK exports to Brazil since imports of capital goods have been particularly dynamic in recent years and Brazilian firms have been restructuring in order to be able to compete internationally. The second most important export product group is chemicals and related materials and, together with machinery and transport equipment, this accounts for nearly 75% of British exports to Brazil.

Table 4. UK exports to Brazil in 1996: £MN and as a %age of total

	£MN	% OF TOTAL
Beverages	42.4	5.0
Minerals and Lubricants	15.3	1.8
Chemicals and Related Materials	207.5	24.5
Manufactured goods by material	58.8	6.9
Machinery and Transport Equipment	410.8	48.5
Misc. Manufactured Articles	74.7	8.8
Other Products	37.2	4.4
TOTAL	846.5	100

Source: DTI (1997)

When British exports to Brazil are examined using statistics on Brazil's imports from the UK (see SECEX, 1997), it is interesting to note that pistons for engines occupy the leading position; this means that there is a high level of intra-industry trade in this sector since it is also one of the main Brazilian exports to the UK (see Table 3). In the first five months of 1997, there was also spectacular growth in the export of aparelhos transmissores, receptores e componentes compared with the same period

in the previous year (+502.69%).

British exports to Brazil are in general representative of the structure of total British exports. Furthermore, this structure has benefited from the restructuring of the Brazilian economy, which has given special importance to capital goods imports. It is premature to talk of a permanent gain in the British share of Brazilian imports, as Table 1 makes clear, but it is encouraging that Britain has at least kept its share of a fast-growing market as a result of the complementarity between Brazilian import requirements and British export capacity[4]. It is the lack of complementarity that was one of the main reasons for the loss of market share before 1990. British exports may also benefit from a revision of the automobile regime if the WTO panel rules against Brazil's NTBs and high tariffs for automobile imports.

There must be grave doubts, however, over the ability of the UK to sustain the high rate of growth of exports to Brazil achieved since 1992. The rapid growth of the Brazilian trade deficit since 1994 (estimated to have reached four per cent of GDP in the first half of 1997) has forced the authorities to adopt measures to restrict the growth of imports. These measures, including the ending of bank credit for imports in excess of $10,000, are bound to affect capital goods imports in general and British exports in particular. Britain is also vulnerable in some product groups to the trade preferences given to MERCOSUL partners. Although import growth may continue through 1998 (an election year in Brazil), the rate of growth is likely to be limited to no more than the rate of growth of exports in the medium-term (see final section). Given the obstacles faced by Brazilian exporters on both the demand- and supply-side, British exporters will have to accept more modest rates of increase in the future. This still leaves plenty of opportunities to expand exports, but the "golden age" of exporting to Brazil is almost certainly over.

An econometric model of British and Brazilian exports

In order to understand the nature of British (Brazilian) underperformance in exports to Brazil (UK), an econometric model was

4 The British share rose from 1.96% in 1995 to 2.48% in 1996, but it is too early to say if this is a long-run change.

constructed based on the standard gravity model of international trade[5]. This model regresses bilateral exports on a series of independent variables including population in foreign countries, GDP per head in foreign countries, and distance between exporting country and its partners. In the case of the United Kingdom and Brazil, however, it was decided to incorporate four dummy variables; the first differentiates between partner countries that are islands and those that are not since island economies **ceteris paribus** have a greater propensity to import; the second differentiates between partner countries that are land locked and those that are not; the third (unimportant for UK) differentiates between countries that share a common border with the exporting country and those that do not; the fourth differentiates between partner countries where English (Portuguese) is the first language and those where it is not, since it is widely assumed that British exporters prefer to sell in markets where English is widely used.

The gravity model used in this analysis therefore takes the following form:

Equation (1)

$$lnX_j = constant + \beta_1 lnPOP_j + \beta_2 lnGDPpc_j + \beta_3 lnDIST + \beta_4 lnIS.D + \beta_5 L.L.P.D + \beta_6 C.BOR.D + \beta_7 C.LAN.D$$

where 'ln' stands for logarithms, 'X' for British (Brazilian) exports to country 'j', 'POP' for population in country 'j', 'GDPpcj' for GDP per head in US dollars in country 'j', 'DIST' for the distance between the UK (Brazil) and partner countries, 'IS. D' is the island dummy (1 for islands and 0 for other countries), 'L. L. P. D.' for Land-Locked Partner Country (1 if country has no sea coast and 0 elsewhere), 'C. BOR. D.' for Common Border Dummy (1 if domestic country has common border with partner country and 0 elsewhere) and 'C. LAN. D.' is the common language dummy (1 for countries where English (Portuguese) is the first language and 0

5 I am grateful to Hernan Vallejo for preparing the database and running the regressions on which this section is based.

elsewhere). The model was run for three separate years (1986, 1989 and 1992) and the results for the UK are given in Table 5.

Table 5. Results of regressions for UK exports: dependent variable is UK bilateral exports

YEAR	lnPOP	lnGDPpc	lnDIST	IS. D	L. L. P. D
1986	0.659***	1.269***	-0.774***	-0.065*	-0.461***
1989	0.697***	1.319***	-0.813***	-0.003	-0.426**
1992	0.711***	1.453***	-0.719***	0.129	-0.150

YEAR	C. BOR. D	C. LAN. D	Constant	No of observations	R^2	F
1986	0.643	1.116***	-5.586***	141	0.84	101.82
1989	0.539	1.110***	-6.061***	131	0.86	106.47
1992	0.703	0.935***	-8.069***	90	0.92	132.79

Note: *** Significant at 99%; ** significant at 95%; * significant at 90% level

(a) Uses values of GDP pc at PPP US dollars as in the Penn World Tables

The regression results are encouraging with high R^2 and F statistics, indicating that much of the variation in the UK bilateral exports is explained by the independent variables. They show, for example, that the UK does export more to English-speaking countries **ceteris paribus**. Since the regressions are in logarithmic form, the coefficients can be interpreted as elasticities showing that a 10% increase in GDP per head in partner countries, for example, increases British exports by between 12.7% and 14.5%. Finally, the coefficients on population and distance are very significant, indicating that UK exports are higher to countries with larger populations and smaller to countries that are more distant.

Equation (1) can be used to compare predicted UK exports with actual UK exports. In the case of Brazil, the data (see Table 6) confirm that British exports to Brazil in all three years are below the predicted level, implying underperformance by the UK. The degree of underperformance

varies from 20.6% in 1989 to 39.6% in 1992.[6]

Table 6. Actual and predicted values of UK exports to Brazil ($MN)

YEAR	ACTUAL	PREDICTED	DIFFERENCE	% DIFFERENCE
1986	432	554	-122	-22.0
1989	555	699	-144	-20.6
1992	481	796	-315	-39.6

The results shown in Table 6 are of considerable interest, but they must be interpreted with caution. The gravity model is designed to reflect structural characteristics in bilateral trade relationships rather than policy changes. Thus, predicted British exports to Brazil in Equation (1) can only rise in the short-run if GDP per head in current dollars increases (other independent variables - including population - are virtually unchanged over the short-term). The model cannot therefore take account of the surge in Brazilian imports as a result of the policy changes adopted after 1990.

The results for Brazil are given in Table 7. They provide a similar picture to that given for the UK; the population and GDP per head of partner countries, together with distance to partner country, are highly significant explanatory variables, but the common language dummy is no longer of much importance (the number of trading partners where Portuguese is spoken is small). As with the UK, bilateral exports are sensitive to GDP per head in partner countries; a 10% increase, for example, generates additional exports of approximately 15%.

Table 7. Results of regressions for Brazilian exports: dependent variable is Brazil bilateral exports

YEAR	lnPOP	lnGDPpc[a]	lnDIST	IS.D	L.L.P.D
1986	1.022***	1.633***	-1.468***	0.054	-0.388
1989	0.949***	1.537***	-1.191***	0.273	-0.311
1992	1.114***	1.584***	-2.454***	0.929***	-0.049

YEAR	C.BOR.D	C.LAN.D	Constant	No of observations	R^2	F
1986	0.379	0.667	-6.982***	130	0.79	65.84
1989	0.799	0.807	-7.834***	127	0.79	62.29
1992	-0.140	-0.432	0.623	89	0.84	62.13

Note: *** Significant at 99%; ** significant at 95%; * significant at 90% level
[a] Uses values of GDP pc at PPP US dollars as in the Penn World Tables

6 The results for all countries (not shown here) are very revealing. They show that actual UK exports are below the predicted UK exports for all the main Latin American countries.

In Table 8 a comparison is made actual and predicted exports from Brazil to the UK. They show that Brazil's exports have consistently underperformed with the degree of underperformance varying from 45.6% in 1989 to 69.6% in 1992. The latter figure should be interpreted with caution, however, as the predicted exports for that year are implausibly high.

Table 8. Actual and predicted values of Brazil's exports to UK ($MN)

YEAR	ACTUAL	PREDICTED	DIFFERENCE	% DIFFERENCE
1986	647	1287	-640	-49.7
1989	1031	1897	-866	-45.7
1992	1286	4228	-2942	-69.6

The results of these econometric models demonstrate what has long been suspected: Britain and Brazil under-perform in their exports to each other. The model, however, does not explain the underperformance in any causal sense. In the next two sections, I explore a number of hypotheses designed to explain why bilateral exports are so disappointing.

British underperformance

The United Kingdom is a major international trader with exports in 1995 of $239.4 billion and imports of $262.5 billion. Only the USA ($582.5 billion), Germany ($509.3 billion), Japan ($443 billion) and France ($286.7 billion) have higher exports. Britain is therefore the fifth most important trader in the world with 4.8% of world exports and 5.1% of world imports.

The UK trades with all countries in the world and, **ceteris paribus**, we would expect its share of any given import market to be equal to its share of world exports, i. e. 4.8% based on 1995 values. This is the starting point for an analysis of British exports to Brazil.

As shown in Table 1, the British share of Brazil's imports is approximately 2% as against the "expected" share of 5% and an official

target of 4%.[7] The gap between expected and actual performance is therefore some 60%.[8] This underperformance can be attributed to various factors and in this section I explore several hypotheses in an effort to identify the reasons for the shortfall.[9]

Hypothesis 1. British underperformance in Brazil is due to overperformance in other markets.

It is a matter of simple arithmetic that overperformance by British exports in certain markets must lead to underperformance elsewhere. In the case of the UK, exports to the rest of the European Union (EU) are particularly important and represent (in 1995) nearly 55% of the total[10]: the UK has 7.3% of total EU (excluding the UK) imports - far above the "expected" share of 4.8%. When the UK share of world trade is calculated to exclude the EU, the ratio falls to 3.4% and the gap (see fn. 8) to some 40%. Thus, overperformance in exports to the EU explains one-third of the underperformance in the Brazilian market.[11]

Hypothesis 2. British underperformance is due to Brazil's overdependence on other markets.

Like the UK, Brazil is a member of a regional integration scheme and has forged close trading links with its partners in MERCOSUL (Argentina, Paraguay and Uruguay). Its three partners' share of world exports is 0.5%, but their share of Brazil's imports (1995 figures) is 13.7%. Thus, Brazil is "over-dependent" on its MERCOSUL partners and must necessarily have a lower dependence on imports from other sources, including the UK.

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7 As part of the Link into Latin America campaign, launched in January 1995, the British government has set itself the target of doubling its share of the Latin American market.

8 Call the expected share S(e) and the actual share S(a); then the gap is defined as {[S(e) - S(a)]/S(e)} x 100.

9 There are other hypotheses that could have been explored with more time; examples are (i) UK exports underperform because of overperformance of investment; (ii) UK exports underperform because of overperformance of services.

10 It might be expected that the UK overperforms in the US market. This in fact is not true, as the UK accounts for only 3.6% of US imports (1995 figures).

11 Note that, with this approach, the UK would be "overperforming" if it succeeded in meeting the official target of 4% of the Brazilian import market.

When Brazil's trade figures are adjusted for the difference between expected and actual MERCOSUL imports, the British share increases (1995 figures) to 2.3%, i. e. the gap falls to some 50%. Thus, Brazil's MERCOSUL links explain a further 10% of the difference between actual and expected British performance.

Hypothesis 3. The UK is not exporting the products that Brazil wants to import.

If the growth of Brazil's imports takes places in products or product groups that are not exported by the UK, then it is difficult - not to say impossible - for the UK to achieve its expected share. In order to test this hypothesis, I have calculated the growth of Brazil's imports from 1990 to 1995 in 14 product groups (see Table 9) and ranked them in terms of their growth rates. I then ranked the same products in terms of the structure of British exports at the mid-point in the cycle (1993). A comparison of the two rankings gives a Spearman Rank Correlation Coefficient of 0.178.

The maximum value for Spearman is unity, so that the actual correlation is quite low. For example, the most important British export (chemicals) is only seventh in the ranking of Brazil's import growth rates (see Table 9), while the fastest growing product group (automotive products) is sixth in the British export list. However, the calculation of the Spearman Coefficient is sensitive to the choice of product groups, base and terminal year and it is doubtful if the structure of UK exports explains underperformance to any significant degree. On the contrary, as we saw previously, there does seem to be a fair degree of complementarity at present between Brazil's need for capital goods and UK export capacity.

Table 9. Brazil's import growth and UK export structure

	Brazil (%)	Brazil Rank	UK Rank
Agricultural products	175	5	14
Fuels	2	13	10
Chemicals	140	7	1
Textiles/Clothing	479	2	8
Iron and Steel	47	12	11
Other semi-manufactures	165	6	12

	Brazil (%)	Brazil Rank	UK Rank
Mining prod (ex. fuels)	76	11	13
Power-generating machines	-7	14	4
Other non-elec. machinery	96	9	3
Office and telecom equip.	243	3	5
Electrical machinery	127	8	7
Automotive products	1397	1	6
Other transport equipment	82	10	9
Miscellaneous	190	4	2

Sources: WTO (1996); DTI (1997).

The rates of growth of Brazil's imports in Table 9 take no account of the initial level of imports. It is therefore of interest to compare the structure of Brazil's imports with the structure of British exports and it reveals some major differences. For example, food, drink and tobacco products (1992/3 figures) accounted for nearly 8% of British exports and only 1.3% of total Brazilian imports; on the other hand, mineral products (including oil) represented 23.3% of Brazilian total imports, but only 2.5% of British exports. However, the structure is similar for many capital goods and it is difficult to argue that the structure of Brazilian imports works against the growth of British exports.

Hypothesis 4. The UK underperforms by comparison with its main EU partners.

This is a particularly interesting hypothesis and one that often arises in discussions of British trade performance with Latin America. Strictly speaking, it is not a hypothesis at all and it does not "explain" British underperformance in any sense; yet it is important to know if the UK is failing to match the export effort of its partners in Brazil.

In Table 10 I have listed the exports to Brazil (1995 figures) of those EU countries whose exports exceed or come close to those for the UK. As a proportion of total exports, the Italian performance is by far the best (1.2%) and the British the worst (0.4%), although the French

performance (0.5%) is not dissimilar to the British. When expressed as a share of Brazil's imports, Germany (9.48%) moves into first place with Spain (1.6%) last.

These trade shares in themselves are not very helpful, as they take no account of relative weights. Table 10 therefore gives shares of world imports for each country and the gap between actual and expected performance is then calculated using the same methodology as before (see footnote 8). It now appears that all countries except Italy underperform in their exports to Brazil, although the degree of underperformance is greatest for the UK.

Hypothesis 1 explained part of British underperformance in terms of overperformance in exports to the EU. We can do the same for the UK's EU partners and this is done in Table 10. Because of their heavy reliance on the EU market, Spain and Germany now join Italy as overperformers in the Brazilian market, i. e. their exports to Brazil are greater than what one would expect in view of the dependence on the EU market. This leaves France and Britain as the underperformers, with British underperformance significantly greater than French.

Hypothesis 2 explained part of British underperformance in terms of Brazil's dependence on MERCOSUL. We can do the same for the other EU countries and this is also shown in Table 10. The French underperformance now virtually disappears, leaving the UK as the only EU country in this group with a significant underperformance in its exports to Brazil.

Table 10. European Union export performance to Brazil: 1995.

	UK	Italy	France	Germany	Spain
Total Exports ($bn)	239	232	287	509	92
- to Brazil ($mn)	975	2859	1382	4720	814
- % age to Brazil	0.4	1.2	0.5	0.9	0.9
% age of Br. Imports	1.96	5.74	2.78	9.48	1.6
% age world exports	4.8	4.7	5.8	10.3	1.8
GAP (%) - see fn.8	-59	+22	-52	-8	-11
Non-EU Exports $bn	113	100	107	219	26
% non-EU world imp	3.5	3.1	3.3	6.8	0.8
ADJ. GAP (%)[7]	-44	+85	-16	+39	+100
Gap Adjusted for MERCOSUL (%)	-35	+113	-3	+60	+135

Source: derived from IMF (1996).

The evidence of Table 10 points strongly to British underperformance in the Brazilian market by comparison with other EU countries. Spain, for example, with only $26 billion of non-EU exports compared with $113 billion for the UK, exported almost as much to Brazil in 1995 as the UK. The Italian performance is also very impressive with Italy enjoying 5.7% of the Brazilian market against (an unadjusted) share of world exports of 4.7%, i. e. a similar share of world exports to the UK and a share of Brazilian imports that is three times larger.

It is not possible to explain in this paper the underperformance of the UK in relation to its EU partners, but this is a subject worthy of closer study. Part of the explanation could be the structure of these countries' exports, but part is almost certainly due to different marketing strategies and the pattern of direct foreign investment. In any case, the evidence of Table 10 indicates unambiguously that the UK - notwithstanding the recent growth - is lagging behind in exports to Brazil.

Brazil's underperformance in exports to UK

Although Brazil is the tenth largest economy in the world, as measured by GDP in dollar terms, she is only 23rd in importance in the list of exporters (1995 data). As a result, Brazil has less than one per cent of world trade (0.9% of world exports) and, **ceteris paribus,** this is its expected share of the British import market. Brazil's actual share of the market in 1995 was 0.58%, implying an unadjusted gap of 36%. This is much smaller than the unadjusted UK gap (60%), but is still significant. As before, therefore, I will apply a number of hypotheses to see if the gap can be explained.

Hypothesis 1. Brazil underperforms in the UK market because it overperforms in exports to MERCOSUL.

Brazil's exports to its MERCOSUL partners have grown rapidly in recent years. In 1995 exports to partners reached $6.15 billion and this represented 22.9% of all partner imports. Thus, Brazil has a bigger share of the neighbouring market than is "expected" from a simple analysis of Brazil's share of world exports and this means that Brazil's trade performance with the UK needs to be adjusted to take into account the over-reliance on MERCOSUL.

Brazil's non-MERCOSUL exports (in 1995) were $40.35 billion, i. e. 0.79% of non-MERCOSUL world imports. If we now compare the actual performance in the British market with the new "expected" share, the (adjusted) gap falls to 27%. Thus, dependence on MERCOSUL explains about 10% of the unadjusted gap in Brazilian performance in the UK market, but it does not eliminate it.

Hypothesis 2. Brazilian underperformance is due to the UK's overdependence on other markets.

Britain's trade dependence on the European Union reduces the scope for Brazil to export to the UK. Although the share of British imports coming from the EU market is not as high as for many EU members, it is still in excess of 50%. Thus, we need to adjust the trade figures to take this dependence into account.

The UK had total imports in 1995 of $263.8 billion. Of these, 51% came from EU partners. Total EU exports represent 37.4% of world imports; thus, the rest of the EU could "expect" to have this share of British imports. When British imports from the EU are adjusted (downwards) for the "excess" imports from the EU, the Brazilian share rises from 0.58% to 0.67% and the gap falls again to 26%.

It therefore appears that about one-third of the unadjusted gap of 36% is explained by Brazilian overdependence on MERCOSUL and about one-third by UK overdependence on the European Union, leaving a relatively small gap - about 15% - that is unexplained. This unexplained part of the gap is almost certainly due to the lack of complementarity between the Brazilian export structure and the UK import pattern. This hypothesis is not tested formally here, since it was discussed at some length in the second section of the paper. It is worth emphasising, however, that Brazil's main exports to the UK (see Table 3) have almost no correlation with the structure of British imports as given in Table 11 below with the main suppliers.

Table 11. Top ten British imports and main suppliers

Suppliers	1st	2nd	3rd	4th	5th
1. Crude Oil	Norway	Algeria	S. Arab.	Kuwait	Venez.
2. Motor Cars	Germany	France	Japan	Italy	Korea
3. Aero Parts	a	a	a	a	a
4. Petroleum	Norway	Sweden	Germany		
5. Lorries	Germany	Sweden	Holland	Belgium	Spain
6. Gear Boxes	Japan	Germany	France	Belgium	USA
7. Cane Sugar	Maurit.	Guyana	Jamaica	Swazil.	Trinid.
8. Cathodes	Canada	Poland	Chile	Peru	Russia
9. Polyethyl.	Holland	France	Germany	Sweden	
10. Tractors	Germany	France	USA	Holland	Japan

(a) Figures split between EU countries (34%) and others (66%)
Source: Brazilian Embassy (1997).

Brazil's name does not appear in Table 11 and this in itself is a matter of some concern. However, more worrying is the vulnerability of Brazil's exports to changes in EU trade policies and British consumption patterns. These matters will be addressed in the next section.

Prospects

The prospects for Brazil's exports to the UK and British exports to Brazil are determined by:

a) Macroeconomic performance - the growth rate of real GDP is a first proxy for the evolution of a country's imports and, by implication, its partners' exports.

b) The ratio of imports to GDP - if the ratio of imports to GDP is rising (falling), this will have a positive (negative) effect **ceteris paribus** on the imports from partner countries over and above the real GDP effect.

c) The import share - the British (Brazilian) share of Brazil's (UK's) imports can alter as a result of changes in relative prices, a shift in consumption patterns or export promotion strategies.

In what follows, I shall explore each of these three determinants for Brazil and the UK in order to assess the prospects for British and Brazilian

exports respectively.

(A) Brazil (i. e. prospects for UK exports)

The **Plano Real**, launched in July 1994, has brought annual inflation in Brazil down to single figures, but the reform process is still far from complete and the real exchange rate has appreciated. As a result, nominal and real interest rates have remained high **both** to attract the capital flows needed to finance the current account deficit **and** as a consequence of the budget deficit. The tight monetary policy, coupled with import restrictions (see below), has led to a reduction in the consensus forecasts for real GDP growth. These now average 3.5% for 1997 and 4.3% for 1998[13]. However, gross fixed capital formation - relevant for British exports of capital goods - is expected to rise by almost double these rates (7.8% in 1997 and 8.7% in 1998). No reliable estimates of GDP growth for 1999 and 2000 are available, but a realistic figure is five per cent (see Table 12).

Brazil's ratio of imports to GDP has been increasing rapidly since 1993, although it is still low by comparison with other countries at similar stages of development. In 1996 the ratio reached 6.8% and is expected to reach 7.6% this year (assuming imports of $61.5 billion and GDP in dollar terms of $809 billion). Exports, however, remained in 1996 at 6.1% of GDP and are estimated at 6.3% in 1997 (assuming their value reaches $50.4 billion). The trade deficit is still modest, but Brazil also has a large deficit in services (mainly interest payments) so that the current account deficit is estimated to exceed 4% of GDP this year compared with almost zero in 1994.

This rate of increase in the current account deficit (and its ratio to GDP) cannot be expected to continue since financial markets would react negatively if the ratio were to exceed 5%. With privatisation proceeds of nearly $70 billion (including CVRD) expected in the next few years, there is not likely to be any shortage of foreign finance for a deficit in the 4 to 5% range. However, keeping the deficit in this range has major implications for the growth of imports.

13 See Latin American Consensus Forecasts (1997), p.8.

Much will depend on the growth of Brazil's exports. If Brazil's exports were to grow rapidly, its imports could also expand rapidly without a major deterioration in the current account deficit. Export promotion policies have begun and the export sector is benefiting from the process of restructuring associated with the reduction in the so-called Brazil cost (e. g. the states' ICMS), mergers & acquisitions and the rise in labour productivity. However, exports are still hampered by an uncompetitive exchange rate, a narrow enterprise base (some 200 firms out of 3 million are responsible for over 80% of Brazil's exports) and a lack of detailed knowledge about foreign markets. The consensus forecast for exports in 1997 is $50.4 billion and in 1998 $53.8 billion. These may be unduly pessimistic, but they do allow for import growth at 10% before the current account deficit exceeds 5% of GDP. This rate of growth of imports is faster than GDP so that the ratio of imports to GDP should be approximately 9% by 2000 - still low by international standards (see Table 12).

The UK share of imports remained stable at approximately 2% between 1990 and 1995 - rising to 2.5% in 1996 (based on preliminary figures). With an unchanged share (i. e. 2%), UK imports can be expected to reach $1634 million in 2000. However, Britain hopes to increase the share to 4% which - if achieved - means that British exports would reach $3268 million by the start of the new millenium.

Many factors will impinge on the UK share of Brazil's imports - not just British export promotion policies. In Britain's favour is the rapid growth in capital goods imports, which is expected to continue as a result of the high levels of direct foreign investment, the privatisation process and the restructuring of the Brazilian productive sectors in the face of growing international competition. However, the strength of the pound sterling puts British exports at a disadvantage compared with other industrial countries, e. g. France, Germany and Italy. In addition, Brazil's MERCOSUL commitments mean that relative prices will shift in favour of imports from partner countries as the remaining barriers to intra-regional trade are removed and the Common External Tariff (CET) is extended to all products.

Table 12. Simulations for Brazil

	1996	1997	1998	1999	2000	Annual Growth (%)
GDP ($ billion)	782	809	844	866	931	
Growth p. a. (%)	2.9	3.5	4.3	5.0	5.0	
Exports ($bn)	47.7	50.4	53.8	59.2	65.1	
Imports ($bn)	53.3	61.5	67.5	74.3	81.7	
Imports/GDP (%)	6.8	7.6	8.0	8.6	8.8	
UK import ($mn)	1323					
- 2% share					1634	5.4
- 2.5% share					2043	11.5
- 3.0% share					2451	16.7

The most plausible scenario is therefore a British share of Brazil's imports between 2 and 3% (see Table 12). This gives a lower bound estimate for the growth of British exports to Brazil of 5.4% and a higher bound of 16.7%. This is, in fact, a satisfactory outcome for Britain and reflects the huge effort put into export promotion in Brazil by the DTI, FCO and the Link into Latin America (LILA) campaign. However, it does mean that Brazil will no longer be the fastest growing market for British exports.

The wild card in this scenario is the possibility of a Free Trade Agreement between MERCOSUL and the EU. Such an agreement would push relative prices in favour of all EU exporters at the expense of imports from other sources (particularly the USA). It is not, however, a short-term prospect and in this author's view is not even a medium-term possibility. I have therefore not included it in my simulations of British exports to Brazil.

(B) United Kingdom (i. e. prospects for Brazil's exports)

The UK economy has been recovering strongly since the deep recession at the beginning of the 1990s and the new Labour government has inherited a relatively healthy situation. In his first budget on 2 July 1997, the Labour Chancellor of the Exchequer, Gordon Brown, outlined the medium-term growth prospects for the British economy. These assume real GDP growth above trend in 1997 before falling back to the long-run

sustainable rate of growth of 2.25% in 1998 and thereafter (see Table 13).

The Chancellor emphasised the need for fiscal tightening and this was applied mainly to the corporate sector. The post-budget consensus was that he had not done enough to rein in consumer demand, making further increases in interest rates inevitable. The interest rate differential between the UK and its EU partners and the difficulties faced by Britain's European partners in their efforts to meet the Maastricht criteria for a single currency has made sterling a one-way bet for the time being; as a result, the pound has strengthened dramatically in the last 12 months and import growth (in volume terms) has accelerated; the rate of growth of imports is expected to continue to outpace the rate of growth of GDP (both measured at constant prices) leading to a rise in the ratio of imports to GDP (see Table 13).

The UK is a very open economy and British imports of goods and services represented in 1996 35.2% of GDP at factor cost (1990 prices). British imports in 1996 are estimated at $281,669 billion and they are expected to continue to grow in excess of GDP. The rate of growth in dollar terms is hard to calculate in view of changes in the dollar-sterling exchange rate and movements in international commodity prices. I have therefore assumed growth of imports in current dollars at the same rate as the forecast rate of growth of the volume of imports, increasing the import share to 40% by 2000.

Table 13. Simulations for UK

	1996	1997	1998	1999	2000	Annual Growth (%)
GDP Growth (%)	2.5	3.25	2.25	2.25	2.25	
Export Growth -%	7.0	6.25	5.0	5.0	5.0	
Import Growth -%	8.5	7.25	7.75	5.0	5.0	
Import/GDP (%)	35.2	36.6	38.4	39.0	40.0	
Imports ($bn)	282	302	325	342	359	
- Brazil ($mn)	1573					
- Share (0.6%)					2153	8.2%
- Share (0.5%)					1794	3.3%

The Brazilian share of imports was approximately 0.6% in the first

half of the 1990s (see Table 1), i. e. six-tenths of one per cent. However, Brazil would be doing extremely well if it held on to this share for the following reasons:

a) There was no increase in the dollar value of Brazil's exports to the UK in 1996.

b) There was a 10% fall in the dollar value of Brazil's exports to the UK in the first five months of 1997.

c) Brazil will lose most of its remaining GSP privileges in the UK (and EU) market by 2000.

d) The expected entry of Cyprus, Poland, Hungary, the Czech Republic, Estonia and Slovenia to the EU after 2002 will give these countries (whose combined exports to the UK exceed Brazil's by a substantial margin) a price advantage in many products (e. g. shoes).

There are some offsetting factors: reform of the Common Agricultural Policy may increase opportunities for Brazil's farm exports; investment in Brazil by UK companies (and in the UK by Brazilian firms) will create opportunities for intra-firm trade (e. g. Rover engines); the strength of sterling against the dollar (and by implication the **real**) is of some assistance to Brazil. However, it is very unlikely that these factors in themselves are sufficient to reverse an expected decline in Brazil's share of UK imports. The optimistic scenario, therefore, is that Brazil retains a share of 0.6% and the pessimistic one is that it falls to 0.5%; this gives rise to annual export growth between 1996 and 2000 in the range 3.3% to 8.2% (see Table 13).

Brazil does not devote the same attention to the British market as the UK devotes to the Brazilian market. Trade missions are almost unknown, although one will be coming later this year from São Paulo, and in Europe Brazil exports more to Belgium, France, Germany and Italy than to Britain. This lack of attention is a major reason for the poor performance of Brazil in the UK. The British economy is one of the most open in the world, but the structure of Brazil's exports works against their expansion. Brazil needs to shift its exports to Britain towards manufactured goods and develop greater

knowledge of the market through research, joint ventures and trade missions.

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Third Panel - Brazil and the United Kingdom in the Global Economy

Environment and Environmental Policy in Brazil and the United Kingdom+

*Dalia Maimon**

Introduction

It is not surprising to see the theme environment included on the seminar topic list even when the environments and respective policies of the two countries are so different.

We noticed how important the environmental issue is on the politicians agenda at the UNCED -Rio 92, which counted with the participation of a hundred statesmen, and at Rio+5 when the implementation of measures in all countries was assessed so that the XXI Agenda can be accomplished. This last agenda has introduced a new political and development paradigm through an approach that integrates environmental protection, social economic growth, and interdependence of local and global decisions. Besides, bio-ethics has been universally consolidated and this legitimates the political and economic discrimination of the environmental villains, no matter if they are regions, countries or enterprises.

The end of the Cold War favoured economic and ecological globalisation. As far as economics is concerned, the end of West-East bipolarity and the industrial revolution in informatics and telecommunications contributed to a greater interconnection between national markets. Thus ecology became one of the pressure themes between North and South. Actions in the environment field appear in different ways: political pressures through the government, non-governmental organisations, the media and scientific associations, conditioning economic pressures for financing projects and interference in imports linked to ecological barriers and, at an extreme degree, "the right to interfere".

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The globalisation of Ecology can be explained when we see that pollution phenomena go beyond national frontiers affecting regions or even our planet as a whole. Thus we worry about global risks such as the contamination of water, air, soil and other food chains, the greenhouse effects, demographic explosion, impoverishing of biodiversity, particularly the Amazonia devastation.

Public opinion tends to be more sensitive to environmental issues when our planet's sustenance is at stake due to depletion of natural resources and its capacity of self-depurating environmental deterioration. Such concern also reflects post-materialistic values, non-pecuniary in a society that requires pollution control and changes in product making, having in mind the non-destruction of the environment. Besides, the expansion of the environmental movement has acquired a considerable technical experience and political organisation by favouring ecological products through the work of the EIAS/RIMAS, through alternative technologies, etc. This way the environmentalists have become better professionals not mere denouncers. Therefore, at present we have human resources and the implementation of projects destined to Sustained Development.

The greater environmental preoccupation and the expansion of the environmentalist movement are clearly demonstrated in a stronger pressure from the public sectors through controlling and monitoring. In fact the institutional and legal apparatus of the regulation organs have grown and sowed seeds in developing countries.

At planetarium level scientists, in their turn, have subsidised globalisation with mathematics paradigms, indicating the cumulative effects of pollution and their solid residues and the depletion of natural resources at long term. The scientific proposal comes to suggest solutions and international agreements to solve long term environmental problems.

Finally on abolishing tariff barriers, international trade has brought new forms of protectionism that are visible in the choice of preferential partners through the consolidation and/or creation of trade groups such as the European Union, NAFTA and Mercosur and the intensification of non-compulsory technical barriers and certifications.

Environment in Brazil and the United Kingdom

The environment in Brazil differs from the one in the UK. Brazil with its 8,500,000 km2 is a continental country with tropical climate, recently

industrialised and with a population nearing 166 million inhabitants, 75% in urban areas and the majority on the coast. The country is rich in biodiversity, having ecosystems, such as the Amazonia and the Pantanal, practically intact. The environmental problems of the greatest impact, air and water pollution, are concentrated in industrial urban areas where pollution comes both from the rich and the poor.

The UK, in its turn, is an insular country with temperate climate, an area of 241,600 km2, and where the Industrial Revolution was started. At present it has 58 million inhabitants and is affected by urban pollution which is mainly caused by motor cars. The UK dedicates a good part of its territory to preservation areas (see the table below).

Main environmental problems

Brazil	United Kingdom
Loss of biodiversity and decreasing of natural habitat in rain forests, the Pantanal, and the Cerrado.	Reduction of marine population due to fishing and oil pouring. Loss of the natural habitat and agricultural land for urban development.
Industrial and motor cars pollution.	Industrial and motor cars pollution.
Power Source: hydroelectric.	Power Source: coal, nuclear and gas.
Consuming society that uses intensively the natural and energy resources. Poverty pollution: lack of sanitation. Problem of integration and protection of indigenous peoples.	Consuming society that uses intensively the natural and energy resources.

We should like to mention that the legislation and its environmental policy implementation suffer strong external pressures. With reference to Brazil, in the late 80s, its environmental policy became an additional excuse for international criticism to the country's economic model which was questioned not only for its high inflation rates, protectionism, non-payment of its external debt but also for being one of the main environmental villains of the Planet. This international questioning differs from the posture of Brazil in the 70s. At the peak of the "Brazilian Miracle" the preference for growth that the Brazilian government manifested at the Stockholm Conference was accepted by the international community, reflecting a total confidence in the adopted economic model whose results were frankly

recommended.

In the 90s Brazil was honoured as the host country of the UNCED meeting and was chosen in the "unconscious" of the International Community as the developing country where the possibility of sustained development can still be effective. But if is was given important international resources, there have also been strong charges on the Brazilian environmental policy, particularly on the Amazonia.

The "spirit of Rio" left roots in the Brazilian population. The polls W*hat the Brazilians Think on Ecology* in 1992 and in 1997 showed that a conflict between development and environmental protection still persists. Only 47% of the Brazilians think that environment should be prior to economic development. Asked if they were ready to live with pollution, 63% answered no (Crespo, 1997, 1992.).

In the UK, pressure comes from the European Community that looks for homogeneity of tools, patterns and environmental norms in the country members and many times specific practices and policies are not taken into consideration. As a matter of fact, in the UK as early as 1948 a comprehensive planning system of land usage was been implemented (LPAs-Local Planning Authorities). It allowed pondering on environmental implications of the new projects. Such instrument gives the opportunity to prepare plans in which there is environmental emphasis. In fact, the plans can be rejected or certain conditions can be imposed for environment reasons (Miller and Wood, 1983; Wood, 1986b).

The LPAs are based on the local autonomy of the decision processes and they are dissonant from the Continent's environmental regulatory policy. When the UK joined the EU, it had to deal with instances of supernational regulations and this caused various conflicts even in situations that permitted mixing EU regulations and British particularities.

To assess possible points of co-operation between the two countries, we are going to analyse the implemented negotiations and programmes in each country as signatories of the Biodiversity and Climate Change Conventions. We shall also give emphasis to possible actions from the private sectors, the multinational enterprises and environmental certification programmes that have been used as ecological barriers for many Brazilian

products. The logic of the certifications is that consumers can interfere in environmental quality. These certifications are traditional in the UK BS7750 and they are strongly accepted by enterprises installed in Brazil.

Biodiversity Convention

The biodiversity field is very rich for technical and commercial co-operation between Brazil and the UK. Brazil is a big biodiversity reservoir. One third of the remaining rain forests in the world are in the Amazonia and along the Atlantic coast. Nevertheless, the financial and human resources to protect such biological inheritance have been insufficient and not continuous.

The Brazilian parks and reservoirs cover 4,5% of the national territory and these are areas subject to land dispute for agriculture, mining, deforestation and hunting. We have National Forests, National Parks, Biological Reservoirs, Ecological Reservoirs and Stations as well as Indigenous Areas and Mining Reservoirs. These regions were chosen *ad hoc* according to their availability and facility of appropriation and many times biological criteria were neglected. In the Amazonia the parks are scattered in remote places having an average of one forest guard per 15,000 km2. The populations who live in protected regions are treated as intruders and have not been integrated into the biodiversity projects.

The Brazilian proposal at the Biodiversity Convention comes up against the national sovereignty issues. Although it has already overcome aspects referring to intellectual property, we expect to see Senator Marina Silva's law on biodiversity consignment regulated. According to the Brazilian government, "the biological diversity resources are natural resources of each country and, therefore, the country exerts its sovereignty on them". The preservation and handing of the natural resources should be under the supervision of their country which may count on international co-operation if it is necessary. "The access to wild and cultivated resources of biological diversity presupposes the access to biotechnology results". It is important to establish mechanisms to facilitate the regulated interchange of genetic resources so that the knowledge of their potential benefits can be diffused.

The Rain Forest Programme is very important for the preservation

of the Brazilian diversity for it has illustrative projects and gives scientific and technological support to institutions which are located in the Amazonia, mainly to the *Museu Goeldi* and the IMPAR. This programme is co-ordinated by the World Bank, has the financial support of the G7 and the EU, can count on US$ 250 million of which US$ 173,9 million were invested up to 1996. The EU contributed with US$ 32,2 million, the UK with US$ 3,7 million in the emergency phase—US$ 3,2 were destined to support the natural resources policy and US$ 0,5 million were invested in centres of high studies. Germany, in its turn, contributed with US$ 103,5 million.

It is part of the Rain Forest Programme a new system based on biological studies covering seven areas which were called the Green Corridors: five in the Amazonia and two in the *Mata Atlântica.* Those which were proposed for the Amazonia have at least 75% of the total of the biodiversity and they include 73 protected areas and 116 indigenous lands. Such redefinition of the areas facilitates the protection of big mammals that require important vital spaces. The populations, which were isolated before, have now the opportunity of procreating, thus increasing the genetic variability. At present the local populations are being persuaded to form new groups to protect the biodiversity in the Amazonia and the *Mata Atlântica* regions.

Another interesting programme of co-operation between Brazil and the UK could be related to the data bank on Aromatic Plants which is developed by the *Museu Goeldi* in Pará. Since the beginning of this century the rose-wood, the *copaíba* oil and the tonka-bean tree have been exploited. One hundred and thirty aromatic species for industrial purposes have been catalogued.

Climate Change Convention

In spite of some scientific doubts on the Planet's heating or cooling which postponed the Climate Change Convention, today there is a consensus about the urgency of adopting strict measures in order to control the greenhouse effects. Otherwise we run the risk of increasing the surface temperature from 1 to 3,5 centigrade degrees, altering the global climate modalities and, among other factors, increasing the oceans levels which

may advance up to 20cm. The social economic and ecological impacts on an insular country as the UK[1] and Brazil with such an extensive coast are evident and could suggest joint actions at the Convention.

In the first five years the Climate Change Convention strategy was to attract a larger number of signatories, particularly the USA. Consensual objectives were established "to stop the concentration of the greenhouse effects (mainly carbon dioxide, methane and nitrous oxide) in the atmosphere at a level that may hinder the dangerous interference of human activities in the climate system".

The Convention recognises the countries distinct difficulties to obey the convention and defines distinct modalities and financial sources for the programmes to be implemented in developing countries. As the developed countries (those called Annex I countries) are responsible for the greatest portion of gas emissions which produce the greenhouse effects, in 2000 they are obliged to reduce their emissions down to the levels of 1990. This target seemed feasible once the international affairs at the beginning of this decade were comparatively stable. As far as the developing countries are concerned, the Convention recognises the emissions per capita were relatively low and there should be no mitigation measures.

The UK promises to be attentive to the reductions which were determined at the Convention and reduce in 20% the carbon dioxide emissions in 2010. After Germany the UK has been the leader in reducing carbon dioxide emissions which are estimated in 4 and 8% for 2000. Such performance results from the substitution of coal by natural gas in electricity generation. The use of gas jumped from 1% in 1990 to 16% in 1995. They expect to reach a reduction of 38% in 2000 when coal use will decrease from 65% to 23%. The carbon dioxide reduction resulting from the substitution is immediate once gas has approximately 60% less carbon dioxide than coal. The gas-propelled plants are also more efficient (Climate Change: the UK programme, February, 1997). Identically the methane emissions have declined since 1980 due to coal mining decrease (Environment Agency, 1996).

1 In 1996, the Climate Change Impacts predicted that water demand in the east and south regions would double between 1991-2021. They also say that various species are threatened as 10%of natural reservoirs are at sea level or on the coast.

Other power preservation measures such as the use of renewable power sources in means of transport were less efficient. The Environment Agency warns that increases in carbon dioxide from motor cars have been recorded. There has been an increase of 4.64% of automobiles (21,394 cars) between 1992 and 1995, a figure higher than demographic growth in the same period.

The UK was also the first Convention country that made the Climate Change Report. The first one was in 1994 and the second in 1977.

As a developing country, Brazil's commitment in the Convention is more modest. It makes, updates, and publishes national inventories on emissions and describes the main mitigation measures.

Nevertheless, Brazil put into practice a long list of measures: reactivation of the Alcohol National Programme; preservation programmes of electricity energy (the Procel) and oil (the Compet); development and intensification of solar and aeolian power; higher participation of natural gas; motor cars pollution control; measures to avoid deforestation and the National System of Prevention and Combat Forest Fires.

The programmes which had better results were the ones related to electric power and natural gas as Brazil is nearing a power supply crisis associated to lack of financial resources for investments in infrastructure. Electricity power represents approximately 40% of the whole consumption with an installed capacity of 54,116MW, meeting a consume of 253,420MWh. The *Eletrobras* estimates point to an average increase of 5.6%[aa] in the 90s and 3.6%[aa] up to 2015. This scenario demands additional investments of US$3,6 billion and US$10 billion at the turn of the century.

In relation to natural gas, Brazil wants to expand its use in the energy matrix from 2% to 20%. The *Gasoduto Brasil Bolívia* and the electricity project generation from natural gas in Urucu, in the Amazonia, are being implemented and they certainly represent substantial investments. The first costs US$1,5 billion for constructing 3000km of ducts with the capacity of conducting 30 million m3 per day. The second costs USS$1,4 million and it is destined to produce 4 million m3 per day bringing power yielding in the Amazonia and breaking with the model of hydroelectric power production, enormous floods and methane emissions which affected the local ecosystems

as it happens with the *Balbina*. The expansion programmes of natural gas implemented in Brazil and the UK point to possible scientific co-operation as well as joint ventures between enterprises from both countries.

Measures for energy efficiency are not common in Brazil and not even in the 1973-1979 crisis they were implemented. In this period, the energy programmes particularly the *Pro-Alcohol* and the expansion of hydroelectric power stations aimed primarily at saving foreign exchange credits and did not care for the waste of resources and environmental impacts. It was merely by chance that such options —extremely pollutive in the production zones— contributed to air pollution decreasing in urban and industrial areas (Sach, Maimon, Tolmasquin,1987).

The *COMPET* want to gain 25% of energy efficiency by using petroleum products and substituting petrol and diesel for natural gas. They also intend to give prizes for certain actions in small, medium and large enterprises. The *Procel,* through educational programmes and the concession of certifications to energy saving products, intends to encourage consuming decrease mainly at peak hours.

Though the Brazilian government has announced at the Rio+5 its intention of adopting again the *Pro-Alcohol* policy, the effects of such change have not been noticed. The programme was started more than 20 years ago and was the greatest international project to substitute non-renewable fuel by biomass. In 1984, thanks to a difference of 40% between the prices of petrol and alcohol, the alcohol-propelled cars represented 94.4% of the assembly factories. In 1990 alcohol-propelled cars represented 19.9% and in 1996 0.3%. Besides diminishing Brazilian dependence on imported petroleum, the *Pro-Alcohol* gave jobs to 152 times more people than petroleum and the emissions in the atmosphere were practically innocuous.

The Brazilian project to prepare the National Communication and an inventory of emissions[2] suffered from financial difficulties. Though the Convention says that financial resources for developing countries should

2 The Ministry of Science and Technology coordinates this inventory and there are about 300 specialists and institutions involved in the whole country. The inventory comprises different sectors (energy, industry, agriculture, forestry and treatment of residues), engaging various professionals from the public and private sectors, NGOs, universities, and research centres.

come from the developed ones, negotiations have been slow and difficult for Brazil. In fact, five years after the Rio+92, half the period was spent with the ratification process by the Brazilian Congress and the other half was practically dedicated to negotiations to obtain resources.

The first attempt was to approach the USA through the US Initiative for Country Studies on Climate Change and it brought some results in 1995. The US$400 thousand were well below what was necessary for preparing a complete inventory in Brazil (US$7million were needed). Up to now only a small part was effectively released. We also resorted to the GEF (Globe Environment Fund) that among other attributes should provide resources for developing countries so that they can carry out the Convention commitments. After a year of negotiations, the GEF agreed to send us US$1,5 million through the UNDP. Due to the negotiations delay, the Brazilian report delivery was postponed for 1999. The involuntary postponement is a prerogative already predicted in the Convention that ties the developing countries time limit to financial resources release.

Developing countries have always faced difficulties in obtaining financial resources at all Conventions. In spite of the rich countries commitments at the UNCED meeting promising an aid of 0.7% on their GNP, between 1992 and 1995 the contribution dropped in 20%, that is to say, from 0.34% to 0.27% on the GNP.

In Kyoto, December 1997 is the deadline for negotiating legal instruments and establishing specific goals and sums according to the Climate Change Convention for the first decades of next century. There will certainly be some friction.

In Kyoto in March 1997 the EU, as a negotiation point, proposed a reduction of 15% in carbon dioxide, methane and nitrous oxide all together up to 2010. The UK promised to reduce 20% of gas emissions up to 2005, but it was behind Austria, Denmark and Germany who promised to reduce 25% of their gas emissions.

At Kyoto Brazil intends to blame each signatory in proportion to their environmental passive. There is a theory stating that carbon stays in the atmosphere between 150 and 200 years and, therefore, the first

industrialised countries are responsible for a larger accumulated stock of gases that provoke greenhouse effects. The referential parameters of carbon dioxide emissions that define the Annex I countries and Non Annex I countries quotes are briefly given on the table below.

Relative quote	**Annex I Country**	**Non Annex I Country**
Emissions in 1990	75%	5%
Concentrations in 1990	79%	21%
Contribution to temperature		
in 1990	88%	12%
in 2010	82%	18%
in 2020	79%	21%

Source: Brazilian Proposal, 1997.

According to the Brazilian Proposal, the relative positions of each country also change in reference to their carbon dioxide contribution. The UK is in the fifth place in the emissions ranking and in the second when past emissions are incorporated.

Emissions in 1990	United States of America	36.2%
	Russia	17.4%
Carbon dioxide emissions from 1990 to 2010, including the 1990 concentrations	Japan	8,4%
	Germany	7,4%
	United Kingdom	4,2%
	United States	41,9%
	Russia	13,5%
	Japan	10,3%
	Germany	10,0%
Carbon dioxide emissions from 1990 to 2010, the 1990 concentrations not included	United Kingdom	3,8%
	United States	36,8%
	Russia	18,0%
	Japan	8,0%
	Germany	7,3%
	United Kingdom	4,2%

We believe Brazil and the UK can also have a joint policy on the multinational enterprises installed in Brazil, their environmental behaviour, and the recent waves of certifications in international trade that have discriminated some Brazilian products. Our suggestion is due to the globalisation of environment issues that effects the behaviour of transnational enterprises whose shareholders and consumers in developed countries have been questioning the environmental quality patterns in branches installed in developing countries. The export enterprises have also been pressed by importers to change the environmental performance in the production process, the management, and the product itself, in the countries where the factory is installed.

The flow of capital and trade has been extraordinary in the last decade. The flow of private capital is five times bigger than the governments'. Between 1987 and 1996, private capital for developing countries jumped from 25 billion to 244 billion. The direct investments reached US$315 billion in 1995, five times the average amount in the period 1991-95 (World Investment Report, 1996).

Among the developing countries, Brazil is the second in number of transnational companies. There are 800 companies while in South Korea there are 1050. According to UNCTAD, ten Brazilian enterprises appear among the 50 biggest multinationals in developing countries.

The requisition for environmental certification (Green Stamps) in International trade has been an excellent instrument to change enterprises behaviour. In Brazil the export companies of natural resources or their by-products are strongly required to present the environmental quality certification. The main certifications that affect Brazilian exports are the Origin Certification for timber or wood, the *Ecotex* for the textile sector, the BS 7550 and more recently the ISO 14000[3] and FSC[4] the Forest Stewardship Council.

3 The International Standardisation Organisation, ISO, is a NGO founded in 1948. The organisation was internationally active in developing the ISO 9000 norms.
4 The Forest Stewardship Council, FSC, was founded in Toronto in 1993. It is divided in three chambers having the same power—social, environmental and economic. This organisation credits certification issuing entities for assessing the social environmental performance of forest operations according to a set of principles and criteria which were determined after seeking advice and information between 1992 and 1993.

Ecological Certificates have established environmental norms to homogenise concepts, order activities, create patterns and procedures inside the productive sector. These certifications can endorse the final product, the production process and/or the company environment management and they can be given by the public or private sector. In the first cases they certify, through a mark on the product or the package, that the making of the product meant a low environmental impact according to requisitions. On the other hand the environmental Management System Certification guarantees the existence of an environmental management system in the company, according to determined norms as, for example, a BS-7750 or a ISO 14001.

Thus the Green Stamps that were initially present in countries where the consumers are more sensitive to environmental issues, were replaced by international certifications[5]. The UK voluntarily adhered to the British norm edited by the British Standard Institution (BSI) number BS 7750 whose final version came out in February 1994 and subsided the ISO TC-207 sub-committee that elaborated the ISO 14001. The companies which were given certifications according to the British environmental norm BS 7750 have more facility to obtain certifications from the ISO 14,001.

We referred to voluntary adherence norms which are distinct from those imposed by regulating and inspecting organs for these are compulsory norms according to environment and the companies are inspected in different phases such as on obtaining a legal license on the project approval and throughout their installation and operation.

The Brazilian companies adherence to certifications has been faster in the last years. In 1994 only 18 companies managed to get the ISO 9000, in 1996 we reached 1000 certifications (Globo, 13/11/96). This year when the ISO 14001 norm took form, 3 Brazilian companies adhered to it. Up to now there are 10 companies that obtained the ISO 14001 and other ten are about to implement the Environmental Management System.

5 The Angel Bleu granted by the German Environment Ministry appeared in 1997 and has already benefited 3600 products. The Ecological Choice, The Canadian experience (1988), is slightly more severe and up to June 1992 only 14 products obtained their approval. It is worth mentioning the Eco Mark which was created in Japan (1989) by the Environment Japanese Association that conceded 2500 stamps up to 1993. In the USA the ecological stamps (Green Cross and Green Seal, 1990) are endorsed by ecology NGOs.

The Price Waterhouse polls in the biggest 500 Brazilian companies corroborate that 16% of the firms worry about environment, 30% have already made substantial changes in the protection system, 30% have made partial changes and 24% do not consider the environment issue one of their priorities. In sectorial terms the companies which intend to follow the Environmental Management System are the following: 77.8% of the mining sector, 68% of the chemical and petrochemical sector, 36.81% of the metallurgical and mechanical sector and 35% of the food sector. One can notice that more exposed sectors to globalisation and the petrochemical sector are the more inclined to adhere to the norms. The petrochemical sector is being prepared by a programme started in 1986 (*Atuação Responsável)* to follow even stricter norms than the ISO 14000 ones, for they include health and safety norms (Price Waterhouse, 1995).

The situation in small and medium companies is very different because they do not even follow the legal requisitions: only 9% have some informal environmental policy, 67% have not any treatment system of effluent liquids, 70% have no air pollution control and 54% have no inventory of solid residues (SIGA,1996).

Although the companies are not obliged to have a certification, the environment certifications become compulsory for those firms that want to keep their position in the international market and this can even substitute other trade barriers. As the Trade World Organisation, the TWO, regulations do not allow the discrimination of products whose production processes had provoked environmental impacts only in their native countries and none beyond their frontiers, the TWO requires a notification of these certifications. With such notification that concern both private and public initiatives, the intention is to prevent the governments from transferring to the private sector the certification responsibility and exempting themselves from commitments they have with the TWO in relation to trade liberation.

With respect to the Brazilian industry, this scenario is worrying as 62.4% of our exports in 1990 were destined to developed countries where consumers are very sensitive to environmental issues and the environmental requisitions from the regulation organs are stricter.

Co-operation programmes between Brazil and the UK may persuade

the multinationals in the UK and EU not to export pollution to Brazil and maintain the same European environmental patterns in our country. Such attitude can certainly contribute to improve the Brazilian environment.

Additionally, training and exchanging experience programmes between the countries deserve the governments attention. Some sectors such as timber export should be taken into consideration because the Brazilian mahogany, which is 90% smuggled, seems to be perfectly accepted by British importers who, quite often, do not require any certification of origin.

Other initiatives promoted by British ecology NGOs, such as the *Body Shop* and the *Forest Products* should be encouraged.

The Environment and Environmental Policies: Brazil and the United Kingdom

*Ghillean T. Prance**

Introduction

It is excellent that the consideration of the environment is included amongst this collection of papers on the global economy for nothing could be more global than the environment. The words for ecology and economics stem from a common source, ecos and both the problems and the solutions to ecological issues are intimately connected to those of economics: hopefully sustainable economics. The environment is a global concern that not only includes such issues as climate change, the loss of species or the pollution of air and oceans, but also economics and our attitudes to the way in which we develop our economies. The atmosphere, the oceans and the natural distribution of biological species are some of the environmental factors that know no national boundaries. It is, therefore, helpful when any two countries meet together to discuss the environment. Indeed Brazil has taken the lead in stimulating the globalisation of the environment through hosting the 1992 Earth Summit out of which came the Conventions on both climate change and biological diversity. More recently both the President of Brazil and the Prime Minister of Great Britain made important speeches on the environment at the Special Session of the United Nations Grand Assembly (UNGASS) in New York which was called to review the implementation of Agenda 21.

As a child I grew up in the Isle of Skye on the West coast of Scotland. One thing that fascinated me and helped to stimulate the budding interest in

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natural history was the tropical seeds from the Amazon that were washed up on the beaches by the ocean currents of the Gulf Stream. Large seeds of the legume tropical woody climber Mucuna and even of Caryocar microcarpum, a relative of the popular Brazilian fruit piqui. Perhaps this natural link between our two countries serves to demonstrate the global nature of environmental issues. In Britain we depend upon the warmth of the Gulf Stream to create our mild and humid climate which is so good for gardening. We are worried that too much deforestation in Amazonia could have an effect upon the flow of the Gulf Stream. At the same time Brazil is legitimately worried that the excess burning of fossil fuels in the counties of the developed world such as the United Kingdom is exacerbating the climate change. British emissions of sulphur dioxide are causing acid rain to fall on Scandinavia. When I visited Antarctica I was amazed to find scientists in that apparently pristine environment analysing pollutants which had arrived there from the industries of São Paulo. There is no way of denying that the environment is global, and was a global issue long before the globalisation of the economy, and that therefore the solutions to environmental problems must also be tackled on a global basis. It is also pertinent to remember that the Rio Declaration on Environment and Development was made "to establish a new and equitable global partnership through the creation of new levels of co-operation among states, key sectors of society and people".

Both Brazil and the United Kingdom have expressed their concern and action by signing and ratifying the Convention on Climate Change and the Convention on Biological Diversity and so there is plenty of scope for us to work together further to stabilise the global environment before it is too late.

The Environmental Crisis is Serious

It is important to realise that the global environmental crisis which the world faces is really serious. More and more well-qualified scientists and research groups are providing data that indicate the gravity of the situation and the need for remedies before it is too late. It is extremely hard for politicians and governmental officials to know what should be taken

seriously and what is just alarmist tactics of environmental activists who often base their actions on semi-truths. However, this must not cause us to ignore the seriousness and the consequences of what the world is doing to the environment. Hence it is worth looking at a few of these issues before examining the particular roles of Brazil and the United Kingdom. I have chosen particularly climate change and biodiversity because they are the topics of the two major Conventions that arose out of Rio 92, pollution because it is an environmental problem needing further work in both of our countries, and ozone depletion because it is a problem which is being addressed with considerable success.

i) Climate Change

In spite of conflicting reports about the extent of the so-called greenhouse effect, the likelihood of its reality is extremely strong, and the potential impacts devastating. The increase of the greenhouse gases in the atmosphere such as carbon dioxide, halocarbons, methane and nitrous oxide are causing a definite warming trend in the earth's atmosphere. Whether the climate change over the next century is 1.5°C or 4.5°C is academic; even a change of 1.5°C - the estimate of the more conservative scientists - will have serious repercussions for the future. Figures presented at a US government conference in Washington in November 1994 showed that the period March to October 1994 were about 0.4°C above normal, making it the hottest period since records began in the 1860s. The decade of the 1980s was 0.2°C warmer than the average for 1950-1980 and 0.5°C warmer than a century ago. The year 1990 was the warmest on record and 1991 second just behind 1988 and 1987. 1994 was not quite the warmest because of very cold January and February. 1992-1993 were slightly cooler because of a lull in the warming trend caused by the massive eruption of the volcano Mount Pinatubo in the Philippines in the summer of 1991. Now that the effects of the eruption have ceased we have returned to the normal warming trend. A recent report for the UK's Department of the Environment's Climate Change Impacts Review Group stated that 2020 is likely to be at least 0.9°C warmer than in 1960. In spite of these clear warnings of the future, some politicians are complacent about addressing the issues because of the cost of correction.

Since pre-industrial times, atmospheric carbon dioxide concentration has risen from 280 parts per million by volume to 364 ppmv in 1997. It was 356 at the time of Rio 92! The rate of emission continues to rise - principally from the burning of fossil fuels. Half of the carbon dioxide content added to the atmosphere during the entire human history has been added during the past 30 years. This great increase in rate is why the greenhouse effect is upon us so suddenly and requires such urgent action.

CFC-12 is 25,000 times more serious as a greenhouse gas than carbon dioxide, and therefore essential to control, not only because of its effect on the ozone layer but also because of its role in the greenhouse effect. Methane is thirty times more effective as a greenhouse gas, and it has risen from 800 ppbv in 1880 to 1600 today. It is therefore necessary to curb the percentage of natural gas that escapes into the atmosphere through leaks in the gas piping of the United Kingdom and even more important to address this issue in Russia and Eastern Europe.

Emissions of methane stabilised in 1993 and this is thought to be mainly because of repairs to leaking natural gas pipelines in the former Soviet Union. A recent report from NASA's Langly Research Center in Virginia also shows that the atmosphere content of carbon monoxide has begun to decline since 1991 (Pearce, 1994).

If the causes of the greenhouse effect are not corrected within the next forty years, the consequences for global ecology will be extremely serious. Not only will the climate continue to warm, but the pattern of climates in the world will alter. For example, it is predicted that the breadbasket of the United States, the Midwest, will become considerably drier. Changes in climate pattern would also cause extinction of many plant species because they would be unable to migrate at the speed of these man-made climate changes, which are far more rapid than natural climate cycles and also because of the obstacles to seed dispersal caused by current land use. The warmer climate is already causing the sea level to rise through the thermal expansion of the water and partial melting of the polar ice caps. Sea level is rising at between 3-10 mm a year according to the International Panel on Climate Change. Within the next forty years, sea levels could rise by a much as 20 cm, causing huge problems in low-lying areas where many

of the world's major cities lie. For example, it could render the Thames Barrier, which protects low-lying London, ineffective, flood large areas of Bangladesh and Florida and submerge many oceanic islands such as the entire Maldives Republic. Many important Brazilian cities such as Recife are at sea level, and it would be distressing to see Ipanema or Copacabana under water! Since warming is likely to be much greater at higher latitudes than the average increase for the whole globe, the danger of melting of the polar ice caps is real. Since the warm spell of 1994 there has been a rapid spread of flowers and grasses in Antarctica.

Some action is already being taken to slow down the greenhouse effect, but much more is needed. Already a certain amount of warming is inevitable, and whatever corrective measures we take today, the warming trend will continue over the next forty years. The actions we take during this period will be crucial for the future and will determine the total extent of the greenhouse effect. This is the time in which the corrections must be made. Seventy-eight per cent of the world's energy is derived from the burning of fossil fuels, and the United States is by far the largest consumer, followed by Russia and Eastern Europe. The developing countries presently use less, but their plans for development naturally predict a considerable increase. The entire globe is in this crisis together, and global action will be needed that encourages the developed world to reduce consumption and to assist the developing world to develop in energy-efficient ways. From the climate change (as opposed to the biodiversity) perspective it is unreasonable to request that Brazil halt deforestation of the Amazon rainforest if developed countries refuse to reduce their emissions of greenhouse gasses.

The aim of the Convention on Climate Change was "stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The convention was worded vaguely to avoid argument between the signatory nations, but it did commit industrialised nations to the goal of stabilising emissions of carbon dioxide, methane and nitrous oxide at 1990 levels by the year 2000. The British government has certainly taken these goals seriously and is committed to reducing emissions of greenhouse gasses to 1990 levels by 2000 and has called for further reductions of carbon dioxide emissions by 20 per cent by 2010.

A computer model analysis of this scenario by Mick Kelly and Susan Subak (1994) of the Climatic Research Unit at the University of East Anglia has shown that to reduce emissions of the industrialised nations to 1990 levels would only reduce the warming trend by 9 per cent. In addition the convention does not stop the projected growth in emissions from the developing world as they too become industrialised. Kelly and Subak calculate that a world-wide reduction in emissions by 40 per cent would be needed to control the greenhouse effect. They correctly point out:

"It should be noted, though, that given the aspirations of the developing world this could only be achieved with massive resource transfers from North to South. The same end might be more equitably achieved through deeper cuts in northern emissions, allowing a continual rise in the southern contribution". This is a good point which could well do with further debate between Brazil and the UK.

The United Kingdom has been experiencing considerable change in its climate and water resources and drought have been, rather unexpectedly, making national headlines in recent years. Forecasts such as those of Kelly and Subak have led our Ministry of Agriculture, Fisheries and Food (MAFF) to sponsor a project to examine the future agricultural demand for irrigation water and the potential for water conservation by farmers At the Royal Botanic Gardens, Kew, we are currently sinking a 162 m deep borehole to examine the possibility of tapping underground water to cope with what is to us a new problem, drought. MAFF is also conducting research on emissions of the greenhouse gas nitrous oxide (N2O) derived from UK agriculture and on methane emissions from dairy livestock. The latter project has shown that 20-30 litres of methane are produced per litre of milk. Dietary experiments are underway toe see how this can be reduced. With Brazil's large cattle industry this is surely a problem to be addressed there as well.

Sometime during 1997 the number of cars in the world will exceed 500 million. The great majority are in the developed world as families seek to add a second or third car to their personal fleet, but more and more are being added in the developing world as more families seek to obtain their first car. All this adds up to the burning of more fossil fuel to increase the rate of climate change and to the dangerous level of air pollution that occurs

in many large cities around the world including London and São Paulo.

I am glad to see some action beginning in both our countries such as the restrictions on car use in São Paulo and the new British Governments initiatives at the recent environmental meeting in the USA. In this context it is a pity that Brazil's fleet of alcohol powered cars is diminishing so rapidly. The technology developed in the alcohol programme should not be lost because it will certainly be required again in the future. It was certainly a wise move of the current Brazilian government to rejuvenate the Programa Nacional do Álcool (Proálcool). The UK's reduction in CO' emission is largely through the conversion from coal to natural gas which reduces emissions by a factor of 4 for the energy generated. Another area that is rapidly developing and should be adopted by both countries as it becomes available is the use of fuel cells.

The December 1997 Climate Summit to be held in Kyoto, Japan presents a unique opportunity to address the problems of greenhouse gas emissions. This may be our last opportunity to avoid world-wide disaster and it is to be hoped that Brazil and the United Kingdom can work together at Kyoto to produce a new commitment to reducing emissions.

ii) Pollution

Contemporary society has been quicker to react to some of the most toxic pollutants to human health such as DDT, dioxin and PCBs the effects of. which are quickly apparent to industrialised societies, but governments have been much slower to control the emissions from cars and factories that emit huge quantities of carbon dioxide and the oxides of sulphur and nitrogen. The recent Global Environmental Outlook published by the United Nations Programme points out clearly the worsening trends in environmental pollution as well as the degradation of natural resources.

The British government was slow to acknowledge the reality of acid rain, but its existence and its harmful effects can no longer be disputed. 'Forest death', or 'Waldsterben' is a familiar term in Germany, where thousands of conifers are dying as a result of acid rain caused by sulphur dioxide and nitrogen oxides. The sterility of the Swedish lakes has been known for several decades. The effects of acid rain on the forests of the eastern United States and Canada are well documented, and clouds in the

eastern United States sampled by the New York Botanical Garden Institute of Ecosystems Studies were more acid than lemon juice. Scandinavia is constantly complaining about the acidifying effect of coal burnt in Britain and Germany on their lakes.

A report funded by the United Kingdom's Forestry Commission and the European Commission and produced by Richard Mather of the Oxford Forestry Institute shows that Britain's trees have been widely damaged by ozone and acid rain over the four years 1989-1992. The worst damage is to beech trees (*Fagus silvatica*) where dieback of the crowns is closely correlated with high ozone concentration. Norway spruce (*Picea excelsa*) is suffering a sharp thinning of the crowns due to both acid rain and sulphur dioxide gas. Although Mather's method heavily favoured explanations other than pollution, he reported that "there is considerable evidence that trees which tolerate the independent stresses of pollution and drought will exhibit signs of decline under circumstances of combined water and pollution stress" This combined stress led to the density of foliage in the crowns of beech trees in parts of Western England and Wales falling from around 80 per cent to 60 per cent between 1989 and 1991. More than 80 per cent of British oak trees had lost a quarter or more of their crown density (Pearce, 1994).

Air pollution is already a costly matter because of its damage to forests, crops, water quality and human health. The expense needed to control emissions and sulphurous gases could be compensated for by the reduction in medical bills and increased agricultural productivity. It has been estimated that acid rain will cost Europe 118 million cubic metres of wood, worth £16 billion annually (Brown, 1990). It would be better to invest £16 billion in pollution control than to reduce tree growth so drastically.

During the next few decades we need to reduce the emissions of sulphur dioxide and nitrogen oxides considerably through greater use of scrubbers on factory chimneys, world-wide use of catalytic converters on cars, greater use of cleaner fuels and improved public transport. Through acting upon the recommendations of the Royal Commission on Environmental Pollution and transport to which I have already referred.

Brazil also has serious problems with atmospheric pollution. Until

recently the city of Cubatão in São Paulo State was considered one of the most polluted cities in the world. Acid rain has done considerable damage to both crops and natural vegetation in the industrialised south of the country.

Pollution is not confined to acid rain and the atmosphere. Wherever we go, we encounter its effects. Rivers and seas are polluted with sewage and industrial effluents, agricultural land and water tables are polluted by chemical fertilisers, pesticides and radioactive fallout, oceans are polluted by oil slicks; even outer space is polluted by satellite debris to such an extent that it is a hazard to US Space Shuttle flights. A particular problem for Brazil is the contamination of many rivers of Amazonia by mercury used by garimpeiros to extract gold.

iii) Ozone depletion

In 1985, scientists Joe Farman, Brian Gardiner and Jonathan Shanklin from the British Antarctic Survey discovered a large hole in the ozone layer over Antarctica. Three years later they traced the cause to chlorofluorocarbons (CFCs), which are the gases used in refrigeration, air conditioners, aerosols and various foam materials. Since this discovery, the news has become progressively worse. In October 1991, the ozone hole reached what was then a record depth extending over 21 million square kilometres, an area four times the size of the United States, and allowing twice as much ultraviolet light (UVb) to reach the earth's surface. It is already seriously affecting Argentina, Australia, Chile and New Zealand and it wont be long before it reaches Brazil. It is well known that ultraviolet radiation causes skin cancer, but now reports are beginning to come in from Chile of blind rabbits and salmon and deformed tree buds. Also in 1991 the

United National Environmental Programme and the World Meteorological Organisation announced that for the first time the ozone shield is thinning over temperate latitudes in summer (Appenzeller, 1991), exposing people and crops to a larger dose of ultraviolet light just when they are most vulnerable.

In 1992, ozone loss in the north temperate regions was twice as much as expected. The ozone levels over northern Europe were more than ten per cent below the long-term mean values in the spring of 1994, and the winter 1993-94 measurements over the South Pole showed the lowest

concentration of Antarctic ozone ever recorded (Gribbin, 1994). The US National Oceanic and Atmospheric Administration showed that on 12th October 1993 the atmosphere between the altitudes of 14 and 19 kilometres was completely devoid of ozone. This was said to be caused both by the continued release of CFCs combined with the volcanic eruption of Mount Pinatubo in the Philippines. Interestingly while this eruption masked the greenhouse effect for a few years it increased the ozone problem. The ozone hole of Antarctica lasted a month longer than usual in 1997.

Many amphibian species are suffering an unprecedented decline in their numbers over recent years at both tropical and temperate latitudes at places as far apart as Canada and Costa Rica, Australia and Amazonia. This reduction in numbers is a widespread world-wide phenomenon that is causing herpetologists considerable alarm. This is almost certainly a result of some environmental change. Amphibians are both extremely susceptible to pollutants and sensitive to ultra-violet radiation which is increasing as a result of the ozone hole.

Fortunately, governments, including those of Brazil and the United Kingdom, have been responsive to the ozone crisis and the UN Environmental Programme helped to formulate the Montreal Protocol of November 1987, which agreed to halve CFC use by 1999. Later amendments in London in 1991 and Copenhagen in 1992 took the matter even more seriously and it was agreed that the developed countries should phase out CFCs completely by 1996 and the developing countries by 2006. However, since CFCs persist for a long time in the atmosphere it will take almost a hundred years for this ban to take proper effect. CFC substitutes are more expensive, but in future we cannot continue to live at the expense of our environment. Such developing countries as China and India are seeking to install refrigerators in every home and if not assisted by the developing world they may continue to use cheap ozone-damaging chemicals. Here is another area in which the developed world must provide as much technical assistance as possible if we are to solve permanently the ozone crisis.

iv) Biodiversity

Biodiversity is a term that includes the diversity of species of living organisms on earth, the genes or genetic information which they contain

and the complex ecosystems in which they live. Biodiversity is the result of 4 billion years of evolution; the human race is a recent newcomer that is seriously altering this process. Estimates of the total number of biological species on our planet range from 5 to 50 million, but many biologists agree that 10 million is a conservative estimate (Ehrlich & Ehrlich, 1981; May 1992, Wilson, 1992). However, only 1.5 million species have so far been discovered and formally named, classified and documented. All species interact with others in an intricate network of predator/prey relationships, the pollination and dispersal of plants by animals, the attack of and the resistance to diseases, the competition for a niche, and in many other ways. Species are not autonomous; they interact with others in an interdependent way and together form the ecosystems of the world, such as tropical rain forests, tundra, heathland, even deserts. Each ecosystem is held together by a delicate web of interrelationships. When certain keystone species are removed the whole system can break down.

The issue of biodiversity should logically be of much more interest to Brazil than to the United Kingdom. The total number of flowering plants in the UK is about 1,500 whereas Brazil has one of the most diverse floras in the world with over 50,000 species. This ratio of over 30 times more species in Brazil would be true for many other organisms such as insects and fungi. With this amazing diversity that has so much potential for future use, the conservation and the protection of the rights to its use should be one of the major goals of any government in Brazil.

We need to maintain biodiversity into the future for many reasons. The living organisms of the earth maintain our atmosphere and our climate. Without forests and the organisms in the oceans, the life-support system will break down. Yet at present on a world-wide basis we are still cutting down tropical rain forests at a rate of fifty-four acres a minute. In Brazil, less than. 7 per cent of the original Mata Atlantica remains. (Fortunately this remnant is now legally protected.) In future an economic value must be placed on forest, both tropical and temperate, for their role in preserving world climate and acting as a store of carbon. This type of economic thinking is only just beginning. In the UK a recent survey of the Royal Society for the Protection of Birds showed that there has been a significant decline in the number of songbirds because pollution from agrochemicals has spread

so widely throughout the foodchain and because of habitat loss through changing farming practices, indicating that we too are still not taking adequate care of our biodiversity.

Humankind depends upon biodiversity for food, medicines, shelter, clothing fibres and industrial products such as rubber, starches and oils; yet at present we are still prepared to allow the extinction of species in such places as Madagascar, Hawaii and Atlantic coast Brazil. Modern agriculture and forestry favours monocultures with little genetic diversity, which encourages susceptibility to diseases and pests. The Irish potato famine of the 1840s was caused by the cultivation of a single variety of potato and so all potato plants were susceptible to one single fungus. In contrast we find in the Andes, where the potato is native, that any Peruvian market will have 20 to 50 different varieties available. To maintain and improve their crops, plant breeders must return to the wild species for disease-resistant species, for new properties such as sweeter tomatoes, or for drought resistance. The genetic material of the wild relatives of crops of Brazilian origin such as cassava and peanuts are vital for the future of these crops. As the world climate changes, the need for varieties of crops adapted to different climates, and resistant to new pests and diseases will increase. We will have this flexibility only if genetic diversity is preserved.

Humankind seems to have an extraordinary capacity for overusing even the most valuable of natural resources. The population of Easter Island crashed because they exhausted their forests. There is a tendency to mine rather than manage sustainable our most useful species. In recent years there have been many reports of the collapse of fisheries in different parts of the world especially around North America, Europe and Japan. Despite warnings from scientists for many years, the populations of bottom dwelling fish such as cod, haddock and flounder are at all-time lows and the fishery industry is collapsing in many places. The US National Marine Fisheries Service estimates that 45 per cent of fish stocks whose status is known are now overfished and the population of some species is down to 10 per cent of the optimum level. That is the level that would yield the largest sustainable catch. At present it is estimated that New England fishermen catch around 60 per cent of the entire cod population each year which is more than double the sustainable level. In the UK more and larger fishing boats catch less fish

each year. This sort of over exploitation of a resource with no thought for the future can only be the result of human greed.

At the Royal Botanic Gardens, Kew we control pests in our greenhouses by using ten species of insect predators, two fungi and a bacterium. This avoids the use of toxic pesticides. Biological control of this sort is on the increase, but will only be possible if we can preserve the insect species, fungi and bacteria that are needed. In California, the wild brambles harbour a species of wasp that controls a major pest of grapes. It has been estimated that this saves farmers $125 per hectare in pesticide costs (Office of Technology, 1987). So many wild species other than this wasp and bramble have an economic or environmental value, yet we continue to destroy them.

Each time a species becomes extinct we narrow our options for the future in some way. Only 5 per cent of the world's plant species have been widely analysed for their medicinal properties. How many potential cures for cancer or AIDS are we losing as extinction progresses, and many of those future medicines could come from Brazil? Global extinction rates could already run as high as 20 to 50 species a day, representing an irreplaceable loss of potentially useful natural resources. Human-caused extinction now exceeds the natural rate of extinction by over 10,000 times, and we have entered a phase of mass extinction of species (see, for example, Ehrlich & Ehrlich, 1981; Myers, 1990; Raven, 1990 and Wilson, 1992).

We have already lost half of the tropical rain forests of the world, which harbour well over 50 per cent of the species. We have therefore little time to save the species that remain. If there is to be a future for the human species, it is essential to preserve all three aspects of biodiversity: large areas of natural habitat that preserve the species and maintain the climatic stability of our planet; as many species as possible because of their roles within ecosystems and because of their potential uses; and as much of their genetic diversity as possible because the future use of many of our crops depends upon the genes of their wild relatives.

The biodiversity issue is absolutely international. The corn crop of the United States depends upon wild species of maize in Mexico. The coffee crop of Brazil depends upon the wild species of the genus Coffea in Ethiopia

and Madagascar. The world climate depends as much on the forests of the boreal zone in Canada and Siberia as upon the rain forests of Brazil and Zaire. Our future needs more concerted international efforts, without which we are narrowing the options for our descendants and will be remembered as the generation who destroyed our natural heritage - biodiversity. It is almost too late, but by turning to sustainable use there is time to reverse the trend and slow down extinction. However, there is no room for complacency. The actions of the next forty years regarding biodiversity will determine whether or not human life will survive on earth. If we continue at the present extinction rate of between 4,000 and 6,000 species a year, by 2030 there will. be between 160,000 and 250,000 less species to hold our biosphere together or for us to use.

Both the conservation of biodiversity and its sustainable use requires in the first place that it be inventoried and thoroughly researched. This is an area of particular concern for Brazil which has such a rich fauna and flora and such a wonderful diversity of habitats. The biodiversity of Brazil is still relatively poorly known and new, undescribed species are still being discovered in most groups of organisms. This is also an area where there is already extensive collaboration between the UK and Brazil and where there is room for a lot more. The Royal Botanic Gardens of Kew and Edinburgh both have long established co-operative programmes with various Brazilian institutions to the benefit of both parties. The need for floristic and faunistic inventories of Brazil has increased considerably in recent years as various ecosystems are under extreme pressure. Neither the conservation nor the management of biodiversity will work without the basic inventory. There appear to be a large number of enthusiastic young Brazilian biologists who are unable to find jobs in this field because of shortage of funds for biological inventory. There is no doubt that there are many well trained young biologists in Brazil as has been evidenced by the two most successful Anglo-Brazilian seminars held in the UK to present the work of Brazilian post graduate students who are studying in the UK. These seminars, which had the support and participation of both the CNPq and the Brazilian Academy of Sciences demonstrate the extent to which there is already significant interchange between Brazil and the UK in the area of biological sciences.

I have taken climate change, pollution and the loss of biodiversity

as examples to three of the more serious aspects of the environmental crisis which affect all nations. There is not space to mention others such as soil erosion, desertification, the limited availability of fresh water or the exponential rise in world population. The latter is probably the most serious of all problems and the fundamental cause of the environmental crisis on a world-wide basis. It may not appear to be one of such importance to the United Kingdom where population growth is stabilising or to Brazil where the rate of population growth is also falling rapidly and there is still plenty of space available. Both countries, however, need to monitor population growth closely and see that it does not become the serious problem that it is elsewhere in the world. It is perhaps salutary to remember that in the five years since Rio 1992 world population has grown by 380 million people, which is roughly equivalent to the total population of Europe. How long can we go on adding one Europe every five years?

The Pantanal Ecosystem

Here I want to interject a small section on just one of Brazil's many special ecosystems, the Pantanal. I am writing this paper just a week after returning from leading a marvellous tour of the Pantanal for some members of the Friends of the Royal Botanic Gardens, Kew. This opened my eyes to the potential of the Pantanal, and other Brazilian ecosystems for ecotourism. The sixteen British people who accompanied me to the Pantanal for ten days had an experience which they will never forget from seeing the plants, the birds and the animals of the Pantanal. We were also impressed how, in that region, long established cattle farming and wildlife conservation exist side by side with relatively little conflict. Ecotourism in Brazil is an area that could be much more marketed in the UK and in other European countries. It would be a major world tragedy if the proposed Hydrovia interfered with the delicate hydrological balance that sustains the Pantanal ecosystem. I hope that the economy of the Pantanal can be improved through greater investment in ecotourism rather than the destruction of the greatest wildlife sanctuary in South America.

Environmental Problems of Brazil and the United Kingdom

The environmental problems discussed in the previous section are global issues that will affect both of our nations if we do not act together to

promote remedial actions through promoting follow-up and adherence to such international legislation as the Convention on Climate Change and the Convention on Biological Diversity. There are many other serious environmental issues to be addressed in both our nations and some are indicated in Table 1. These are bound to be rather different due to our different circumstances. Brazil is a tropical country and the United Kingdom is a temperate one and many environmentalists do not realise the consequential difference in the management techniques required to address the problems. For example, in the UK, our soils tend to be richer and more easily managed for long-term permanent agriculture, but tropical soils tend to be poorer in nutrients and more readily eroded by the heavy rains. Too often techniques developed in the temperate region have been applied in the tropics to disastrous effects. Brazil faces the problem of how to develop without causing undue environmental destruction or excess use of energy and resources. The United Kingdom has been an industrialised nation for many years and must now consider how to reduce its consumption of energy, minerals and natural products. Finite resources mean that resource intensive economic growth cannot proceed for ever. This does not mean, however, that quality of life cannot be improved. Yet the industrialised nations are finding it hard to accept the concept of slowing down growth or of a zero growth economy. Salvador Bergel (1992) pointed out that the industrialised nations have progressed on the concept of unlimited progress and free market principles which have been disrupting the balance between ecological systems. He said that "the dominant paradigm is contrary to the interrelationship between the various natural processes and the argument that human life is placed in an environment which does not exist to be destroyed".

The focus of Rio 1992 was sustainable living and there is much both of our countries can and already have begun to do to promote sustainability. Drawing on the phrase coined by the World Commissioner on Environment and Development the Food and Agricultural Organisation (FAO) defined sustainable development as "the management and conservation of the natural resource base and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development conserves land, water, plant and animal

genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable". This is a hard agenda to follow, but one which is absolutely necessary to move towards if there is to be any future for humankind on our planet.

Is there any Progress towards Sustainable Development?

Although there is still a long way to go on environmental issues, it can be said that both Brazil and the United Kingdom have taken Rio 92 seriously and that some progress has been made. However, there is still cause for alarm in both countries. The UK continues to build bigger roads and under invest in public transport, and data from INPE show that the rate of deforestation in the Amazon is on the rise again after a marked decline from the 1988 peak. Deforestation rose from 11,000 km. sq. in 1992 to 15,000 km. sq. in 1996, indicating that the problem is not yet solved.

The UK Government was one of the first to produce a biodiversity action plan following Rio 92. Biodiversity: the UK Action Plan was issued in 1994 only two years after the Rio Earth Summit. Its goal is "To conserve and enhance biological diversity within the UK and to contribute to the conservation of global biodiversity through all appropriate mechanisms."

The key objectives for conserving the relatively meagre biodiversity of the UK are:

"1. To conserve and where practicable to enhance:

a. the overall populations and natural ranges of native species and the quality and range of wildlife habitats and ecosystems;

b. internationally important and threatened species, habitats and ecosystems;

c. species, habitats and natural and managed ecosystems that are characteristic of local areas;

d. the biodiversity of natural and semi-natural habitats where this has diminished over recent past decades.

2. To increase public awareness of, and involvement in, conserving biodiversity.

3. To contribute to the conservation of biodiversity on a European and global scale."

The UK plan recognises the importance of involving both government and non-governmental organisations and individuals and communities in the implementation. A Steering Group was formed to advise the government on how to achieve the 59 targets formulated in the Action Plan. The Steering Group published a report in 1995 which contains action plans for 116 of the UK's most threatened and endangered species and recommends the preparation of action plans for a further 286 species within the next three years. With our relatively small flora and fauna it is possible to devote attention to individual species. With the vast and relatively undocumented and understudied biodiversity of Brazil it is probably much better to take a habitat or ecosystem approach to saving biodiversity. However, it is also good that Brazil has listed 314 species as threatened. These are mainly from Amazonia, the Mata Atlantic and the Pantanal ecosystems.

One of the biggest problems facing Brazil is that both the conservation and sustainable use of biodiversity requires a much greater understanding of it than currently exists. This is one area where the UK and Brazil are already carrying out significant collaboration. The Royal Botanic Gardens, Kew, has been proud to be part of this through participation with many government and non-governmental organisations in the Northeast of Brazil in the programme called 'Plantas do Nordeste' (PNE). This programme with the slogan 'local plants for local people' has been underway for five years with considerable support from both Brazil and the UK. It includes components of basic biodiversity survey, economic botany and the study of how to use the regional plant resources sustainable and of information gathering and spreading. The programme is a fine mixture of high quality science and application of information to problem solving. That it is truly bionational is demonstrated by the fact that in June 1997 the British aid programme (DFID) approved the allocation of £1.89 million to PNE and the CNPq in Brazil gave a two year renewal of the support of over R$900,000.

The UK government also established a Round Table on Sustainable

Development in early 1995. This group of experts from many different disciplines aims to encourage discussion on major sustainable development issues and to build consensus between people who have different perspectives and different responsibilities. Its members vary from environmental activists to scientists and politicians. Already the group has produced a useful series of reports on Environmental management and audit, Sustainable Transport, Links between different methods of transport, Energy and planning, Housing and Urban Capacity and on Freshwater, all topics of supreme relevance to the environmental issues of the UK. The mandate given to the group by Government was:

- To help to identify the agenda and priorities for sustainable development;
- To develop new areas of consensus on difficult issues of sustainable development and where this is not possible, to clarify and reduce difference;
- To provide advice and recommendations on actions to achieve sustainable development;
- To help evaluate progress towards objectives; and
- To inform and involve others, building wider support for emerging consensus.

The reports from the Round Table have produced many important recommendations to Government on each of the topics which they have discussed. This Round Table forum is complemented by two other groups which were set up as a result of the UK Sustainable Development Strategy, a Government Plan on Sustainable Development and a body called 'Going for Green'.

One of the direct responses of the UK Government to the Rio Earth Summit was to establish a biodiversity support programme called the Darwin Initiative for the Survival of Species. This competitive grant programme has enabled scientific, educational and commercial expertise from the UK to contribute to the conservation and sustainable use of biodiversity around the world (see Table 2). The committee that reviews the grants has placed particular emphasis on funding projects and encouraging capacity building in the developing world. For example, it has supported several of the developing world oriented courses offered by the Royal Botanic Gardens,

Kew. Since 1993 when the initiative was established 116 biodiversity projects costing £12 millions have been funded involving over 60 different UK institutions with counterparts in 70 countries. By December 1996 the initiative had trained 600 participants from overseas countries. Some Brazilians have benefited as Darwin scholars on various courses on conservation and sustainable development.

The British Government changed in May 1997 as the result of a general election. The early indications are that the new UK Labour Government is committed to continue and increase action to protect both our rural and urban environment and to continue to promote sustainable living, particularly through a more targeted aid programme. They have a plan to increase Britain's forest cover by half by 2010 and to strengthen our planning system to avoid development in places of outstanding natural beauty or of importance for biodiversity. They have already announced a wide-ranging review of transport policy with a focus on increasing the use of public transport and reducing the use of private cars. An interesting and significant move is that Transport and the Environment have been placed together into a single Department under the Deputy Prime Minister. The Labour Government is likely to strengthen and ensure that the UK continues to lead the way onwards global sustainable development. It is significant that the UK government has given a new emphasis to international development by replacing the former ODA with the Department for International Development (DFID) with a separate minister and cabinet representation.

One of several encouraging developments in Brazil since Rio 92 is the new set of green policies for the public financial sector. President Fernando Henrique Cardoso announced an important new initiative the "Green Protocol" on 14 November 1995. This recommends that official financial institutions no longer make loans to industrial and agricultural businesses that do not conform to environmental standards and regulations and that banks will have to consider the environmental risks of projects before making loans. Another objective of the Green Protocol is to make available a greater amount of cheaper credit for environmentally sound activities, such as paper recycling. The managers of the 5 official federal public banks have signed up to a Charter of Principles of Sustainable

Development the opening clause of which is:

"The protection of the environment is a duty of all those who wish to improve the quality of life on this planet and transcends limitations of time and place", and another clause is:

"Elimination of waste, energy efficiency and the use of recyclable materials should be stimulated at all operational levels."

We should be greatly encouraged about the potential for environmental co-operation between our two countries after reading the most excellent speeches by both President Cardoso and Prime Minister Blair at the recent Special Session of the United Nations General Assembly (UNGASS) which took place 23-27th June 1997. The leaders of both countries have changed since Rio 1992, but the "spirit of Rio" and of Agenda 21 and the willingness to implement it has not diminished as both leaders indicated in their addresses to UNGASS. It is evident that both countries are fully committed to developing national, regional and local Agendas 21, and are fully aware of the extent of the environmental problems which they face. Both leaders addressed one of the central issues linked to the environment, that of poverty. President Cardoso observed that the commitments of Rio 92 require a substantial flow of new and additional resources, as well as the transfer of environmentally sound technology. Mr Blair spoke of Britain's commitment to replenish the funds of GEF and to reverse the recent trend to reduce foreign aid programmes. This will surely lead to further collaboration between our countries.

Brazil belongs to MERCOSUL and the United Kingdom to the European Union (EU). We can extend and are already extending our influence on environmental affairs within these communities and through collaboration between them. MERCOSUL is in the process of completing an unified legal instrument on the environment and the EU has developed many good environmental policies. It is vital that these communities focus on both economics and the environment and that they collaborate together on both fronts. The speech of the Prime Minister of the Netherlands at the UNGASS meeting reiterated the commitment of the European Union to provide substantial new and additional concessional financial resources necessary for the early and progressive implementation of Agenda 21 and also to try to stop the downward trend in development aid.

Access to Biodiversity

It is to be hoped that in future the conservation of Brazilian biodiversity will be assisted by the financial benefits arising from its use. The draft Bill of Law on Access to Brazilian Biodiversity, No 306 of 1995 is currently in the process of revision. It is to be hoped that the Bill will regulate access to biodiversity in such a way as to secure sustainable development benefits for Brazil such as the boosting of biotechnology, through Brazilian research and drug development, and at the same time conserve biodiversity both through direct conservation measures and providing economic incentives for the local people to conserve it. It is important that the Bill is drafted in such a way that enables Brazil to enter into access and benefit sharing partnerships that will not deter potential partners from collaboration yet bring maximum benefits to Brazil. This is one area in which my own institution, the Royal Botanic Gardens, Kew, has been involved with several countries helping to develop mutually beneficial models for the sustainable use and equitable sharing of the benefits that might be derived from biodiversity in the future. A broad consultation between user countries such as the UK and biodiversity rich countries such as Brazil should help to produce satisfactory and equitable agreements.

Conclusion

The Green Protocol of Brazil addresses the environment exactly where it. should be combining the issues of the environment and the economy the theme upon which I opened this paper. Correction of some of the environmental issues addressed here is a costly issue for either governments. It is necessary to allocate the resources required to address any of the problems outlined here in a satisfactory manner. The environment and the economy are inextricably linked. It is apparent that both the Brazilian and United Kingdom governments have taken environmental issues seriously but that there is a lot left to be done within our nations and on the global arena if we are to sustain the future. Both countries could benefit from much more exchange of ideas and interchange of experts on both environmental and economic issues. It is to be hoped that further environmental interest and action will be stimulated by the visit of President Cardoso to the United Kingdom in December 1997.

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Table 1. Some of the environmental problems facing Brazil and the United Kingdom.

Brazil	United Kingdom
The loss of biodiversity and of natural habitats such as rainforest, cerrado and pantanal.	The reduction of fish populations through over harvesting around the coast, and protection of the seas around our island country.
Serious pollution through lack of control of automobile emissions.	Over use of private vehicles and inadequate emphasis on public transport.
Industrial pollution causing acid rain and release of other toxic compounds.	Industrial pollution causing acid rain and poor air quality.
The problems of integration and protection of indigenous peoples.	An extravagant standard of living that uses too many natural resources, especially energy and raw materials.
The difficulty of further developing without causing more pollution and overuse of natural resources.	The loss of natural habitat, areas of outstanding natural beauty and agricultural land to urban development.
Urban poverty.	

Table 2. Projects supported by the UK Darwin Initiative involving Brazil.

Institution	Project
Durrell Institute of Conservation and Ecology, University of Kent at Canterbury	Training of M. Sc. students in Conservation and Biodiversity Management.
Royal Botanic Gardens, Kew	Survey of the plant diversity of brejo forests of Northeast Brazil as part of Plantas do Nordeste.
The Natural History Museum, London	Training Darwin fellows in the identification of larval and adult crustaceans in coastal lagoons of Southern Brazil.
The Natural History Museum, London	Ph. D. training of two students from INPA, Manaus in beetle taxonomy of the forest canopy and forest floor.
University of Durham, England	A multi-disciplinary study of the extent and mechanisms of Prosopis juliflora invasion in the caatinga of Northeast Brazil.
World Wild Fund for Nature. UK	The stimulation of fiscal incentives for biodiversity conservation through redistribution of state taxes to compensate for land set-aside for conservation use in the states of Goiás, Bahia and Pará

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The United Kingdom and Brazil in the Process of Globalisation

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Introduction

This paper looks at the contrasting position of Brazil and the UK in the global economy. Since this is a vast topic I restrict my remarks to a number of the most pertinent points, tracing out differences and similarities between the two countries. The first task is to direct attention at a set of structural features typifying the two economies indicating to their broad economic positions in the international system. Then the paper goes on to provide some conceptual clarification of the nature of the international economy. Here it is notions such as internationalisation, regionalisation and globalisation that are reviewed. What do we mean by these terms? This provides a context into which the particular features of the present stage of economic internationalisation can be fitted. The paper then moves on to examine some of the recent experiences of the two economies, set in the context of the previous analytical structure. Here it is macroeconomic considerations that are focused upon. This part also enables us to look at the current and possible future trajectory for the economies as they interact with the global economic system.

Brazil and the UK in the international system

It would be almost impossible to begin an analysis of the way the two economies 'fit' into the international system without setting this within terms of the formation of regional trading and investment blocs. The essentials of this can be grasped from the data presented in Table 1. Some

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61% of international trade was accounted for by regional free trade arrangements in 1994. This clearly remains the dominant contemporary expression of the international economy. The table divides trading arrangements into three separate areas: 'Europe', the 'Americas' and the 'Pacific Rim'. Europe and the Pacific Rim accounted for about 25% each, while the Americas contribute the remaining 11%. Clearly the EU is a major bloc, with the much more diverse APEC of similar importance (here APEC excludes the USA/NAFTA trade). The NAFTA comprises perhaps a surprisingly small bloc, which is mirrored by the Americas total as a whole.

Table 1: Regional Free Trade Arrangements — Share of World Trade, 1994 (%)

EU	22.8
Euro-Med	2.3
'Europe' Sub-total	25.1
NAFTA	7.9
MERCOSUR	0.3
FTAA	2.6*
'Americas' Sub-total	10.8
AFTA	1.3
Australia – New Zealand	0.1
APEC	23.7*
'Pacific Rim' Sub-total	25.1
TOTAL	61.0

Notes: FTAA = Free Trade Area of the Americas
AFTA = ASEAN Free Trade Area
* Excludes cross-sub regional totals.

Source: Adapted from: C. F. Bergsten 'Globalising Free Trade', *Foreign Affairs*, Vol.75, No.3, May/June 196, p.196.

This table establishes the contrasting position of Brazil and the UK. The UK is a central part of the massive EU trading complex, while Brazil is

a small part of the tiny MERCOSUR trading arrangement. Over 55% of UK exports are with other EU countries, while only 13% of Brazilian exports are with its MERCOSUR partners (though nearly 25% was with Latin America as a whole and about 43% with the entire 'Americas'). These figures indicate to an important consideration for Brazil's global economic strategy; how far to commit itself to a 'Southern Cone' trading and investment policy, or even to an Americas one, when these are such small players in the international trading environment. The destiny for the UK should be clearer. It cannot escape the European arena, even if it wanted too (and some British politicians still wish for this). But this does not let the UK completely off the hook, since there still remains the future of European integration, which is far from settled. I return to this below, concentrating upon the UKs relationship to the process.

Table 2: Changing Share of Foreign Direct Investment Inward Stock by Host Region and Economy, 1980–95 (%)

	1980	1985	1990	1994	1995
Developed Countries	77.5	73.5	80.3	73.8	72.7
of which: EU 12	36.7	29.3	40.0	37.5	36.7
(UK)	**13.1**	**8.7**	**12.7**	**9.1**	**9.2**
USA	17.3	25.4	23.1	21.5	21.2
Japan	0.7	0.7	0.6	0.8	0.7
Developing Economies	22.5	26.5	19.6	25.3	26.1
of which: LA & Caribbean	10.0	10.0	6.8	8.5	8.5
(Brazil)	**3.6**	**3.5**	**2.2**	**1.9**	**1.9**
Asia	7.9	12.6	10.2	14.3	15.2
Central & Eastern Europe	0.0	0.0	0.1	0.9	1.2
TOTAL	100.0	100.0	100.0	100.0	100.0

Source: Compiled from UNCTAD (1996), Annex Table 3.

The second table presents the broad picture with respect to FDI stocks. What is clear is that the developed economies account for the great bulk of FDI stocks, and that this position has not changed much since 1980. (What is true for stocks is also true for flows — Hirst and Thompson 1996, Table 3.2, p.68 — FDI flows are also discussed further below). Within the developed economies group the EU 12 experienced a large increase in FDI stocks in the late-1980s/early-1990s. In the run up to the '1992 Single Market' companies positioned themselves by investing heavily in Europe—

the EU accounted for 40% of world stocks in 1990, though this has declined slightly since then. Within this total the position of the UK has fluctuated over the period. In 1995 it accounted for 9.2% of the world's FDI stocks. Clearly, within the developing countries group, it is Asia that has shown the most spectacular advance, with Latin America and the Caribbean lagging behind. Brazil, in particular, has lost out and seems to be on a declining trend (its total has nearly halved since 1980, standing at 1.9% of total world stocks in 1995).

The inflows and outflows of FDI are indicated in Table 3. As might be expected, the UK is a major net exporter of FDI while Brazil is a net importer. The UK position is worth drawing attention to, however, since the previous Conservative government liked to give the impression that the UK was the most attractive site in Europe for FDI. Its status as a consistent net exporter (except for 1991) belies this somewhat, and between 1990 and 1995 France received more FDI inflows in Europe than did the UK (Barrell and Pain 1997, Table 2), despite France's supposed 'inefficient' commitment to the Social Chapter and various other impediments to flexibility (perhaps ironically in was UK companies that were the largest investor in France over this period). Whilst detailing these direct investment flows is also worth noting that the UK is a very large net *portfolio* investor abroad, while Brazil is a net recipient of portfolio investment.

Table 3: UK and Brazil FDI Inflows and Outflows 1984–1995 (US $ millions)

	Averages 1984–89	1990	1991	1992	1993	1994	1995	Averages 1990–95
UK:								
Inflow	13,545	32,430	18,208	14,934	14,475	10,085	29,910	19,674
Outflow	23,283	19,327	16,304	18,982	25,671	25,334	37,839	23,910
Brazil:								
Inflow	1,416	989	1,103	2,061	1,292	3,072	4,854	2,229
Outflow	184	665	1,014	137	491	1,037	1,384	788

Source: Compiled from UNCTAD (1996) Annex Tables 1 and 2.

This UK experience should serve as a warning for the idea that deregulation, liberalisation and flexibility are the key to attracting FDI. There are many other reasons that make a country attractive for foreign investment. One of these is programmes of privatisation, and particularly the terms under which they are undertaken, as well as the general 'busyness environment' in which they take place. It should not be underestimated how companies look for quick and easy profits when they invest in privatisation programmes. Table 3 indicates that there was an upsurge in FDI flows into Brazil in 1995 (and this continued into 1996). A lot of this has to do with the current privatisation programme in Brazil. The problem is how far this can be sustained and what its effects will be. There is no reason why it should *necessarily* lead to a net *increase* in actual productive investment, for instance, nor in productivity. Even in a mature and ordered economy like the UK the experience is at best a mixed one. It has proved notoriously difficult to get post-privatised utility companies to actually increase investment; they have been more keen to 'asset strip' and 'downsize' if they can. They have been very committed to siphoning off cash flow into higher managerial salaries. Foreign owned companies in particular have resorted to all manner of 'financial engineering' activity to avoid paying taxes. A lax regulatory environment can be a disaster. The creation of private local monopolies where there had previously been public ones represents little long-term advance. Ownership as such is of less consequence; it is the forms of competition and the structure of regulation that are more important, and these are usually neglected in the rush to privatise as much as possible as quickly as possible. Can Brazil take head?

Another indicator of the extent of the two countries integration into the international economy is shown in Table 4.

Table 4: Share of Inward FDI flows in Gross Fixed Capital Formation (1984–1994 %)

	Average 1984–89	1990	1991	1992	1993	1994
World	3.1	4.0	3.1	3.2	3.8	3.9
Developed Economies	3.9	4.9	3.3	3.1	3.5	3.3
of which: EU	4.7	7.0	5.5	5.5	5.8	4.8
(UK)	11.5	17.0	9.4	9.1	10.2	6.6
USA	5.8	6.0	3.0	2.2	4.7	4.8
Japan	0	0.2	0.2	0.3	0	0.1
Developing Economies	2.8	3.2	4.0	4.8	6.3	7.5
of which: LA & Caribbean	4.2	4.0	6.4	7.2	6.3	8.6
(Brazil)	2.3	1.0	1.4	3.0	1.3	3.0
Asia	2.3	3.1	3.4	4.1	6.5	7.2
Central & Eastern Europe	0	0	0.4	0.6	0.9	0.9

This gives the share of FDI flows in capital formation over the period 1984-94. These figures are revealing since they demonstrate the continued small importance of foreign sources of capital for domestic investment. Traditionally the UK has had one of the highest ratios, indicating to its greater than average involvement with the international economy. The trend for Latin America is for an increasing ratio, but Brazil lags behind and demonstrates a less than average position. The general point here is to register a caution as to Brazil's prospects with respect to the participation of foreign firms in its domestic capital formation, and to the extent of Brazil's involvement in the international economy more widely. As yet there is no real substitute for raising domestic savings as a mechanism for encouraging higher domestic investment (in fact, the relationship between domestic saving and domestic investment is getting stronger rather than weaker, as would be implied by the globalisation thesis — see Thompson 1997, Table 1). A further contrast in this respect is to go back to trade statistics. In the mid-1990s the UK ratio of trade (imports and exports) to GDP was over 55% (average for the OECD countries 48%) while that for Brazil was only 14%. Brazil remains only slightly integrated into the international economy, compared to the UK and comparable countries like Mexico or the East Asian NIEs.

Whilst discussing these FDI flows it is worth registering an important technical difficulty in assessing the extent of the foreign owned

output activity that they embody. FDI flows register what is happening on the liabilities side of a companies balance sheet, not the assets side, and it is with their assets that companies produce an output. Liabilities represent financing instruments like shares, bonds and retained earnings. Firms can, and do, extensively 'massage' their liabilities for a number of reasons, which need have little impact on their assets or outputs. This is one reason why FDI flows tend to fluctuate from year to year (see Table 3) to a much greater extent than do other measures of foreign shares in domestic economic activity. Other measures of foreign activity levels, like company assets data or directly measured foreign owned output, also tend to indicate a much lower levels of foreign participation than do FDI figures (see Allen and Thompson 1997, Thompson 1998, and Ramstetter 1998). So we should be cautious in using FDI flows or stocks as an adequate measure of the extent of the 'globalisation' of economic activity. I return to this in a moment.

Internationalisation, regionalisation and globalisation

Internationalisation or Globalisation?

This preliminary sketch of the different structural positions of the two economies leads us to the question of how to characterise the international economic system as a whole. A key conceptual distinction involved here is between the further internationalisation of economic activity, in terms of greater integration and interdependence, and the evolution of a new stage in the world economy, which is often designated by the term 'globalisation'. One initial problem is that these two concepts are often conflated together. The most widely quoted definition in this style of reasoning emerged from an OECD study of globalisation:

> Globalisation is being driven by technological change, continued long-term growth in foreign investment and international sourcing, and the recent extensive formation of new kinds of international links between firms and countries. This combination is increasingly integrating national economies and changing the nature of global competition. (OECD 1992, p.195)

What is needed is a clearer definition of 'globalisation' that does

not simply imply the extension and deepening of already well-advanced international economic interactions. If globalisation is simply the extension of internationalisation by another name, what is all the fuss about? Why does it need a determinate concept of its own if this is the case?

In the work done with my co-author Paul Hirst (Hirst and Thompson 1996) we drew a sharp distinction between what we termed a 'globalised world economy' and an 'inter-nationalised world economy'. If there is something distinctive about the present era — a potential structural shift in the nature of international capitalism — which distinguishes it from previous periods, then something must be said about what the nature of this new animal is, rather than just as a continuation of previous trends under a different name (albeit if in an intensified form).

Briefly put an inter-nationalised world economy would be one in which the principle entities remain national economies, or agents that continue to be tethered to a definite national territory. Although there is increasing integration and enmeshment between these entities, there is a continued relative separation of the 'domestic' arena from the 'international' arena, so that international processes, events and impacts are refracted through essentially national frameworks and national policies and processes. This means that an inter-national world economy would be articulated 'upwards', so to speak, from the national actors to the international level or sphere. Relatively distinct national economies and nationally embedded actors would be articulated together to form such an inter-national economy. The principle private agents in this kind of an economy would be multi-national corporations. These would maintain a clear national base, a nationally formed management style and personnel. They would still be effectively regulated and policed by 'home country' authorities, and continue to operate mainly in respect to their home-base country. The image here, then, would be one of a continued nationally-embedded capital.

By contrast to this is a globalised world economy. Here the principle entity is the new global economy itself, which would represent a new structure of disembedded economic relationships. This is an economy that exists 'above' the national economies and agents, autonomously from those national economies and that bears down upon them, stamping them with

their particular character and form. It 'enfolds' them within its own dynamic. Thus it is articulated 'downwards', so to speak. It would determine what can and cannot be done at the national level, by both public and private agencies. This would be an economy that escapes 'governance' — one typified by unorganised and uncontrollable market forces. The principle private actors here would be trans-national corporations. These represent organisations that are disembodied from any national-base. They would source, produce and market genuinely internationally. They would seek competitive advantage and the most secure and largest returns by roaming the globe for cheap but efficient production locations. They would have an internationalised management style and personnel. Thus the image here is one of footloose capital searching the globe for competitive advantage.

These two contrasting images of different types of world economy are presented starkly so as to try to differentiate any new globalised economy from other previously formed sets of internationalised economic relationships. They represent 'ideal types', and are not direct descriptions of any actual or potential economy. They are constructed to aid analytical enquiry; to help investigate the actual form of the world economy in which we live. It is necessary to provide a relatively rigorous definition of what a globalised economy would look like if we are to say what is different about the present period from previous periods of internationalisation. The internationalisation of economic activity has been going on almost since civilisations began, and certainly since the 1700s. So what is new and distinctive about the present period? That is the question that needs to be addressed, and this requires a specification of the features of a globalised economy as opposed to something else of which it is not.

These definitions are self-consciously conceptual and deliberately polarised. They have also proved controversial, since commentators have often mistaken these ideal typical analytical distinctions as measures of actual economies and of globalisation itself. In so doing, however, other contrasting definitions of globalisation have emerged, which it is worth briefly considering.

The first of these confuses the analytical distinction just made with a distinction between actual forms of the economic mechanism. It accuses

the kind of definition of a globalised economy made above of providing a single 'end-state' for the international system — *the* globalised economy. This is seen as a 'single equilibrium', so to speak — the end result of a series of stages, mechanically unfolding one after another (Perraton *et al* 1997). By contrast, it is suggested, globalisation is an on-going *process* (or sometimes a set of on-going *practices*), where there may be a number of outcomes (multiple-equilibria) depending upon the 'path' by which that process evolves. The present 'phase' of globalisation is thus just one of its many possible forms. This position thus sees globalisation as a *process* that has been going on for many centuries, and does not feel the necessity of providing the kind of distinction discussed above. Indeed, the outcome of its approach is to, in effect, revert back to a conception that stresses the increasing intensity and extensively of the internationalisation of economic relationships. This is a conception neatly summed up by Ledra:

> Thus (...) the growing intensity of flows — of trade, foreign direct investment, short-term capital, technology — which accompanies, reflects and conditions the process of economic globalisation should be interpreted as the acceleration of a historical process whose roots can be discerned in the last century. (Ledra 1996, p.67)

The problem with this general approach, however, is its relative lack of analytical rigour. To start with the idea of a process is all very well — one that is not, in fact, ruled out by the way the issue is set up above — but to do proper analytical work it is always necessary to interrupt such processes and ask where exactly we are in respect to them. To make the notion of processes analytically operable requires two features — it needs a periodisation and some idea of a structure. This is in effect what the Hirst and Thompson definitional activity does. In addition, all processes have some 'end' in mind if they are not to be meaningless. If processes involve some human deliberation and agency, then they must have an 'end' or objective in sight. The admission of potential multiple equilibria does not excuse the specification of what those equilibria would consist in, so we are back at the same point from which the accusation of and 'end-state' began. Again, what I wish emphasise is what is distinctive about the present

period and therefore what is the definition of 'globalisation'. What is different about these new processes or practices?

The second criticism of our definition arises from a different quarter. Our approach suggested above emphasises cross-border interactions and flows. In this sense it is fairly conventional. An alternative approach is to suggest that borders are no longer the key feature of the present international system. The 'global' is the 'local' is one way of putting this (so called 'globalisation'). Thus the way globalisation works is to *imbricate* international, and not necessarily cross-border, features at the local or national level. They become part of the fabric of the local. Features of the commercial world like accounting conventions, legal frameworks, credit rating measures, ISO9000 standards, and the like, embody the process of globalisation 'un-noticed' as it were, and do not obviously involve a definite 'flow' of something across a border that can be measured as such. What is distinctive about the present period of globalisation is the emergence of the kinds of processes whereby the international world is increasingly governed by forms of private (mostly Anglo-American) commercial and other practices.

Clearly, this is a feature of the international system, one that does give enormous power to those agencies responsible for setting the standards. And many of these are private organisations, though they are not exclusively so. But what is new about this situation? Forms of international standard setting have been a feature of the international system at least from the 1870s onwards, when it was the British that were in the position to establish credit ratings for instance. Before the First World War it was the Norwegians who set the standards from the sea-worthiness of commercial shipping, having captured this largely because of the size of their merchant fleet (about the fourth largest at the time). For all intents and purposes it is the FAA that sets the air-worthiness standards for international aircraft, but this was achieved long before the advent of 'globalisation'. And one could multiply these kinds of examples. Thus I remain to be convinced that there is anything unique enough about international standard setting to enable it to operate as the defining feature of a newly globalising economy. In addition, for how long will these organisations be allowed to conduct their busyness

before they are challenged? This is already happening in the Far East and amongst Muslim countries.

We could add other definitions of globalisation that operate along similar lines as these — the idea that it is a 'strategy' for instance, and thus in the *minds* of decision takers, particularly in private businesses. But I would defend the original definitional clarification against these alternatives because it gives the clearest basis on which to begin an empirical investigation into the nature of the contemporary international system. However, there may be a further legitimate and rival claim that speaks for the nature of the international system; that of regionalisation, already referred to above.

Regionalisation

Regionalisation signifies a process that draws states and groups together on the basis of their proximity perhaps because of economic advantages such as transport economies and economies of information, or perhaps because security or environmental issues can have a region-wide impact. In addition there is a possibly more pronounced *institutional* integration process that often accompanies such regionalisation which attempts to manage and regulate these 'local' integrative processes, which can be termed *regionalism*. Clearly, there could be a parallel institution building moment to the globalisation process — *globalism* — but we leave that aside at the moment because it is both more difficult at the global level and also less developed (though by no means non-existent).

There are a number of forms of regional institutional integration current in the present period, not all of which meet even the basic criteria that might be used to adequately define a 'region' (Buzan 1998). The integration of the MERCOSUR countries is often termed an 'open regionalism' (Fuentes 1994, Pena 1995). At present this amounts to little more than a customs union with an added commitment to strengthening and moving towards the truly open and liberal trading system as embodied in the GATT/WTO process. It follows a fairly modest agenda, but clearly remains discriminatory (despite protestations to the contrary — see Pena 1995, p. 119). This form of 'open regionalism' contrasts itself to the so

called 'closed regionalism' of the NAFTA and particularly the EU type. Strong closed regionalisms attempt to establish a common policy for all regional members, common internal and external criteria of operation, and strong common institutions that manage the system. Not all of these ideals are met, however. The EU is clearly much more than a customs union but in many ways it remains as 'open' as MERCOSUR, if not more so (it has a lower external tariff, lower internal impediments to trade, fewer derogations, and is expanding rapidly in membership). In fact both these systems would be better compared to the 'open regional economic association' of the APEC countries (Yamazawa 1998 — see also Shand and Kalirajan 1997 for the potential extension of this concept to the Indian Ocean regional area). In contrast to either the EU or MERCOSUR, there is no founding treaty involved with the APEC process. The open regionalism of the APEC countries looks towards the integration process being led by market forces without any strong institution building measures driven by political objectives. Rather like the MERCOSUR it remains rhetorically open to outside interests and non-discriminatory with respect to those interests, relying on more 'relaxed' and informal mechanisms of common interest building. It leaves the individual members to decide their own internal and external support measures, allowing the pace and extent of change to be established by a series of separate consensus seeking inter-governmental negotiations amongst the parties and not according to some carefully planned timetable. These inter-governmental negotiations establish non-binding initiatives and conditions conducive to trade liberalisation, but not necessarily to internal liberalisation or common standards. Thus the project of APEC is to use mutual moral persuasion and individual country initiatives to encourage common standard setting and neoliberal tariff reduction by all, but with no compulsion or penalties. However, again this is not the completely 'open' system that it supporters claim, since, while there remains a rhetorical commitment to non-discrimination against third parties, there is no necessary extension of MFN conditions to others, whether members of APEC or not.

Thus all regionalisms remain to some large extent closed (though the EU is perhaps a surprisingly open one itself). Clearly the EU is not going down the road of an open economic association in the image of APEC.

But quite where the EU is going at present it also not at all clear. There remains an as yet unsettled dispute on this between its partner members. On the other hand, where exactly is Brazil going in the context of regional integration? Much is made of Brazil's multidimensional approach — involving a commitment to MERCOSUR, to various possible Andean and Latin American free trade arrangements, to NAFTA, to FTAA, and possibly more besides. Thus there may be a case for Brazil to recast its aspirations in the image of an APEC like process. Clearly, here, so much depends upon the attitude of the USA. There is evidence that the USA would be unwilling to extend membership of NAFTA to any other Latin American country at the moment (Fauriol and Weintraub 1995), and the USA has clearly turned it strategic economic gaze onto the Pacific Rim and APEC. Any sign of a genuine 'Western Hemispheric' (FTAA) initiate by the USA thus looks unlikely in the near future (despite the rhetoric emanating from 'Miami 1994'), and without such a commitment nothing will come of it. Without a massive disruption of intra-Pacific trading relationships, even more unlikely is the revival of an 'Atlantic Free Trade Area' involving North America and Europe. Such an initiate could, however, also appear provocative: the 'old imperialists' getting together in an attempt to rule once again. But they might still maintain the economic power to do it.

The problem for a country like Brazil under these circumstances is to find sectors in the international economy in which it has a comparative advantage, but which are not in traditional primary products. Without this, Brazil is destined to remain only a small regional player in the Southern cone. As it stands, the MNCs that operate in Brazil look upon their operations there, not in a global context, but in a very obvious regional one. They use their local production facilities to service the domestic and regional market.

'Global' or still 'national' economies?

The definitions of globalisation and inter-nationalisation discussed above raise the issue of how to empirically characterise the contemporary configuration of the world economy. Here I just mention three key features that are at the forefront of debate and comment on each of them in turn.

It is the expansion of TNC operations that has captured the attention

of those analysts who see a dramatic change in the nature of the international economy. True TNCs would market, source and produce at a global level and no longer be tethered to any particular home-base economy. But on the basis of an analysis of MNC company asset data it is argued that these kinds of companies remain in the minority (Hirst & Thompson 1996, ch.4; Allen & Thompson 1997; Thompson 1998b). In addition, looking directly at production data, Lipsey *et al* found that "... the share of internationalised production (i. e. the production of multinational firms outside their home countries) in world output was only 7% of world output in 1990" (Lipsey *et al*, 1995, p 3 — see also Ramstetter 1998). The share was higher for manufacturing (15%) but negligible for services. Thus, the overall impression must be that the extent of MNC operations has been exaggerated. Most still remain tethered to a clear home base.

A second feature of the international economy that occupies attention is the extent of government expenditure, particularly welfare expenditure. It is argued that this has grown to levels that are unsustainable, and that given the newly emerging competition from economies in East Asia, which have relatively low levels of government expenditure, those countries with relatively high levels (whether advanced or developing) can no longer afford such extravagances.

This is a difficult argument to confront, but it is both possible and necessary to do so. If not then the welfare levels for all countries will be determined in Manila and Jakarta, rather than in Brasília or London. A key point to make is that there has traditionally been a wide divergence in the ratio of general government expenditure or welfare expenditure to GDP for countries, dependent upon their particular history and domestic economic choices. As long as countries maintain a competitive international traded goods sector so their balance of trade is manageable, and cover their current public expenditures by raising enough taxes, there seems no reason why these differences should not continue. There is no compelling 'global' logic or constraint that prevents this. The reason why public expenditures are under pressure in both Brazil and the UK for instance, has more to do with domestic pressures and choices than with globalisation as such. Public revenues have not expanded enough to meet the undoubted increase in public expenditures in both cases. Tax revenue is the key, but for mainly domestic

considerations or because of domestic political constraints, these have not kept up with the growth of expenditures. Tax reductions are seen as a key domestic political objective because of their supposed incentive effects.

The emphasis placed on covering current public expenditure by tax revenues has mainly to do with the final area for consideration in this section; the role of the international financial system. If the public current account is in equilibrium then the financial system is less likely to initiate pressures of its own on government expenditures. Interest rate and exchange rate movements are sensitive to large current account deficits (governments have always borrowed on the capital account with fewer problems). In general, however, it is worth remaining sanguine about the impact of international financial markets on national economies and on domestic economic decision making. This is not to underestimate their impact, merely to register a scepticism as to their overriding importance in a supposed globalising era.

Financial markets and agents are either thought to be super-efficient calculators who instantly distribute resources optimally and according to rational criteria, or they are considered to be close to evil monsters who are out to destabilise and undermine any 'sensible' or 'unconventional' economic policy that does not immediately meet their interests. But financial operators should be neither eulogised nor demonised in this way. They are often as 'dazed and confused' as any other economic agent, unclear about what to do and uncertain of their 'interests'. In many ways the international financial system is remarkably tolerant of 'deviant' behaviour by governments (as is demonstrated by the analysis in the next section). They take a long time to react, and often do so in ways that defy even their own logic.

The problem in respect to the current role of financial markets is to resist the emphasis that they give to short-term manipulation of monetary aggregates like interest rates and exchange rates (see next section). The financial system 'turns' vast sums, and makes very small returns on each 'turn', which in aggregate adds up to large amounts. But these sums are necessarily drawn back into domestic financial systems, where they amount to the returns on the capital of ordinary savings and pension funds of citizens and corporations. The bed-rock of the international financial system thus continues to rest on the nature of domestic economies and how they choose

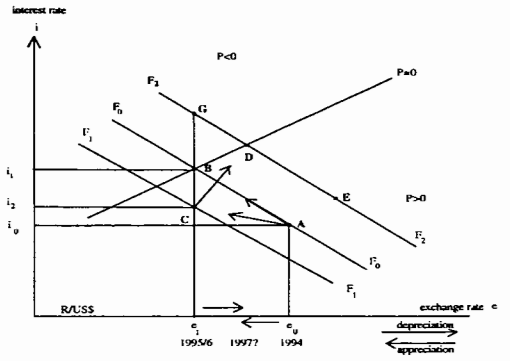
to organise their financial transactions and dealings. The consequences of the operation of the international financial system in terms of short-term flows is mainly to redistribute success and failure within the system rather than add to its productive output or augment its supply potential. More important here are long-term capital flows (including FDI) and trade flows. These are what have been concentrated on above in the UK and Brazilian context. But now it is time to consider these other features in a little more detail.

Macroeconomic adjustment in the UK and Brazil: responding to international constraints

This section examines the recent macroeconomic history of the two countries as they have responded and adjusted to the international constraints under which they have found themselves. It begins with an analysis of Brazil's stabilisation plan, and compares some of the UK experiences to this.

One way of presenting what might have happened to the Brazilian economy since the establishment of the Real stabilisation plan can be schematically shown with the aid of Figure 1. This sketches out a simple asset market approach to macroeconomic adjustments, involving the three main macroeconomic policy variables currently of interest to dominant economic theory. The problem from this perspective is to set interest rate (i) and the exchange rate (e) to achieve zero (or near zero) inflation (p). The interest rate and exchange rate are measured on the vertical and horizontal axes respectively, while the zero inflation ray (p=0) cuts the space between them. Below the p=0 ray is an inflationary space (p>0) while above it is a deflationary space (p<0). Also shown on the diagram are a series of schedules which represent the equilibrium demand for, and supply of, foreign bonds (FF). For any given position on the current account these show the combination of the interest rates and the exchange rates sufficient to raise finance on the capital account so as to balance the payments overall. This might also be termed a 'credible balance of payments constrained optimal policy trade-off schedule between I and e', showing the foreign exchange position in terms of sustainable and credible exchange rates and interest rates.

FIGURE 1: ADJUSTMENT in BRAZIL



We can begin the analysis in a non-equilibrium position such as at point A, with significant inflation, and with e0 and i0. The policy adjustment here is to move along the foreign exchange schedule F0F0 towards the equilibrium position B. This involves increasing the interest rate (towards i1) and appreciating the exchange rate (towards e1). However, the stability introduced by the Real Plan changes the expectations of market participants for the positive, which manifests itself in a shift in the FF schedule to F1F1, say (the market is now prepared to finance any current account deficit — or absorb a surplus — at a combination of lower interest rates and higher exchange rates). This upsets the equilibrium adjustment path to B, however, by establishing a position like C as the possible achievable combination of interest rate and exchange rate. But this is still within the inflationary zone, so expectations adjust again, this time negatively, and the FF curve moves out towards F2F2. This requires a policy move towards point D, involving a depreciation of the exchange rate and an even higher rise in the interest rate. For domestic reasons to do with its effects on the real economy, say, this upward adjustment in the interest rate is non-achievable. So we assume that i can only be pushed up to a level just above i2, which is in danger of pushing the economy to point such as E, characterised by a major devaluation and even greater inflationary pressures than at C (inflationary pressures are 'accommodated' by a substantial devaluation). The precise positions of these schedules and points is not the key issue here, but the general dynamic that

it implies is (for instance, point C on F1F1 could be drawn below point A, and E on F2F2 below that, implying downward pressure on the interest rate at each stage).

It is clear that under these assumptions and circumstances there is a real danger that the economy slips back into an uncontrollable cycle of inflation as the FF curves oscillate backwards and forwards in the manner suggested. What this demonstrates is the difficulty of achieving a zero inflationary equilibrium without introducing other policy variables into the analytical picture. In particular I would emphasise consideration of a whole range of policy variables (fiscal policy, incomes/redistributive policies, 'supply-side' reforms, employment policies, and so on) — some directly involving the real economy rather than simply targeting monetary variables — that act to change the position and slope of the zero-price line (p=0). If this could be lowered in the diagram to perhaps pass through points like A, C or E, then the possibilities of meeting a near-zero inflationary target are enhanced. This leads to a scepticism as to the effectiveness of simply relying on short-term manipulation of the monetary exchange rate and interest rate variables as adequate for managing an economy. Indeed, this is the case for any economy, including that of the UK — see the analysis in Thompson 1993 (pages 111-22) for an extended use of this kind of this kind of analytical framework to discuss the problems besetting the UK as it manoeuvred within the ERM mechanism and towards European monetary union in the early 1990s.

One issue that this analysis helps raise, of course, is the added 'dangers' of trying to fix or semi-fix the exchange rate, as is part of the Real Plan. The Real is supposed to fluctuate vis a vis the US dollar between fairly narrow bands (which is equivalent to fixing it). But supposed we consider this 'fix' to have been made at e_1 in the figure. With the economy at point C, the interest rate required to sustain that exchange rate would have to be at point G on F_2F_2 as credibility declined, initiating a genuine deflationary shock (slightly different problems would have arisen if the fix were considered to have been made at e_0).

Implicit in the dynamics of the analysis contained in Figure 1 is that the exchange rate is allowed to float. It is clear that the desire to fix the

Real in terms of US dollars is to provide a nominal anchor for the domestic price level, but the sustainability of this policy has yet to be tested in Brazil. Here there is a useful comparison to be made with recent UK experience, since in the late 1980s and early 1990s the UK government attempted to 'shadow' the German Deutschmark to gain the credibility benefits of much lower German inflation. However, that policy failed and the UK was in effect unceremoniously ejected from the ERM in September 1992. It just could not sustain the target exchange rate (which was set much too high) while there was such a difference in inflation rates between the two economies. One suspects that this may be the case with Brazil and the USA, where the order of domestic inflationary differences between the two countries is probably higher than in was between the UK and Germany in the late 1980s. Remember also that it took over two years for this policy of misalignment to collapse for the UK, and another two years before the UK was forced to leave the ERM altogether. A lot here thus depends upon whether the exchange rate set is a realistic one (does it conform to 'fundamentals' and underlying competitiveness conditions), and on the 'excess credibility' already built up for the Brazilian stabilisation plan by its undoubted initial success.

When the UK pound was devalued after 1992, there was a real short-term benefit to the economy as a mini export-led boom emerged. But, characteristically, this may have prove short lived. By the summer of 1997 the pound had risen against the DM to above the level it was shadowing in the late-1980s, leading to current widespread fears that the competitiveness of the UK economy was being newly undermined. I take this up again in a moment.

Returning to the points made above about the need to introduce other policy variables into the policy making equation, the Brazilian authorities are clearly doing just that with the stabilisation plan. So perhaps the p=0 line is being effectively manipulated by fiscal policy; in particular the liberalisation and privatisation programme and the attempt to drastically reduce the size of public sector spending. But these are clearly there to support the Real Plan, which is mainly directed at targeting the traditional monetary variables of interest rates and exchange rates. The process is being driven by a classic international monetarist agenda. A different agenda to

this could emphasise structural reform of the financial system and the corporate sector, labour market reorganisation (in terms of bargaining regimes), policies with respect to industry and technology, 'demand management' and the future of the welfare system, etc. These could all be made a *first* priority rather than playing second fiddle to short-term monetary macroeconomic management, as at present. All of the above mentioned alternative policy areas could be directed so as to contribute to an internal and external stabilisation programme, and work towards low inflationary expectations. The question would be how to initiate them by changing the international agenda.

Current position and future prospects

A problem for both the UK and Brazil, then, is that both countries have suffered from 'adventurous' short-term macroeconomic management in the recent past, with very large and rapid changes in policy and swings in economic direction. Traditionally this results in a very unstable long-term trajectory for economies, which is unconducive to their savings and investment potential. Both the UK and Brazil would seem equally prone to 'consumption led' booms, for instance, whereas it is widely acknowledged that raising the level of investment in both countries will be a key to their future success. Brazil's domestic savings and investment to GDP ratios are low compared to other rapidly developing countries (Singh 1998), while the UKs ratios are low compared to other advanced countries. Without serious consideration of the other variables available for economic management mentioned above, both countries will find it difficult to achieve a long-term internal and external growth equilibrium.

The UK has a potential advantage over Brazil, here, in that it has the possibility of fully joining the EMU process. There is nothing wrong with fixing the exchange rate if you are about to go into a full monetary union; to closely co-ordinate and act co-operatively with other members. This option is not open to Brazil at the moment, so fixing its exchange rate seems a potentially dangerous option, one that could soon enough invite a speculative attack. But there is another mechanism available to prevent this, or at least one that should be more firmly put on the international agenda. This is to seek co-operative agreement to stabilise the international financial

system more generally. Again, whilst Brazil may have little power to do much about this as an individual nation, it is an important enough player to add its weight to the calls for this kind of a programme. On the other hand the UK as a member of the EU really does have some weight here, and it could use it much more effectively than it at present seems willing to do.

This is where the existing debate about the future of European monetary union becomes crucial. In may ways this initiative has come at just the wrong time for Europe. While the UK economy is experiencing something of a cyclical upswing, the other continental economies remain caught in a sustained and coincidental recession. This has been prolonged, one suspects, because of the determination of these other economies to meet the Maastricht convergence criteria, which are basically growth inhibiting and deflationary. At the same time it is clear that the two key economies driving the integration process, France and Germany, in their own ways both require some serious structural reform to maintain or enhance their own international competitiveness. The struggle to adhere to the Maastricht criteria thus represents an added burden which these economies could well do without.

The future for monetary union thus looks problematic unless the criteria can be loosened or the date of their implementation postponed. The uncertainty over these matters is partly responsible for the current rise in the exchange rate of the UK pound (though not totally so since domestic policy mistakes, like increases in interest rates rather than the use of fiscal policy to control the consumption boom, has also contributed to this appreciation). With the pound out of the EMU process, however, and the increasing likelihood that monetary union will not go ahead on time, the pound in beginning to look a very attractive currency in the European context. Thus we might expect there to be serious devaluations of the German DM and the French Franc if the EMU process breaks up, with the UK pound and the US dollar being forced up in value (on the other hand the financial markets could react positively to this development and move into the German Mark — this reinforces the point made above about the markets not being taken as necessarily 'rational'). Some have argued that engineering a devaluation of the DM is on Chancellor Kohl's secret agenda anyway, so he would 'welcome' a delay in the EMU process. Thus far from the UK gaining

control of its currency by being out of the EMU, the pound is only being pushed further into the arms of US policy making, which could accelerate if EMU falters

However, one possibility if EMU actually went ahead on time with the UKs involvement, would be for the UK to argue for a 'weak-Euro' policy by the European Central Bank. Although this might appear as anathema to conventional European political and economic opinion, it would potentially open a space for a devaluation led recovery of the newly integrated economies.

The problem remains, however, of the fractious internal debates and manoeuvrings in respect to further integrative moves. By contrast, the EU has always operated more effectively when looking outwards and speaking with a single voice in the international economic arena. Here the fact that the Treaty of Rome ceded competency in most national external trade-related matters to the EU has served to provide a strong presence for Europe in international trade, investment and co-ordinative management discussions. This is not to suggest that the EU could not have spoken louder and with more force in these negotiations. Over the completion of the Uruguay Round of trade negotiations, for instance, the EU gave in too easily to the USA's pressures on a number of key matters, not least of which involved intellectual property rights and agricultural trade. A more resolute EU could have fought for the interests of Third World countries (like Brazil?) in the area of agricultural trade and other areas, particularly as it has more sympathy and closer ties with these countries that either Japan or the USA. In some ways, then there is too much of a 'cosy consensus' or 'common ground' within the international community on economic matters. Some added disagreement would serve to define the system more clearly, push the specific interests of the EU and its allies more forcefully, and enable to EU to consolidate its internal position further (since 'external' conflict adds to integrative pressures). This is not an argument for outright conflict, protectionism or belligerent stand-offs but rather a plea for the EU to define its particular external interests more clearly while operating within the contours of a continued commitment to multilateralism. These are not incompatible positions.

Currently, the EU is too absorbed in its next phase of reform and with problems associated with its enlargement to see how a positive external policy towards its neighbours and beyond could boost its own growth and create the basis for future markets. But this is a key aspect of EU external policy that cannot be safely ignored. From the point of view of countries like Brazil in their commercial dealings with the UK, however, British governments are also likely to be preoccupied with these matters and re-focussed upon their pan-European commitments and prospects. It is how the UK decides to operate within the EU context that will determine its attitude and relationships towards Brazil.

Conclusion

In conclusion I sketch out an analogy that uses the relationship to animals to summarise the basic message of this paper. For much of the post-War period governments thought they had gained control of their domestic economies and could co-ordinate and manage the international economic system beyond their borders. They approached their economies as though these were a series of 'ponies', carroled into a convenient field; they had learned to ride these ponies and could quite effectively herd them when necessary. Their economies and the international system had been tamed.

Then came the turbulent years of the 1970s and 1980s. Governments were caught off-guard as their ponies seem to escape their control and even jump over the fences around the field, into the 'global' beyond. One reaction to this was to say that the field was now empty, no longer occupied by any animal, since these had all 'escaped management'. Others argued that the field was still full, but now of 'bulls' rather than ponies, and these bulls just could not be tamed. 'Market forces' ruled, which would always remain out of governmental control.

However, the position being argued here is that the field is in fact still occupied, but by a set of different animals altogether. Let us say these are 'camels'. They are quite different to ponies. They are ugly, often obstinate beasts, that are much more difficult to handle. But they have offered a challenge to governmental authorities. Policy makers can all learn to ride

camels, but in quite different ways than they rode ponies. They can also be tamed, and herded (into a 'camel train'). Thus circumstances *are* different now, we are no longer dealing with the same beast when we look at national economies and the international economy beyond. The challenge is to learn to ride the camels, which *can* be done. Neither the Brazilian nor the UK authorities are powerless against the global forces of markets and companies. They could try to act together to enhance and redefine the nature of international economic governance.

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Industrial Policy and Globalisation+

*José Tavares de Araújo Jr.**

Introduction

This article discusses the similarities and dissimilarities between the current Brazilian and British models of insertion in the global economy. The main focus of the analysis is the telecommunication industry, the characteristics of which permit us to shed light on three important issues. As I will attempt to show in the pages that follow, this industry is one of the nuclei of convergence in the process of technological change that supports the contemporary tendency for globalisation of markets and regionalisation of productive structures. Given this peculiarity, the conditions of the competition in this industry provide useful evidence for delimiting the scope that national governments still have for implementing industrial policies. Moreover, the institutional reform promoted by the British Government in the telecommunication sector during the 80s, has become one of the sources of inspiration for the new theories on industrial regulation, and is, therefore, a timely reference for the debate on these issues currently taking place in Brazil.

The text has been organised as follows: Section II presents the analytical tools to be used in the subsequent discussion. The argument developed here is grounded on the discovery that, since the late 70s, costs of the transactions between the various economic agents have been falling more rapidly than production costs. This change not only explains the new patterns of international competition but also gives rise to unprecedented

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demands in terms of governmental policies. In the light of this conceptual framework, Section III analyses the policies that oriented the growth of the telecommunication industry both in the United Kingdom and in Brazil, and shows that, in principle, there should not be any antagonism between industrial policy and globalisation. Section IV sets over against this view, through a brief comparison between the foreign trade policies in both countries, attempting to highlight the mechanisms of state intervention that have become obsolete. Finally, section V gives a summary of the main conclusions.

Conceptual Framework

The patterns of international competition in the 90s are the result of the interaction of three interdependent phenomena that have developed in the course of the last fifteen years, namely: (a) the decline in the cost of transactions between economic agents due to technological innovations in the computer, software and telecommunication industries; (b) new patterns of productive specialisation and corporative management, marked by a reduction in the companies' scope for diversification and by the mushrooming of subcontracting practices; (c) the simultaneous tendencies of market globalisation and regionalisation of industrial structures.

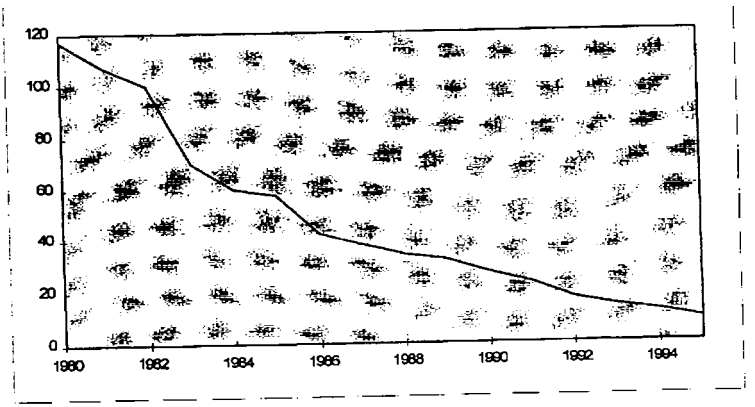
The origin of these changes was grounded on the drastic reduction - still in course- in the costs of processing, transmitting, and analysing large volumes of data. Figure 1 reveals the magnitude of this event through an unequivocal indicator: the fall in the "hedonic" prices of personal computers sold in the United States between 1980 and 1995, estimated by the Bureau of Economic Analysis, an organ of the US Government's Trade Department. This index describes the price variations weighed by the innovations introduced in the computers each year, taking into account memory size, processing speed, and hard disk capacity. Thus, for economic agents established in the American market in 1995, the capacity to process information was, on average, approximately 13 times higher than that prevailing in 1980!

Such conditions affect at least one strategical decision that has to be made periodically by any businessman, namely, the definition of the

range of the firm's activities, and, in particular, the degree of its vertical integration. The basic parameter in this decision is the relation between production costs and transaction costs, hereon called p. As argued by Dahlman (1979), transaction costs are basically dependent on the degree of imperfection of the information system prevailing in the market. In theory, therefore, the relation p varies in inverse proportion to the degree of dispersion of the firm's activities, and the data in Figure 1 suggest that p has been growing in most of the industrial sectors.

Indeed, Markides' study (1995) on the industrial restructuring of the American economy in the 80s showed that the trend towards diversification and vertical integration predominant for almost 50 years in that country had reversed very rapidly in that decade. In the current model, companies attempt to concentrate exclusively on those activities they can produce within the limits of their technological capability, and subcontract all other components of the products they offer in the market. [1]

Figure 1 - Index of Hedonic Prices of Personal Computers (1982=100)



Source: U.S. Bureau of Economic Analysis

[1] For a more detailed discussion of the existing relations between cost structures and a company's activities, see Tavares de Araújo, 1997.

An increase in the relation p, therefore, promotes both a reduction in the range of activities of certain companies and a simultaneous expansion of market opportunities for other producers whose cost structures are more appropriate to the supply of those goods and services no longer offered by the former group of firms. In free trade conditions, opportunities such as these can be explored indiscriminately by either local or foreign producers. However, in the case of intermediate inputs and subcontracted services, in general, the purchasing companies favour those suppliers located at short distances from their own installations, given time constraints and stock maintenance costs. In sum, lower costs of information encourage local firms to find new survival strategies, increase these firms' competitive power and alter the country's mode of insertion in the global economy. Thus, there is an expansion, on the one hand, in the flux of industrial exchanges with neighbouring countries, and on the other, in the trade of final goods with the rest of the world.

Such changes have their equivalent in a new industrial policy agenda, in which some instruments, such as trade barriers and nationalisation indexes, become less effective, whilst other matters, such as those of capture and asymmetrical information, acquire new relevance. In the past, when a government decided to promote a specific industry, for instance, through customs duties or the encouragement of vertical integration, the assessment of the short-term effects of these policies might be restricted to measuring the impact they had on domestic prices and on income transfers. Their consequences for the transaction costs, even if actual, could be abstracted from the analysis, since they had no impact on the economic agents' strategies. Today, besides being included in the relevant protection costs, this dimension must also be analysed in terms of the distortions it brings to interindustrial relations, in so far as it prevents domestic companies from adopting standards of corporative management appropriate to the available technologies.

As it has been in the past, the basic objective of an industrial policy continues to be the promotion of efficient production systems, capable of keeping pace with the world's technological development. In the terms of micro-economic theory, an industry is efficient when its configuration is sustainable, that is, when the number of firms established in the area and

the latter's vectors of production are such as to permit the lowest possible costs in the supplying of the existing demand.

It is the case, however, that quite often sustainable configurations are oligopolies and monopolies, and this forces the government to walk on the tight rope of attempting to reconcile the instruments of industrial promotion with those aimed at defending public interest. Therefore, industrial strategies oriented to the former objective run the risk of becoming hostages to the economic power of the larger corporations, generating only monopolistic income and inefficient markets. Nevertheless, the successful regulation of the concentrated sectors depends on how successful the government is in solving the problem of asymmetrical information. In order to impose a virtuous behaviour on industry, the government needs instruments to make up for the latter's lack of knowledge of technological advances and current cost structures. A thorough understanding of these dimensions tends to be an exclusive privilege of the corporations established in those concentrated sectors.

To sum up, the present industrial policy agenda surpasses in scope and complexity the lists of topics of 20 years ago. The process of market globalisation has been gradually eroding the attractions of conventional protectionism, in so far as it emphasises the need for mechanisms that can combine efficient production goals, with transparency in the rules of the game and consumers' well-being, as the remaining sections of this article hope to demonstrate.

The Telecommunication Industry

The literature on regulation theory mentions the telecommunication sector recurrently. This emphasis is not a mere coincidence. The sector is in fact one of the nuclei of convergence of the innovations that are bringing together, in one single industrial complex, telephony, television, computers, software, industrial automation and consumers' electronics. These innovations in turn create new input-product connections, and set common standards of quality requirements, both within the complex itself and in other segments of the economy as diverse as publishing and printing, banks, consultancy services and marketing. In these specific conditions of

competition, technological convergence demands a continuous reappraisal of the criteria used to assess the relevance of markets, barriers to entry, scope economies, productivity standards and market power. This section reveals the British and Brazilian governments' initiatives in face of these issues.

The British Experience

Between Mrs. Thatcher's victory in the May 1979 elections and the beginning of her third term of office in June 1987, the contribution of public companies to the country's GNP fell from 11.5% to 7.5% and more than five hundred thousand workers were transferred from the public to the private sector (see Vickers and Yarrow, 1988). With regard to the global insertion of the British economy, the most important initiative in this direction was the redefinition of the country's industrial policy instruments. The pioneering experience occurred in the telecommunication industry and that served as a model for other public services such as those responsible for water, gas and electricity provision, later becoming a obligatory reference in the international literature on regulation and competition.

For the reasons pointed out in a previous section of this article, the privatisation process in the United Kingdom did not involve the State's replacement by market forces. On the contrary, it called for a long-term strategy on the part of the government to establish a national industrial system capable of keeping up with the new standards of international technological innovation. The strategy comprised all the classical elements of industrial policy, such as the selection of firms that would be authorised to operate in the country and the consequent reserve of a portion of the market for previously established producers, price and quality controls of the products on offer, and the monitoring of the prevailing conditions of industrial competition. As in any long-term enterprise, the strategy had three very distinct stages. The first, between 1981 and 1984, prepared the new institutional framework. The old public company British Telecom (BT) was delinked from the Post Office and the government announced its intention to privatise the former. Other outstanding initiatives of the period include the creation of a new regulatory agency, Oftel (Office for

Telecommunications), an authorisation for the entry in the British market of the company *Mercury*, the introduction of a price control system and the sale of 50.2% of BT's shares. The second phase, from 1985 to 1991, a time when the telecommunication sector was restricted to the duopoly BT-Mercury, witnessed the full development of the new State intervention model. The present phase, which started in 1992, may be defined as a period of consolidation of that model. Some of the most outstanding events here were the entry of other firms in the sector, the privatisation of the remaining BT shares and the actual process of BT's purchasing of the American company MCI.

A peculiarity of the British privatisation model was that it paid equal attention to the issues of industrial promotion and those of capture. On the one hand, Oftel exercised strict control over the variables defining the industrial structure and the competition process, through licensing criteria, quality standards, price-control regulations and distribution of privileges. On the other, the behaviour of companies already established in the industry was also restrained by additional mechanisms that will be described later and by the last instance regulatory role played by the authorities that safeguard free competition, the *Office of Fair Trading* (OFT) and the *Monopolies and Mergers Commission* (MMC).

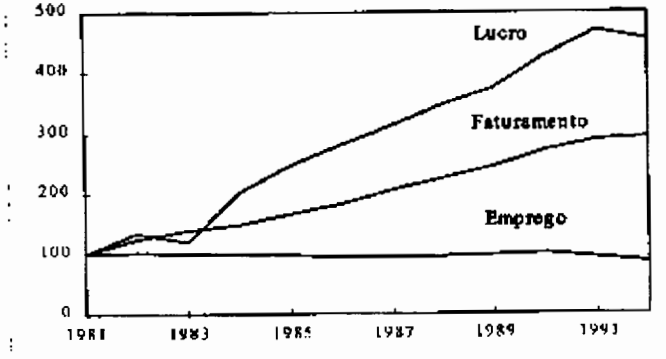
Behind the strategy implemented by Oftel was the assumption that the levels of productive efficiency in any industry at a given moment are the result of the investments and of the previous accumulated experience of the firms established in that particular line of busyness. Therefore, in 1982, when market studies indicated that the sustainable configuration for the telecommunication sector in the UK was a duopoly, Oftel not only permitted the entry of Mercury but also made sure that, for at least seven years, the two firms would not be disturbed by the entry of new competitors in the sector. Moreover, in order to guarantee the operational viability of the duopoly, it was necessary to restrict British Telecom's market power. This objective was reached with a number of price policies, the interference in the relationship between the two rival companies and the concession of certain privileges exclusively to Mercury (see Cave and Williamson, 1996).

Oftel set up an ingenious and simple price control system known as

RPI-X (Retail Price Index with a specific discount). This is now used in all the regulated industries in the United Kingdom. The regime has two basic rules: (a) only the leading company is controlled, and the ceiling fixed by the government applies to an average of the prices practised by the company; (b) the value of X, that is, the discount to be applied to the retail price index, is valid for an extended period of time. In the case of telecommunications, BT was subjected to four increasingly restrictive ceilings from 1984: RPI - 3, until 1989; RPI - 4.5, from 1989 to 1991; RPI - 6.25, from 1991 to 1993; and finally RPI - 7.5, between 1993 and 1997.

According to the government, this regime was chosen for three reasons (see Armstrong et al., 1994, Ch. 6). Firstly, because it is transparent and little vulnerable to capture. Secondly, because, given the simplicity of its rules, it entails hardly any bureaucratic supervision costs. Thirdly, it encourages efficiency, since any innovative reduction of costs can be appropriated by the leading company, unlike what normally occurs with other forms of regulation, such as, for instance, profit-margins control. Indeed, as Figure 2 illustrates, this hypothesis was shown to be right. Despite the restrictions imposed upon the company, BT's performance since privatisation has been outstanding. Between 1981 and 1992, operational profit rose at an average yearly rate of 15%, its income increased by about 10% a year, whilst its employment levels were kept practically stable, with only a small declining tendency.

Figure 2 - Indicators of British Telecom's Performance (1981-1992)



Source: Armstrong et al., 1994

It is worth noting that the performance indicators shown in Figure 2 happened simultaneously with a significant expansion - and improvement in the quality - of telecommunication services throughout the United Kingdom. According to Oftel's figures, the percentage of interrupted telephone calls fell from 4.3% in 1987 to 0.3% in 1992, while the proportion of repair services carried out within a maximum of two working days rose from 74% to 98% in the same period. Moreover, the percentage of households with a telephone, a mere 42% in 1972, reached almost 90% in 1991 (cf. Armstrong et al., 1994).

The Brazilian Experience

In Brazil, the processes of privatisation and revision of regulatory instruments in the telecommunication sector are still at an early stage. A comparison with the British case is therefore relevant, not only due to the latter's achievements, but also because it gives us parameters to assess the Brazilian experience of the last thirty years. The institutional framework guiding the installation of the present telecommunication industry in Brazil was defined by Law 4117, of December 1962. This created the Brazilian Telecommunication Code, the general objectives of which were quite similar to those of the 1981 British Telecommunication Act. The intention here was to furnish the country with efficient mechanisms for the long-term planning of the expansion and modernisation of the sector in accordance with new international technological standards (see Moreira, 1989).

In fact, the new institutional framework was put into practice only from 1965, with the creation of the Brazilian Telecommunication Company, *Embratel*, a public organ made responsible for exploring, with exclusivity, all international calls. Embratel's rapid growth in the years that followed was funded by the National Telecommunication Fund (FNT), whose resources came from the Federal Government's main budget, from operational tariffs and from an additional tax on telephone services. At that moment, the main challenge facing the government was how to carry out the technological unification of the national network, until then marked by the enormous diversity of its equipment, a diversity that not only made Brazilian operational costs much higher than those prevailing in other

countries but also contributed to the general precariousness of the country's telephone services.

The additional instruments for dealing with this problem were soon provided by the government. In 1967, the government created the Ministry of Communications (Minicom) bringing under the responsibility of one single organ, normative, planning, funding and monitoring functions previously decentralised. Under Minicom's jurisdiction were the Council of Telecommunications (Contel), a normative and planning organ; the administration of the FNT; and the supervision of the sectorial companies, including Embratel and the telephone companies from the various Brazilian states. Finally, in 1972, with the establishment of the Telebras holding, whose role was to harmonise behaviour and distribute tasks among the various companies in the sector, the institutional framework was complete.

The strategy implemented by Minicom in the 70s and 80s coincided in certain aspects with that of the United Kingdom in the post-1979 period, despite the other peculiarities of both experiences. As we have seen, the goals of the British model were restricted to achieving an efficient telecommunication system and establishing mechanisms to ensure that benefits would be transferred to the consumer at the end of the line. Moreover, as Hay (1997) pointed out, British legislation is exempt from nationalist traits. Any foreign investor is rigorously subjected to the same rules that govern the behaviour of their British competitors. In Brazil, the government saw the development of the telecommunication sector as part of a wider strategy aiming at correcting others of the country's deficiencies, through investments in education - in particular at the University level -, expansion of the sources of scientific and technological knowledge, and the protection of local producers of capital goods.

Therefore, as described by Moreira: "Already in its first year of operation, Telebras diagnosed technological dependence as being one of the main problems in the telecommunication sector. On the basis of this evaluation, it began an R&D programme developed through joint projects with University groups, the objectives of which were technological autonomy, training human resources for the telecommunication industry and strengthening the national industrial park. The aim here was to articulate

an R&D model in which, each participant, that is, the Telebras system, the universities and industry, had clearly defined functions. The universities would be responsible for the training of human resources, basic research and the generation of product and process technology at the laboratory level; the role of the Telebras system operators would be to introduce the new products and to develop introduction and maintenance routines; and, finally, the industrial sector would be responsible for the manufacturing of equipment and spare parts." (1989, p. 65).

Between 1973 and 1976, Telebras provided the resources for the activities of approximately ten working groups in four institutions: the University of São Paulo (USP), the Air Force Technological Institute (ITA), the State University of Campinas (Unicamp) and the Catholic University of Rio de Janeiro (PUC/RJ). The agreements covered from wide range projects in the areas of optical fibres, semiconductors and micro-electronics, to specific uses of technology in more particular subjects, such as, for instance, digital techniques, pulse codification and radiopropagation. Such activities led to the creation, in 1976, of the Centre of Research and Development of Telebras (CPQD). From then on this Centre co-ordinated Minicom's technological policy. In addition, at the level of industrial policies, Telebras' purchasing power was used to accelerate import substitution in the sector, through initiatives that prioritised an increase in the local content of goods and services bought by the government, conferred special privileges to firms controlled by Brazilian capital, and gave incentive to products and processes developed in that country.

Until the mid 80s, the results produced by these undertakings were far below Minicom's expectations, as argued by Moreira (1989), and the fiscal crisis that marked the decade in Brazil contributed to reduce the possibilities of success still further in the years that followed. Despite the magnitude of the investments made from 1965 onwards, telephone density in Brazil in 1983 was a mere 7.3 telephones for each 100 inhabitants, a lower figure that those of countries such as South Africa, Argentina and Mexico, and very distant from the conditions prevailing in the economy of the OECD countries. As Table 1 indicates, this situation remains practically unaltered up to now.

The main message to be extracted from a comparison between the British and Brazilian experiences is that the processes of privatisation and reform of regulatory frameworks involve an industrial strategy with ingredients that are very familiar to the Brazilian public. Indeed, price controls, the establishment of long-term goals, market reserves, and distribution of privileges were the type of measures applied to the majority of the industrial segments in this country for the last 60 years. However, an objection must be made with respect to the focal point of the strategy: the problems in the telecommunication industry are sufficiently complex to warrant the exclusive attention of the relevant authorities, who should, therefore, leave the challenges posited by other national deficiencies in the hands of other governmental agencies or of society itself.Table 1 - Telephone density in Selected Countries - (telephones/100 inhabitants)

Country	1983	1995
Sweden	85.6	68.1
Switzerland	77.6	61.3
United States	71.0	62.6
France	54.1	55.8
Australia	53.7	51.0
Japan	53.0	48.8
United Kingdom	51.0	50.2
Italy	38.2	43.3
Spain	33.7	38.5
South Africa	13.4	9.5
Argentina	9.2	16.0
Mexico	9.0	9.6
Brazil	7.3	7.5

Sources: Moreira (1989) ITU (1997)

Foreign Trade Policies

Brazil and the United Kingdom are countries with a varied commercial agenda. In 1995, for instance, British foreign trade had the following structure: 54% with the other members of the European Union, 14% with the NAFTA countries, and 32% with the rest of the world. In that same year, the Brazilian agenda was comprised by: 16% with Mercosul partners (including Chile and Bolivia), 23% with NAFTA, and 61% with

the rest of the world. Therefore, it is pertinent to compare the foreign trade instruments used by the governments of both countries. This section deals briefly with three aspects: import tariffs, and specific policies for the automobile and computer industries.

In the period 1988/1993, the Brazilian government implemented a trade reform that radically changed local competition conditions. After sixty years of economic growth based on import substitution policies, the domestic industry was exposed, for the first time, to the competition of imported goods. The objective of the new tariff structure was to provide the productive system with a stable and homogeneous level of effective protection. Thus, in July 1993, the average factor of effective protection was 14,5%, and only a few sectors were outside the interval 10%-20%, with the outstanding exception of the automotive industry, that had a factor of 130% (see Kume, 1996). However, after July 1994, import regulations became extremely volatile, in order to adjust the volume of foreign trade to the short term needs of the Plano Real. In a first stage, lasting until December 1994, the government's objective was to provoke a rapid decline in local prices through an increase in the value of the currency, and additional reduction of tariffs for goods that could have a significant impact on the inflation rates. Food items and essential inputs were the preferred targets, and the immediate result was an expansion of the effective protection range, since lower factors on inputs lead to a rise in the protection rates of final goods.

In 1995, the main macro-economic problem was no longer how to discipline prices, but how to control the commercial deficit. So, import restrictions were brought back. Between July 1994 and September 1996, of the 13.428 tariff positions comprising the Brazilian Harmonised System, 11.183 items were altered, of which 939 were subjected to more than three variations.[2] Capital goods and intermediate inputs were among the most affected, the rules regulating their importation having been altered more than five times! (see Baumann et al., 1997).Given the close links between these sectors, these changes meant unstable relative prices throughout the

2 Indeed, in most cases, the first change was due to the establishment of the Mercosul Common External Tariff, in January 1995. At a later stage, the alterations began to be made through a series of successive amendments to the list of exemptions from the common tariff.

economy. Table 2 shows examples of some specific oscillations, applying to a variety of products, from cars to telephone equipment, detergents, pesticides, synthetic fibres and packing machines.

It is reasonable to suppose that this volatility may be temporary, as much for domestic reasons as for commitments already undertaken within Mercosul, in the current negotiations to establish a Free-Trade Area in the Americas (AFTA) and in the World Trade Organisation. In the middle term, Brazilian trade policy will be probably similar to that of the United Kingdom and other industrialised economies, that have as main characteristic stable norms regulating the access to markets. In the last 20 years, for instance, British import tariffs have changed only as a result of GATT's multilateral negotiation rounds, and of decisions taken within the European Union. At the moment, the average nominal factor applied to the EU non-member countries is of 37%, in a distribution where the maximum value for manufactured goods is 22%, although, in the case of most items, values are lower than 10% (see WTO, 1995).

However, as long as the conditions of the competition remain uncertain in Brazil, firms established in that country will be unable to assess their cost structures - and, in particular the relation p between production costs and transaction costs - correctly. Consequently, for the reasons I pointed out in section II, they will not be able to identify which strategies will be more suitable for confronting the challenge posited by international competition. This situation creates a vicious circle, in which unstable norms generate protectionist pressures, which, in turn, lead to additional changes in trade policy.

Table 2 - Brazil: Examples of Tariff Oscillations

Product/Code SH	Import Taxes Evolution (Date/Factor)							
Pesticides	07/94	09/94	12/94	05/95	11/95	02/96	04/96	08/96
29.26.90.02	15	14	2	4	8	10	2	12
Detergents	07/94	01/95	05/95	11/95	02/96	04/96	08/96	
34.01.19.03	10	11	4	6	8	2	18	
Synthetic fibres	07/94	09/94	11/94	04/95	05/95	02/96	04/96	08/96
54.02.49.02	20	16	2	0	6	10	6	16
Synthetic fibres	07/94	09/94	11/94	04/95	05/95	02/96	04/96	08/96
54.02.49.04	20	16	2	0	6	10	6	16

Product/Code SH	Import Taxes Evolution (Date/Factor)							
Packing Machinery	07/94	11/94	01/95	06/95	07/95	01/96		
84.22.40.99	20	0	19	0	19	18		
Telephones	07/94	01/95	03/95	05/95	01/96	04/96		
85.17.10.99	30	19	70	63	56	30		
Automobiles	07/94	09/94	01/95	02/95	01/96	04/96		
87.03	35	20	32	70	62	70		

Source: Baumann et al. (1997)

In this changeable scenario, the distribution of governmental benefits have obeyed the hierarchy of economic power, as the policies regarding the import of automobiles, registered in Table 2, clearly show. After a brief attempt to reduce nominal protection to 20% in September 1994, five months later the government increased the tariff to 70%, and in December 1995, created new incentives that surpassed those granted to any other sector of the economy. Through Decree no. 1761, the government re-edited a number of mechanisms typical of the import substitution period: quotas, minimum levels of domestic inputs, tax exemption conditioned to export performance, projects itemised by company, periodical revision of incentives, etc.

The automotive industry is an international oligopoly with a long tradition of influencing trade agreements and national policies. The 1965 Canada-US Pact, the Brazilian export promotion policies of the 70s and 80s, the VER agreement between the United States and Japan in 1981, and the tariff oscillations listed in Table 2, are just a few examples of this traditional influence. Given the size of the industry and its intersectorial connections, investment decisions made by the assembly plants tend to have a tremendous impact not only on employment levels and on the conditions of macro-economic growth, but also on the balance of payments and on the country's pace of technological advancement. Because these figures can be easily translated into political power, automobile manufacturers have been able to extract privileges from governments' world-wide for a long time.

Recognising the industry's economic relevance and political power, the European Union signed a protocol in 1989 with the following guidelines: (1) Any project related to the production of vehicles or engines receiving

governmental contributions greater than 17 million Ecus, will be subjected to a previous notification to the Community. This notification must indicate the reasons that led to the government's support, as well as stating the nature of the project, to be classified in accordance with the objectives pursued in the areas of industrial plant restructuring, regional development, introduction of new products and processes, R&D in pre-competitive stages, and the funding of the company's current operations. (b) Member States must present annual reports detailing all types of support granted to this industry, independent of their value, following the same methodology used in item (a). (c) Assistance granted through the European Investment Bank should also be monitored. (d) In the light of the above information, the Community examines the impact of these projects in macroeconomic, sectorial, regional and social terms. However, the final assessment will focus primarily on the distortions the projects may provoke in competition conditions both between European firms and in the remaining countries of the world.

As it did in the case of customs tariffs, the Brazilian government will probably adopt, in the middle term, norms similar to those of the European protocol, in view of the regional integration projects within Mercosul and AFTA. It is worth noting, however, that, in the case of automobiles, protection brings less harm to Brazilian society than the 30% tax on the import of computers and other products of the computer industry. In the former case, the costs of protection, no matter how high, affected only the prices and the quality of cars sold in Brazil, and the profit margins of the assembly plants. In the latter case, however, not only are the costs of the measure born generically by the country's productive undertakings, but it has harmful consequences for other activities in the cultural and leisure areas.

By comparison with the radical market-reserve policies prevailing in the 80s, the present tariff may seem reasonable, particularly if we consider that it is a formally temporary measure. According to the commitments undertaken in Mercosul, from now to 2006 the Brazilian tax should gradually converge towards the Common External Tariff, the levels of which, in this particular case, vary between 2% and 16%, depending on the type of equipment. However, examined in the light of the technological innovations discussed in section II (see figure 1, pg. 4), a burden of 30% on the cost of

a strategical input may be sufficient to cancel out the economic rationality of several activities, especially those more sensitive to variations in the costs of transaction. In this respect, Brazil differs from the United Kingdom and from the other 39 signatories of the December 1996 Singapore agreement, which will bring an end to import taxes on computer goods until the year 2000. This group includes countries such as South Korea, India and Japan, which, until recently, were traditional users of growth policies based on customs duties.

Conclusion

The Brazilian and British models of insertion in the global economy are similar in several aspects, such as the opening of markets, the diversification of trade partners, the regulation of public services and the participation in regional integration projects. In both countries there is a long tradition of State intervention in the economy, the instruments of which are now going through a period of adaptation to the conditions generated by the processes of market globalisation and regionalisation of productive structures. As we have seen, the industrial policy agenda in the 90s expanded and became more sophisticated than that of previous decades. There are, however, three differences between the two models, namely, the manner in which they reconcile public interest with industrial promotion; the stability of the rules of the game, and the coherence between the various governmental initiatives. In these three points, the experience of the United Kingdom should serve as a paradigm orienting the final stages of the reforms currently taking place in Brazil.

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The United Kingdom and Brazil with Regard to International Trade and the World Trade Organisation (WTO)

*Sheila Page**

Brazil and the United Kingdom are both major trading countries, in their regions and in the world; leading members of their respective regional organisations; and founder members of the GATT. Both have also traditionally been slightly apart from their regions, with a more global outlook. Therefore they have seen multilateral institutions as important elements in their international economic policies. For Brazil active participation in the GATT/WTO is comparatively recent, but it was previously active in UNCTAD and other groups. Because Brazil and the UK are not super-powers, sufficiently strong to act independently economically or politically, both need multilateral institutions. There is now one important difference. The difference in degree of integration between the EU and MERCOSUL (or, perhaps, in their stage of evolution) means that for the UK much of its role in international trade policy and organisations is now through the EU Commission, rather than direct.

The regional side of Brazil's international liberalisation since the beginning of the 1980s has attracted most attention, and it has been argued that this was the basic strategy governing its opening (Gonçalves, 1996; Baumann, 1996), but in terms of both trade barrier reduction and institutional participation the change in its multilateral participation was at least as great. It would be wrong to concentrate on the regionalisation process, even seen as a first stage in globalisation.

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This paper will first indicate some measures of the two countries' importance to each other and of the role of trade and foreign investment in each. Then, after some background on the changing and growing role of the WTO, it will look at current and newly-emerging issues in the WTO, and how these relate to Brazil and the UK. For the UK, it is necessary to consider possible changes in UK policy after the change of government. It will then consider the historical development of Brazil's relationship to the GATT, and the WTO, and examine the implications of EU and MERCOSUL for the UK and Brazil, both for the weight they give to multilateral organisations and for the way in which they participate.

Trade flows

Brazil's trade has of course become more regionally directed in recent years (table 1), with exports in particular increasing strongly to the other MERCOSUL countries, but also to the rest of Latin America. Its exports to Europe have fallen in share, although there has been little change with the UK. The picture for imports is strongly affected by the overall fall in its imports of oil, and therefore in trade with the Middle East. The compensating increases in import share have been disproportionately first from MERCOSUL, then from the other Latin American countries, and only then the industrial countries. In contrast the UK, whose trade with the EU rose in the early years of its membership, has diversified, with more trade with developing countries, notably in Asia.

Table 2 shows the contrast in the importance of trade and investment to the two countries. It also indicates, in spite of fluctuations, a remarkable constancy in the share of trade. If, however, the UK figures are adjusted to exclude trade with the other members of the EU, to show the weight of trade with the rest of the world in output, they are closer to those for Brazil.

Differences in the composition of their exports, however, have important implications for the countries' interests in international negotiations, and for their probable allies and opponents. Agricultural products, both tropical and temperate, are still a major share of Brazil's exports (more than a quarter). The majority are now manufactures (the principal increase came in the 1970s), but the share is still relatively low for

an advanced middle income country, and almost a fifth of manufactures are iron and steel products (9% of the total). Shoes are about 5%. Both of these, like foods, are products subject to significant tariff and non-tariff barriers in the industrial countries. Although the UK has some food exports, and had a relatively high share of fuel exports when the oil price was higher in the early 1980s, it is now a very typical exporter of manufactures, with 80% in this category. For most of its exports trade barriers have not been important since the 1960s. The same differences are apparent if we look at the products for which they are major suppliers at world level. For Brazil, these are iron and steel, clothes and footwear, coffee, feeding stuffs, and fruit, while for the UK they are aircraft, engines, pharmaceuticals, and other manufactures, with only alcoholic drinks falling outside this category.

On the import side, Brazil is now principally an importer of manufactures (with fuels having fallen from over 40% to around 15%), although foods are also important. The UK is even more concentrated on manufactures because of lower fuel imports.

The WTO

The scope of the WTO has increased in three significant respects in the last 12 years. More countries have joined; temperate agriculture and clothing and textiles have been brought under WTO disciplines (although still with special regimes); and international regulation has moved into new areas, including services, intellectual property, and stronger regulation of government intervention in trade and trade-related activities.

Until the Tokyo Round, in the mid-1970s, arguably even until the Uruguay Round which began in 1986, the role of the GATT was limited in most areas of interest to developing countries. Agriculture had been effectively excluded, at the insistence of the US, while textiles and clothing had been the subject of a long-standing derogation for the Multi-Fibre Arrangement (MFA) and its predecessors. Most primary products entered developed countries at low or 0 tariffs, and some developing countries, notably in Asia and Africa, had special arrangements with the former colonial powers giving them preferred access to their principal markets, so GATT access was irrelevant. From the point of view of the developed countries,

the developing were not important markets or (with some exceptions) competitors. Even in 1973, the beginning of the Tokyo Round, developing countries' share in trade was only 21%, and this was predominantly in primary goods. By 1986, the beginning of the Uruguay Round, their share in world trade was 26%, of which 60% was manufactures, a share that has now risen to more than three quarters. They now account for close to a quarter of world trade in manufactures.

Some developing countries were members of GATT, including Brazil, and it needs to be remembered that many of the OECD countries were still at middle income level at the time GATT was founded, so that it was never entirely restricted to developed countries and their interests. Nevertheless, the concentration of negotiations on those manufactures of primary interest to the developed countries, combined with a developmental strategy in the major developing countries that placed most weight on internal development and industrialisation, not on trade, meant that GATT was not seen as an essential negotiating arena for developing countries. Negotiations there have traditionally been between the major importers and exporters of each product, so that countries without significant roles in the goods included were left to one side. While countries were following a strategy of controlling their own imports, not promoting exports, the losses from participating in GATT were potentially large, while the gains seemed small. Major countries like Mexico and Venezuela remained outside, considering the benefits not worth the constraints on national action.

There had been an initiative in the 1960s to give differential treatment to the developing countries, and this was built into the GATT agreement (as Part 4) in 1971. This permitted countries to give more favourable treatment to developing country exports (which would have otherwise been contrary to the GATT requirement that all members give the same treatment to all other members, Most Favoured Nation treatment), and also gave developing countries greater freedom to restrict their own imports, for development (infant industry) or balance of payments reasons. They could also avoid 'binding' their tariffs (i.e. notifying their level and structure to GATT and agreeing to make no increases). But the initiative and negotiations to achieve what became the Generalised System of Preferences came not from the GATT, but from UNCTAD, and it was there

that most developing countries, with Brazil among the leaders, concentrated their attention. This reinforced the perception that GATT was not an effective forum for developing country interests.

The terms of the trade-off between policy freedom and rules were sharply altered in the 1970s and 1980s. The traditional constraints, especially those on agriculture and clothing, were becoming more unpredictable and more damaging. As the European countries became major exports of agricultural goods, food pricing changed quickly. The discretionary clauses of the MFA were used more frequently. As developing countries became competitive in new products, there was a revival of protection in the industrial countries using non-tariff barriers and trade actions like anti-dumping, on goods like steel. The growth of trade's importance for the developing countries led to greater awareness of how tightly their independence of action was limited by the interventions of their trading partners.

The developing countries also had a new perception of what a successful trade policy was. The example of how the Asian NICs had developed, by moving from import substitution to highly directed export strategies, reinforced by strong advice to other developing countries to copy this strategy, meant that obstacles to exports were seen not just as barriers to static efficiency gains or extra costs, but as constraints on the most successful strategy for development. As many developing countries were lowering their own barriers, the freedom to impose or increase them ceased to be a major reason to avoid active membership in GATT. The perceived advantages of rules and predictability became major reasons for the increased interest of developing countries in the GATT system.

Although the Uruguay settlement on agriculture was less comprehensive than had been hoped, and its effects will be slow to come through, it was the first time agriculture had been included After the implementation period, the settlement opens the possibility of both renegotiation and using other trade weapons against the remaining subsidies and protection. Clothing will be brought in as the MFA is phased out, and this has discouraged the attempts to establish similar mechanisms to control other manufactures, such as shoes.

An important effect of the negotiations was to reinforce the tendency for the degree of regulation in international trade to increase, as it has done within national economies. The increasing complexity of goods traded, the increase in the share of manufactures and also of the sophistication within manufactures, have been important forces for the imposition of minimum quality or other standards. As national rules, for example on product standards or intellectual property, have evolved and the share of trade has risen for most countries, a variety of international regulations have been needed to avoid conflicts. The WTO rules reinforce and add to these. More subsidies are subject to regulation, and the regulations for anti-dumping were made more formal. The services agreement, although only a framework in terms of what may be liberalised, sets out definitions of the type of intervention or control which can be negotiated. The use of sanitary and phytosanitary standards to restrict imports was recognised, and regulated. The protection of intellectual property, hitherto under the World Intellectual Property Organisation, was regulated, with requirements for reform of national legislation. The WTO dispute settlement system was made more formal, reducing the scope for indefinite delay or failure to implement the results.

For the UK, GATT and the WTO had always been seen as important fields of action. Two of the earliest Rounds were held in the UK, and as a major trader in manufactures, it had participated actively in the product negotiations. In the Uruguay Rounds it was an important advocate of including services in the Uruguay Round. Although Brazil is not as important an exporter of manufactures as some of the new participants, it gained from the improvement of access on these, including the reforms to clothing. The extension of WTO coverage to temperate agriculture was beneficial for a major proportion of its exports, while changes in the tropical agriculture provisions of some importers helped these. These exports were among its priorities (Abreu 1993). It took an active part in the negotiations on the rule changes. It pressed for reform on anti-dumping, subsidies, and dispute settlement, and clear rules. Although it had tried, unsuccessfully, to exclude services, investment, and intellectual property from the Round, it accepted the settlement in the end, and put in one of the more extensive offers on services among Latin American countries.

Current issues in the WTO

What will be important for both countries over the next 5-10 years are the issues which were left unresolved in the Uruguay Round and those that have become subjects for international negotiation since 1994. The first that should be mentioned is the full implementation of what was agreed. All the agreements had provision for staged implementation, with for the MFA in particular most of the effect expected to come through in the final two stages, in 2001 and 2005. It can be expected that the interests of the UK and Brazil on these will be the same as in the negotiations. The UK (within the EU) has been active in seeing to enforce the access provisions on major clothing exporters (like India). There is a threat that it could withdraw MFA reforms if its conditions are not met. For Brazil, the reforms promised in internal taxes in its markets on tropical products, the temperate agriculture provisions, and the MFA are the principal points to watch. It has already used the new dispute procedure.

Some questions which had been on the Uruguay Round agenda were left to be settled, notably in services, including financial, telecommunications, and shipping, while agriculture will be reopened as an issue in 1999 or 2000. These are areas in which policy was made during the Round, but Brazilian policy on shipping was changed by the 1995 amendment to the constitution reducing restrictions on foreign participation. Brazil has made new offers on financial services and in the telecom negotiations, both again reflecting national liberalisation since the end of the Round.

The Uruguay Round tried to tighten the regulation of regional groups, through the Understanding on Article XXIV. Following the signing of the agreement, the WTO decided to change from the former position of separate working groups for each region to a Committee on Regional Trade Agreements (CRTA) to consider all new regions. While both the EU and MERCOSUR predate the WTO, and therefore do not come entirely under the new procedures, it will be important to see how the new continuing supervision is applied to all regions, as well as how new regions are treated.

Since 1995, the EU has had a provision requiring that any new agreement into which it enters has to be assessed for WTO compatibility,

and it has also expressed concern about agreements among other countries, with which it trades. The EU Commission prepared a report on preferential arrangements in January 1997, and followed this up with a Council discussion. Both step back from the traditional EU sympathy for preferential and regional agreements. In the past, the EU has been the most active set of countries in forming regions. In addition to its own continuing expansion, it has had a range of preferential agreements with almost every other country. The most privileged are its west European neighbours, even before they joined; others now include also the east European; the Mediterranean countries (classified in different groups); some of its ex-colonies under the Lomé conventions; countries with a special need (for example the Andean countries, to discourage drug exports). The Commission document in particular questions the rules for free trade areas as opposed to Customs Unions (the former cannot raise *applicable* tariffs, while the latter face the tougher constraint not to raise *applied* rates). It also supported strict enforcement of the new WTO rules on preferences on services, as these become more common in regional agreements. It concluded that there was a need for clearer WTO rules (EC, 1997a). The Council statement looks at the EU's own situation, and suggests that it should not enter into new arrangements, although preserving the existing (EC, 1997b). The two papers thus strongly suggest that the EU is less likely than in the past to establish new arrangements and that it will not hesitate to oppose other agreements which are reviewed (taking the view that its own agreements need not come under the new stricter rules). It is not clear if this policy is fully accepted by the members (and both the UK and France have had changes of government since the Council meeting of 29 April).

Brazil will be involved in the new rules as a potential loser from others' groups; as a participant, for example, the new agreements of MERCOSUL with Chile and Bolivia; and potentially as a member of other groups, for example other MERCOSUL agreements, with individual countries or with groups like the Andean Group, or a Free Trade Area of the Americas.

Conventionally these are considered to be the environment, investment rules and perhaps competition policy, and labour standards. It is difficult in August 1997 to write of the UK government position on some of these because the new government is expected to issue a White Paper on Trade and Development in the next two months, and it is clear that it will take a different position on some issues from the previous government.

The environment is probably no longer eligible to be called new, and is well covered in other papers for this conference; it is the questions of an investment agreement and international regulation of labour standards which have become more conspicuous since the completion of the Uruguay Round. On the environment, however, it should be noted that it is likely that the new UK policy statement on trade will include a strong emphasis on international agreements to protect the environment. It was already an interest of the former Overseas Development Administration, and remains a priority of the new Department for International Development. It was also stressed in Labour Party documents before the election. An important point relevant to the WTO is a commitment to protect environmental standards in the context of international trade negotiations, perhaps in particular giving environmental treaties a status above trade rules.

This raises a question, one which will also be important in other new issues (especially labour standards), of how to resolve conflicting multilateral obligations. The present multilateral system has evolved with the various international agencies each operating semi-independently in their respective fields. Although most are nominally part of the 'UN System' (including the international financial institutions, the World Bank and the IMF), coordination has been informal (or non-existent). This situation depended on two facts. First, the obligations under most of them were only semi-official, not a matter of international law. The conditions imposed even by the Bank and the Fund were in the nature of creditors' stipulations to debtors, or, for non-borrowers, only of advice. The only enforcement mechanisms were withholding credit or public criticism. The GATT was always slightly more than this, with a dispute mechanism, but this was in practice more informal than a 'normal' legal system, with discretion about

taking cases or accepting judgements. Therefore, there could not be a serious question of conflict of obligations between them. There were disagreements (the World Bank advocacy of unilateral liberalisation went against the GATT principle of reciprocity and negotiated tariff changes, with obligations accepted on both sides, and its opposition to regional groups went beyond the GATT principles), but these were not conflicts between legal obligations. The second condition for the informal system to work was that the scope of intervention by each was limited. GATT largely confined itself to border measures. Issues like the environment or labour were seen as national questions without international repercussions (even if there was international concern).

Both these pre-conditions for avoiding conflict have now changed. The WTO dispute settlement system is now formal and extends to the new elements of the Uruguay Round. There are already treaty obligations on the environment, and proposals for binding rules on investment or labour. A combination of growing complexity and the normal sequence of each step in regulation revealing new potential needs means that each international organisation is moving beyond its traditional remit. In GATT/WTO, the lowering of border barriers and the growing globalisation of production meant that differences in national practices became more important to determining competitiveness, and awareness of the differences increased. This led to the inclusion of 'trade-related' issues under GATT negotiations. Subsidies to exports, then subsidies to production that could have an effect on exports, became subject to regulation. The protection of intellectual property across borders followed, then even the national mechanisms for enforcing it within countries under the Uruguay Round. It is clear that once the concept of regulating trade-related issues is accepted, this can justify intervention in a wide range of activities. In a modern economy, all production is trade-related. Other forms of intervention, however, have also been extending their scope, most notably multilateral agreements on environmental matters: the Montreal Protocol on the ozone layer, the Convention on the International Trade in Endangered Species, the Basle Convention on hazardous waste, the Biodiversity Convention and the Climate Change Convention. The first two are recognised by the WTO.

If all interventions were brought together in a single set of

agreements, this would force agreement on a hierarchy of obligations, as happens at the national level. But this seems unrealistic. It is unlikely to be a good solution to move all international regulation under the rubric of 'trade-related' into the WTO (the equivalent of basing a country's government entirely on the policy and rules of its Department of Trade). Other regulatory regimes have rationales and objectives that are not based on trade, and in the case of the environment and labour, not even on economic goals. Enforcement through trade may not always be the appropriate mechanism. There will therefore need to be a way of settling jurisdictional disputes between international systems as long as globalisation of regulation remains incomplete. This is in addition to the conflict for each of these between international and national solutions. The Brazilian government has noted these changes (although not pretending to have a solution). Referring to the 'extraordinary broadening of the international agenda', President Cardoso (1995a) asked, 'If we agree that the environment should be preserved, are the existing mechanisms of international cooperation sufficient to do so? How do we balance the universality of humanitarian concerns with the limits of national sovereignty?'

The previous UK government participated actively in and supported efforts to secure an agreement on investment under the auspices of the OECD. The new government's policy, if it follows the lines of Labour party documents, will put more weight on regulating the conduct of transnational corporations, including restrictive practices and tax avoidance, and may take a broader-than-OECD approach. It will still also support legislative changes in host countries to encourage foreign investment. The WTO has advocated bringing any arrangement under it, rather than the OECD. The OECD agreement has not yet been adopted.

Brazil has traditionally opposed international regulation to protect the interests of foreign investors (although it participated in the attempts of the UN Centre on Transnational Corporations, now part of UNCTAD, to develop a code of behaviour for TNCs). It did not want the inclusion of TRIMs (trade related investment measures) in the Uruguay Round. It has, however, relaxed its position to the extent of signing bilateral investment treaties with some major European and Latin American investing countries (including the UK in 1994, France, Italy, Germany, Switzerland, Chile, and

Venezuela). The GATS (General Agreement on Services) that came out of the Uruguay Round included some elements of investment regulation *de facto* in the provisions for establishing a commercial presence. The MERCOSUR negotiations included discussion of company law (and other regions like NAFTA and the EU include provisions on investment). It seems clear that international regulation of the treatment of foreign investment is becoming normal, and the choice is likely to be the same as for trade: between a network of bilateral and regional arrangements and a multilateral agreement. Again as for trade, there is the possibility that even with a multilateral agreement, some bilateral agreements will remain, in order to offer stronger or additional regulation, but it is arguable that a multilateral negotiation will give the weaker countries more leverage against the major investors and will avoid complications from differing agreements. An important element in making agreement more likely is that more countries are both investors and hosts. Countries like the UK and the US have become major recipients of investment, including in 'national flagship' industries and have faced some of the same problems and prejudices in dealing with this as developing countries in the past. At the same time, the Asian NICs, Brazil, Chile and Mexico have become major foreign investors, in their own region and in Europe and the US.

Competition policy and the regulation of restrictive business practices have traditionally been matters for research at UNCTAD, and have not yet secured momentum for multilateral regulation. This might seem puzzling, because of the importance attached to them at an early stage in major industrial economies. There is European regulation of competition in the EU, and MERCOSUL has adopted guidelines for a common competition policy, although MERCOSUR's regime will be based on national agencies. There are, however, significant differences in attitudes to market power and alliances among firms among even the European countries, and much greater between them and the US or Japan. It may be difficult to get a consensus even at OECD level.

In the past, both Brazil and the UK have opposed the introduction of 'social clauses', conditions on human or labour rights, into preferential or multilateral trade agreements. Both are members of the ILO (International Labour Organisation), but have not signed all the conventions that are

normally considered part of core standards. The climate of opinion is moving towards such intervention, however, and only partly because of the trade-related arguments: different rules for the treatment or payment of labour affects competitiveness, and therefore can be considered suitable for international regulation like that for different subsidies or tax regimes. But globalisation, not only of production and trade, but of culture and intellectual awareness, has also contributed to an extension of the same concerns about the treatment of others that are now largely accepted at the national level. For this reason, it would be inadequate (as it would be for the environment) to base any international regulation solely on 'trade-related' effects or criteria. The regional groups are again leading on this (as they did for services, the environment, and investment regulation), with provisions on labour in NAFTA and the EU. The two models, however, are very different. NAFTA regulates only the enforcement of national legislation. In contrast, the EU sets the type of regulation found at the national level for hours and types of work, holidays, discrimination, and health and safety rules. In parallel, the borders are open to labour movement, with supplementary provisions on mutual recognition of qualifications, and rights to health and welfare benefits so that there is at least formally a European labour market, rather than 15 national ones.

The Brazilian 1996 National Plan of Human Rights extended Brazil's adoption of ILO conventions, with national provisions to supplement this, but there appears to be no indication of a change in policy towards accepting international intervention to enforce such rights. In contrast to its predecessors, the new UK government had accepted all the EU provisions on labour rights (the 'Social Clause' of the Maastricht agreement). It has made human rights part of its foreign policy. In its White Paper on trade, it is likely to give at least qualified support to international means of protecting rights. The Labour Party policy statements called specifically for a social clause in international trading agreements to ensure that countries respect the UN and ILO conventions. The current European GSP for the first time included provisions for giving extra access to countries with good records.

The ILO conventions create the framework for regulating labour rights at the international level outside the context of trade. This is appropriate because it is the basic rights, rather than the competitiveness, rationale for

standards which is more intellectually appealing. But it is also the case that the competitiveness argument on its own is weak: if different labour standards are based on internationally acceptable differences in national practices, then this is the type of national difference on which trade is based. A competitiveness argument must ultimately be based on a concept that certain standards are 'unfair', which is a moral not an economic argument, and thus it comes back to the basic rights approach. There is then no justification for only intervening to alter practices in production for export. If certain standards are considered unacceptable, they are equally so in any type of production. Further there is some empirical evidence that export industries tend to have higher standards than others (partly for reasons of international concern, but also because they may be in more modern industries and because there is a lower share of low paid services). It seems inevitable that labour, like the other new issues, will move from national, to regional, to multilateral regulation, and that, again, the policy choice is between bilateral and multilateral regulation. Bilateral regulation (as in the European and US GSP conditions) has a strong risk of being effectively unilateral and protectionist.

New directions in UK policy

UK policy was taking a mainly multilateral approach under the government until 1 May. The Commonwealth was given relatively little importance in trade and investment policy, although the aid programme remains largely defined by traditional ties. The EU's favoured developing countries, the African, Caribbean and Pacific (ACP) countries with which it has signed the Lomé conventions were of course given preferred trade access, because this is determined at EU level, but the UK supported the WTO initiative of Ruggiero to give special access to the least developed countries, a group which includes many, but not all, of the ACP, and which extends beyond them to major South Asian countries like Bangladesh. Broadly speaking, the approach was to liberalise generally, not with special privileges for traditional trading partners or ex-colonies, with any differentiation on the basis of development. Even that would be more limited than in the past, to the least developed, not all 'developing countries'. The WTO might be said to have moved in this direction in its identification of

the least developed countries as a special group for the first time in the Uruguay Round Settlement, with much less favourable treatment for other developing countries, and an implicit move away from the concept of special and differential treatment. It would also be consistent with the apparent new EU approach moving away from regional alliances.

It goes strongly against the traditional EU approach, of keeping a strong differentiation between the Lomé countries and others. The renegotiation of the Lomé concessions in 1998-9 for a new agreement in 2000 will be a major test of how far UK or EU policy has changed. The UK will have the rotating presidency of the EU in the first half of 1998, and will need to initiate the negotiations. The Labour Party documents before the election took a very different approach, strongly supporting preserving a special commitment to the Lomé countries. Although there was a suggestion that this was principally to the poorest ACP countries, there is a view that extending Lomé treatment to other countries is not politically possible, so preserving it for the existing members is the only way to avoid reducing trade access. The Labour Party also supported a revival of interest in the Commonwealth, and in particular a Commonwealth approach to trade and development. This will also be tested soon, with a Commonwealth summit conference in the UK in October 1997. This includes some, but not all least developed countries, as well as a large number of more advanced and industrial countries, so that it will offer an even more extreme demonstration of the choice between a regional and an income approach to trade preferences. At the same time, the WTO/UNCTAD conference on least developed countries will test commitments to them.

The EU's own proposals for the reform of Lomé did not include a broadening option. The four options proposed were: no change, judged unlikely to be WTO-compatible; ending it, and substituting GSP treatment, judged unlikely to be satisfactory to either EU members or ACP countries; a switch to a regional approach (the Caribbean, southern Africa, etc.); or a combination of reciprocal agreements with some countries with a continuation of concessional access for the less advanced. It should be pointed out that it was prepared a year before the recent statements of caution on regionalism (and from a different Directorate General, for development; the regional papers came from the foreign policy Directorate).

The choices that are made by the UK and the EU will affect not only the least developed countries, in and out of Lomé, but other countries. If there is a move away from negotiations in the WTO and a multilateral, developmental approach, to a more regional, there may be a loss of momentum on other multilateral issues, as the EU moves its attention to regional groups (as was perhaps the case in the late 1980s when it was completing the internal market, the 1992 exercise). If there are initiatives, at multilateral levels, they would have to come from the US, but it is also pressing for a regional approach, in Latin America, the FTAA; in Asia, APEC; and perhaps now in the African initiative. There is also the risk that less emphasis on multilateral fora will lead to some acceptance of regional or unilateral action on some of the new issues.

If, however, the income rather than regional criteria are adopted, and if the UK in particular attempts to encourage the WTO initiative for the least developed, this may lead to a sharpening of the distinction between these and other developing countries (and blurring of the distinction between the obligations of the latter and the developed countries). This could replace individual graduation as the way of reducing special privileges for the more advanced. In the Uruguay Round, the NICs of Asia were under strong pressure to join in trade liberalisation, and lowered their tariffs. The current proposals for the least developed envisage some concessions to them by other developing countries as well as by the developed.

Brazil's growing importance in the WTO

Brazil was active in UNCTAD from its foundation (and had been a leader among the developing countries in other UN organisations), but only became an important actor in GATT from the mid-1980s. By 1995, President Cardoso could say (1995b) 'In the trade area, UNCTAD has been replaced by GATT, and now, by the WTO.'

This change was in part the result of the transformation of the role of GATT relative to developing countries that was discussed earlier. Brazil was exporting advanced manufactures which were included in traditional GATT negotiations, and GATT was moving into areas like food and clothing which were important for Brazil. There were additional factors in the case

of Brazil. Its exports of shoes and of iron and steel were subjected to restrictions which led it to take a stronger interest in anti-dumping and other regulatory aspects of trade. Reform of these was one of its priorities in the Uruguay Round (not achieved). If being at the receiving end of anti-dumping measures is a sign of trading maturity, Brazil was mature. Anti-dumping had become the favoured protectionist tool during the 1980s, following after tariffs (before GATT), NTBs in the 1970s and early 1980s, and voluntary export restraints. At first it was principally a weapon used among industrial countries; later it was extended to developing countries, with the most frequently affected countries the Asian NICs, China, ASEAN, and India. In the years from 1985 to 1992, before and during the Uruguay Round, however, Brazil was the most frequently targeted Latin American country, coming in the same bracket as South Korea, China, and Taiwan. In countervailing actions, it was the most frequent subject of all developing countries (Page, Davenport, 1994). It was repeatedly subjected to action from the US under Section 301 measures. It was plaintiff and defendant in the GATT dispute system. It thus could not ignore the importance of the GATT system.

Its liberalisation programme meant that it also conformed to the model of countries choosing to give up import protection tools and emphasising the advantages of exports. Improving its access through GATT negotiations thus became a central part of its development strategy, and preserving the right to increase protection became less important. In the July 1991 review of progress (GATT 1991), Rubens Ricupero, who was acting as spokesman for the developing countries, pointed out that 'without awaiting the conclusion of the Round, we have opened our markets, we have given away our non-tariff measures, our exceptions for balance-of payments protection...Having put aside our weapons, having placed our faith in the system, we cannot afford to wait any longer. We cannot allow the Round to drag on indefinitely.' (The contribution made by Brazil's sending senior and strongly active officials like Ricupero to the Round and now to the WTO both symbolised and strengthened its new role.)

More broadly, the 1980s saw a diversification among developing country interests. The North-South model of international economic relations began to seem too simple, and certainly inadequate for countries advancing

to the level of the major Latin American and Asian economies. Not only were developing country fora like UNCTAD inadequate to protect the interests of countries that were now involved in trade disputes on a range of subjects with the developed countries, but there was no longer a perception of a single developing country interest for them to represent. The breakdown of the Soviet Union and the East European regimes at the end of the decade reinforced the sense that the old blocs were changing, and that action now had to be multilateral. For some developing countries, a possible alternative was a north-south alliance, formal or informal, with a single industrial country (the ACP countries with the EU; eventually Mexico with the US; in a very different form, the south-East Asian with Japan). But there was no obvious partner of this type for Brazil (Saraiva, p. 9). For Brazil, only the regional and the multilateral approaches were available, and it has followed both.

While the important motives for first the agreement between Brazil and Argentina and then MERCOSUL were to be found in political conditions in the region, the Uruguay Round did offer examples of the usefulness of groups. Some of the most important were *ad hoc*, around a particular commodity (Cairns for agriculture, the textiles and clothing exporters) or issue (those, including Brazil, working to modify proposals on intellectual property), but the informal coordination of other, geographical, groups was also effective.

Brazil was active in encouraging the adopting of the GSP scheme in UNCTAD in 1968, and supported a more enforceable regime than emerged (Abreu 1993). Because it was not established under GATT (except through the enabling clause which allowed GATT members to discriminate in favour of developing countries), it was purely discretionary on the part of the countries granting the preference: in its coverage, in the countries receiving it, and in the withdrawal of privileges. This may eventually have encouraged Brazil to go to the institution with more enforceable rules.

Brazil may also have seen a multilateral forum as a protection from bilateral pressures. In 1982, it had been pressed by the US to support the inclusion of new issues under the GATT (Abreu 1993), and the debt crisis of the 1980s had severely restricted its ability to take initiatives on a unilateral

basis. Its enthusiasm for a multilateral approach was limited, however. In spite of having been subjected to US pressure on intellectual property and foreign investment, it attempted to exclude these form the GATT round.

Brazil's interest in temperate agriculture put it in the Cairns negotiating group of major agricultural exporters (those wanting reform of US and EU policy). This gave it the opportunity to take a leading role on what became the major issue of the Round. During the round, in Montreal at the mid-term review and in the abortive attempt to conclude in 1990, Brazil was among the leaders in insisting that a settlement embody substantial agricultural reform.

The process of continuous negotiation which has emerged since the Uruguay Round means that countries which are rich enough (and well-supplied with active diplomats) to maintain a continuing presence in Geneva and participate in negotiations have even more of an advantage than in the past over the less developed. Brazil has continued to participate in these, supplying chairmen to Committees.

A new direct relationship between the WTO and its member is the Trade Policy Review Mechanism, established as part of the mid-term Uruguay Round measures in 1988. Under this almost every member's trade policy is reviewed every 2, 4, or 6 years, according to size. The exceptions (unfortunately for this paper) are the members of the EU, which is treated as a single unit. The reviews are an interesting demonstration of the increase in the scope and the powers of the WTO. Initially, they covered only trade policy related to goods. Following the completion of the Round, and the establishment of the WTO, they were extended to services, intellectual property, and in practice to all investment regulation and company law, going well beyond what is actually covered even now by WTO. They are prepared, normally by the WTO secretariat, on the basis of visits to the country, and documentation from the government, then discussed in the WTO Council. They were intended to be descriptive, even when they found measures that seemed to violate WTO rules, not prescriptive on the model of the IMF country reviews. They also differ from the IMF reviews in that they are published (and are an excellent introduction to countries' economies). Unlike OECD country reviews, the comments in them are not

cleared with the governments. The early reviews (up to about 1990) were purely descriptive. Since then, however, they have become increasingly critical, and the better ones are important analyses of countries' policies. As the WTO does not itself have any direct rule in enforcing its own rules (only a member country can bring a case in the dispute settlement procedure), they have become effectively its nearest approximation to an enforcement mechanism. They are also potential sources for formal complaints by other countries, especially as the discussion of the reports is published with the report, and includes complaints and criticisms by trading partners.

Brazil has been reviewed in 1992 and 1996. In the 1996 review (WTO, 1996), Brazil's liberalisation policy was given a favourable review for the period up to 1994. The WTO noted in particular the recent liberalisation of rules on foreign investment in services and the improving efficiency. It criticised policy after 1995, noting 'A series of potentially trade distorting measures taken since 1995 stand in sharp contrast to Brazil's general record of reform, but the context suggests lapses in implementation rather than a policy reversal.' (WTO 1996). It supports greater coordination of policy.

EU, MERCOSUL, and the WTO

In terms of open activity in the Uruguay Round, Brazil of course played a much larger role than the UK, not because its trade was more important or because the WTO will have a greater impact on it, but because formally the EU now negotiates for its members on trade policy for goods. The position on other questions was more complicated, and offers a useful warning to other regional groups on the complications of international negotiations when a group is still in process of formation. Some of the services being negotiated in the Uruguay Round were under EU competence: those which are actually traded; some are still under individual members, if they are provided within a country, even if by a foreign national; some were shared, particularly those which involve regulation. Intellectual property was basically national, but being moved to EU level. Investment and competition policy would have involved both. During the Round, only the countries were members; on EU matters, one representative spoke; on others,

all could speak. The negotiations were complicated, however, by the fact that on some of the most important matters (for example in agriculture) reform negotiations were going on simultaneously within the EU, so that there was not yet a single Community position. On others, competence was being transferred, because of the reforms leading to the Single European Market. In the WTO, the EU was admitted as an additional member, and the Marrakesh agreement was signed by the members and by the EU (and eventually ratified by both) to avoid any question of legitimacy.

The only other customs union participating in the Uruguay Round was the Southern African Customs Union (SACU), with South Africa, Botswana, Lesotho, Swaziland and (from its independence in 1990) Namibia. Here the dominant position of the South African economy meant that effectively it negotiated, and the others then put in nearly identical offers. This required all of them effectively to reverse their positions, along with South Africa, in the final year when the new South African regime was putting in a substantially more liberal offer. It also meant that all five were *de facto* treated (by South Africa's choice) as developed countries (with minor exceptions in some implementation periods). As three of the other four are developing, and Lesotho is least developed, this imposed significant extra obligations on them which other countries of their level did not accept. Now, at least the two larger are questioning whether the South African tariff structure is appropriate for them (they are importers of capital goods, with competitive labour costs; South Africa protects its industries).

It is true that such problems did not only arise for regional groups. Some of the services agreements impinged on matters reserved to individual states in the US, and any financial agreement would also require their participation. For both the US and the EU, the question of shared authority has always been a problem in negotiations. As the scope of the WTO extends, however, this must increase. Although simultaneous, the integration process of the EU is unlikely to be able to keep ahead.

The need to have side negotiations within the EU caused delays and frustrations to other member, while for the major country simply to ignore the smaller countries may have created long term difficulties for SACU. It will be important for customs unions and the WTO itself to find

more satisfactory ways of negotiation in the future. Most of the new regional groups being formed among developing countries are free trade areas, which do not need to negotiate as a unit, provided they keep their internal rules of origin effective. It should be noted that the massive extension in the role and in the complexity of rules of origin (NAFTA and, in consequence, the Group of 3 and other agreements including a NAFTA member, are particularly stringent) means that they are likely to become a major issue in international negotiations.

MERCOSUL, however, will need to act as a customs union, In any future negotiation on tariffs (which could come in October 1997 if there are proposals for developing countries to offer concessions to the least developed), they would need to coordinate their position. It is possible that it would only be the 'upper middle income' countries that would be expected to make any concessions. This would include Brazil, Argentina, and Uruguay, but Paraguay is 'lower middle income'. This would bring the same difference in interests found in SACU. In the services negotiations, so far, there has been no question of MERCOSUL participation, because these are still matters of national competence, although there are working groups on them. As in the case of the divided competence of the EU, if there are mixed negotiations, it will be necessary to find a formula to allow MERCOSUL to negotiate and ratify part of an agreement and the members, the rest.

The question of whether MERCOSUL should itself be a member of the WTO is not really significant for settling these problems. The EU only became a member in 1994, 30 years after completing the customs union, and it has not alleviated the conflicts. Nor would a stronger MERCOSUL secretariat be a sufficient solution. Although it could make coming to a joint position more efficient, and signal the need to do so, taking a position is likely to remain a matter of country policy for some time to come.

The European community and its expanding membership changes has been notified to the GATT, under the rules for regional arrangements in Article XXIV. Following the GATT procedure, a working group was set up to examine and report on each notification, but no consensus was reached, and therefore the EU remains a notified, but neither approved nor

disapproved group. It has been subjected to the rules on compensation for changes in average tariff levels, although these have more often been settled by negotiation than by formal mechanisms.

MERCOSUL was notified to the GATT before the new rules came into force (although initially it tried to be treated as an agreement under the ALAIA rules for bilateral agreements; it was only notified to GATT in 1992, after being established in 1991; ALAIA has also been notified to GATT). As all the members are developing countries, it applied to be treated under the more liberal rules for developing countries, but it was decided, because of pressure from other countries, to treat it partly under this, but also that it should be examined under Article XXIV, which governs all regional groups.

The treatment of regional groups by the GATT and WTO is necessarily cautious. On the one hand, reducing trade barriers is encouraged, but on the other discrimination among GATT members is contrary to the Most Favoured Nation principle. The theoretical justification for regulating them is the Vinerian analysis of trade creation (which is good, and comes because the members of a group can trade more efficiently with each other) and trade diversion (which is damaging to members and outsiders: still-high tariffs on goods from the rest of the world can mean that members are now trading more with each other than would be efficient, and therefore diverting trade from other partners). From a welfare point of view, clearly even if world welfare is improved (trade creation exceeds diversion), the welfare of the excluded countries will be at best left the same (no trade diversion) and more often damaged (unless there are dynamic effects). But of course every individual country is a customs union, so the distinction is being made between existing units, which are allowed to discriminate against the rest of the world, and new groups (which may ultimately, as in the case of the EU, take on many of the normal international and domestic characteristics of a country). The regulation was designed as a compromise to encourage trade creation, discourage diversion, and at a minimum provide transparency.

To avoid deliberate discrimination which could encourage intra-union trade in those goods in which the group is not itself competitive,

while avoiding trade creation which would be at the expense of one member's producers, the GATT rule calls for 'substantially all' trade to be included; it requires the new common tariff (in the case of customs union) to be on average no higher than the average of the members before joining (not, in fact, a sufficient condition to avoid diversion, but it moves in the right direction); and it requires this to be notified to the GATT, to be considered by a committee, and subject to review until it is completed in a 'reasonable' period of time. The words 'substantial' and 'reasonable' and the reliance of GATT on consensus, rather than votes, on working group reports, ensured that no group was disapproved, and only two existing ones are approved. The Uruguay Round agreement included an Understanding on Article XXIV which attempted to tighten the definitions and the calculation of the average, and later a Committee on Regional Trade Agreements was established to give a more consistent approach than that by the *ad hoc* working groups. With the addition of services, a parallel provision was built into the GATS (General Agreement on Trade in Services) (calling for complete integration). Necessarily, any regional agreements on matters not (or not yet) in the WTO are not examined. Discrimination on investment, excluded services, labour mobility, etc., remains permissible.

More important, however, these reforms continue to ignore the central difficulty of regional groups for a regulatory system like the WTO. They are not formed principally for economic, trade, motives. Their effects on other countries, and those countries reactions to them, will also be governed by political considerations more than by trade. This does not mean that it is not useful to calculate the economic costs and benefits of a region to its members and to those excluded. But it probably means that the question of compensation will necessarily be negotiated (just as the conditions of membership are for those who join) in order to be able to allow for the non-trade costs and benefits, at least in an *ad hoc* way.

The principal advantage of the WTO supervision is that of transparency. As in the services notifications, which were frequently only notifications of existing rules, not liberalisation, having full information, in a uniform form, presented and discussed by trading partners, is a major gain. The WTO does not have the political structure to deal with choices between economic and other gains or losses. Unlike regions, it is not itself

a politically-motivated organisation and does not have political institutions, so that it cannot have the competence to deal with these.

An issue which is being raised in discussions of international regulation of regions(for example in Serra, et al, 1997) is whether they should be 'open' in the sense that they should have fixed rules for new entrants, and be effectively required to admit new members that meet those criteria. It is argued that this will reduce the potential damage from discrimination, as non-members have the option of joining. This appears to be inconsistent with the political dimension of regionalism (unless the criteria were defined so clearly in political, and often military, terms as effectively to exclude all but the present members). More important, it ignores the fact that regions evolve. What they include, changes, and the rules and procedures change. Even the WTO, which comes closer to a purely rule-oriented, economic organisation, has lengthy negotiations with each new member (or rejoining one, like China) to fit it into the detailed structure of different obligations and privileges that have evolved for each type of member.

The growing importance of regions means that there will be new pressures to regulate them, in the WTO and elsewhere. This will be particularly important for the two major customs unions, the EU and MERCOSUL, and may serve to draw them together, even if the formal framework of cooperation signed between them does not go further. It will be important for them to stress the distinction between those regions which are simply groups which have chosen to go slightly faster or sooner in the direction of liberalising or integrating on the new issues than the world as a whole and those regions which are intended to be more than temporary economic alliances, and which therefore have some justification to be treated as effectively more like countries in terms of obligations and responsibilities to the WTO (or other international organisations).

Final comments

Both the UK and Brazil combine their roles as independent economic powers, members of strong regional organisations, and active members of the WTO. It is inevitable that both will find fluctuations in the attention which they need to give to each level, and that there will be changes

in policy because of governmental changes. But their experiences at the regional level will mean that they will be more prepared at least to consider the possibility of introducing new issues at the multilateral level than countries which have less experience of negotiation.

The WTO is at an important stage in its evolution because it is simultaneously acquiring a stronger regulatory role and greater self-confidence as an organisation to make its own judgements. The first is an essential element in a more complex and globalised world, to give certainty and predictability to decisions that affect not only countries but private business and individuals. The second has happened almost accidentally, partly because the organisation needed to take the initiative in the stalled Uruguay Round negotiations, but partly no doubt because of the example of the international financial organisations. It will be important to ensure that the two functions are never confused. The decisions under the regulatory function should not be subject to changes in opinions about appropriate policy on the part of the organisation (as has happened in other international organisations) because they have legal force, and need consistency. Perhaps members will want to reconsider whether it is right to exclude the WTO from the enforcement process, thus encouraging it to make its views known through opinions rather than formal mechanisms. The experience of members of regional groups which have needed to develop political, consultative, and legal structures to supervise economic rules will be useful for this.

Table 1 - Trade Flows

Brazil								
	Exports				Imports			
	1990		1995		1990		1995	
	$ million	%	$ million	%	$ million	%	$ million	%
MERCOSUL	1,385	4.4	6,154	13.2	2,443	10.8	6,821	13.7
Latin America	3,636	11.6	10,739	23.1	3,893	17.3	10,185	20.5
All developing	9,556	30.4	20,032	43.1	10,095	44.8	19,505	39.2
UK	945	3.0	1,326	2.9	460	2.0	975	2.0
EU	10,220	32.5	12,912	27.8	5,259	23.3	13,700	27.5
All industrial	21,383	68.0	26,112	56.1	12,499	55.5	29,762	59.8
Total	31,414	100	46,506	100	22,524	100	49,783	100
Total as share of world trade		0.9		0.9		0.6		1.0

UK								
	Exports				Imports			
	1990		1995		1990		1995	
	$ million	%	$ million	%	$million	%	$ million	%
Brazil	589	0.3	1,067	0.4	1,269	0.6	1,535	0.6
MERCOSUL	768	0.4	1,635	0.7	1,620	0.7	2,036	0.8
Latin America	3,028	1.6	4,412	1.8	3,917	1.8	4,911	1.9
All developing	35,300	19.1	51,345	21.2	34,053	15.3	48,692	18.5
EU	106,455	57.5	129,095	53.4	128,675	57.7	134,647	51.0
All industrial	148,204	80.0	178,782	73.9	187,450	84.1	203,770	77.3
Total	185,172	100	241,790	100	222,977	100	263,760	100
Total as share of world trade		5.5		4.8		6.4		5.2
Source: IMF, *Direction of Trade Statistics*								

Table 1 - Domestic Importance of Trade and Foreign Investment

Brazil			
	1975	**1990**	**1995**
Share of exports in GDP	7.1	7.8 *7.5*	7.0 *6.1*
Share of imports in GDP	11.0	6.1 *5.4*	8.4 *7.2*
Total Trade Share	18.1	13.9 *12.9*	15.4 *13.3*
Share of foreign investment in investment		1.0	3.0[a]

UK			
	1975	**1990**	**1995**
Share of exports in GDP	25.4	24.2 *10.3*	27.0 *12.6*
Share of imports in GDP	27.2	26.9 *11.4*	29.9 *14.7*
Total Trade Share	52.6	51.1 *21.7*	56.9 *27.3*
Share of foreign investment in investment		17.0	6.6[a]

Note: Numbers in italics exclude trade with MERCOSUL for Brazil and with the EU for the UK.

Source: IMF, *International Financial Statistics*
UNCATD, *World Investment Report*

[a] 1994

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Fourth Panel - Science and Technology: Brazil and the United Kingdom

Biotechnology in Brazil and in the United Kingdom: Possibilities for Cooperation

*Antonio Paes de Carvalho**

Biotechnologies are understood as technologies which incorporate living beings (or their special by-products) as elements in the industrial production of goods and/or services. The living being may be part of a process and/or the actual final product.

The present paper focuses primarily on enterprises that: (a) produce biotechnological innovation, by developing new methods, processes and products; and/or (b) develop and produce critical equipment and/or supplies for biotechnology R&D and for biotech based industrial production. Little space will be given to enterprises that restrict themselves to the acquisition and use of biotechnological supplies and processes in their production lines of goods and services. These are looked upon as markets for truly biotech companies.

As a consequence of the above limitations, we shall focus on the small and medium size biotechnological enterprises (biotech SME's); but will also consider large and medium size enterprises which are active both in biotech R&D and biotech based industrial production.

Alongside the entrepreneurial actors in biotechnology, the proximity between scientific research and industrial development in this sector forces

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us to consider interactions with and among scientific institutions in each country. Those institutions are also responsible for education and training of experts in the multiple working areas of biotechnology R&D and industrial production.

The institutional and regulatory environment for furthering binational cooperation and business in biotechnology is discussed. Government financing of science related to biotechnology; incentives to the technological modernisation of industry; support of R&D initiatives between small/medium size enterprises and the knowledge generators within the scientific institutions (with special reference to technology parks); and the role of small and medium size enterprises as partners and contractors for large industry, are basic issues for the effective flow of biotechnological innovation through production and commercialisation channels towards costumers, for the final benefit of society.

The present comparative analysis of biotechnology in both countries will hopefully set the stage for better cooperation mechanisms. Opportunities for new alliances and partnerships are discussed, including prospects for small, medium and large enterprise involvement in the local and global networking of biotechnology.

Potential markets and opportunities

Most of the global demand for biotechnological products and services lies within the following large economy sectors:

- **Human and Animal Health / Pharmaceutical Industry**: novel diagnostics, vaccines, drugs and therapies. Biodiversity based drug discovery; gene therapy; industrial quality control and sterilisation; microorganisms, plants and animals (transgenic or simply improved) that produce biomolecules of medical and veterinary interest.
- **"Agribusiness":** modernisation and innovation in agriculture, cattle breeding, industrialisation and commercialisation of foods and beverages. Genetic markers and transgenesis for genetic improvement and nutritional value; biopesticides; modern diagnostics for phytosanitary control; biofertilizers; post-harvest technologies; integrated food quality control systems from agricultural production to final consumer; food

processing; biomass production for other industrial usage (e.g. energy, chemicals, food additives).

- **Energy, Mining, Environment and Sustainable Development**: energy from renewable biological sources; oil field biotechnology; bioprocessing of low grade mining wastes; biological treatment of industrial and urban wastes; pollution detection; bioremediation of degraded/polluted environments (soil, water); characterisation and preservation of the biochemical and genetic biodiversity within ecosystems; sustainable and productive usage of the biodiversity; certification of products for environmental quality.
- **Equipment, Supplies and Ancillary Technologies for Bioproduction**: special equipment and supplies for bioindustrial production (biochemical engineering, integration of biosensors and biochips) and for R&D activities in biotechnology (molecular biology supplies and related equipment); data processing applied to the storage and use of biochemical and genetic information; high throughput screening robotisation; isolation and characterisation of biomolecules of industrial interest; information technologies for the management of environment and biodiversity.

Table I shows the approximate market size of these Sectors in the UK and in Brazil. The appreciation of the size and structural complexities of these sectors constitute an important basis for the estimation of target niches for biotechnology companies. Table I shows for each case a gross estimate of the potential market for improved or novel biotechnologies developed by biotech industry. It also shows in parenthesis the percentage of the total sector market used for the estimation.

Internal market elasticity in the four classical sectors listed in Table I is relatively small in a developed economy such as the United Kingdom. The UK uses already most modern traditional technologies in health, agriculture and environment. However, the penetration of these internal markets by modern British biotechnology is just now starting to increase.

Table I

GROSS ESTIMATES FOR 1996 POTENTIAL MARKETS OF BIOTECHNOLOGY INDUSTRY IN THE UNITED KINGDOM AND BRAZIL (Values in US$ millions)				
	UNITED KINGDOM		BRAZIL	
	TOTAL MARKET	BIOTECH MARKET	TOTAL MARKET	BIOTECH MARKET
ECONOMIC SECTOR				
HEALTH	45,200	4,520 (10%)	29,250	2,925 (10%)
AGRIBUSINESS	70,835	3,541 (5%)	158,756	7938 (5%)
ENERGY & ENVIRONMENT	46,800	936 (2%)	55,704	1,114 (2%)
EQUIPMENT & SUPPLIES (for above)	20,000	3,000 (15%)	48.742	7,311 (15%)
TOTAL	196,000	11,997	292,182	19,288
National GDP	935,200		696,300	
% of GDP	20.1%	1.28%	42.0%	2.8%

UK Estimates for total economic sector market: sectorial GDP for 1995 with 2.5% growth projection; US$1.51 = £1. **Health**: 40% (Education, Health, Social Work). **Agribusiness:** 100% (Agriculture, Forestry & Fishing) + 40% (Wholesale, Retail & Catering). **Energy & Environment:** 5% of total GDP; **Equipment & Supplies:** 20% (Health, Agribusiness, Energy & Environment).

Brazil estimates for total economic sector market: **Health**: 150% (Health, Education & Welfare Federal Expenditures in 1996); **Agribusiness:** 100% Agriculture + 10% Industry + 20% Services; **Energy & Environment**: 8% total GDP; **Equipment & Supplies**: 20% (Health, Agribusiness, Energy & Environment).

Sources:

- *"Country Report: United Kingdom - 1st Quarter 1997", The Economist Intelligence Unit, UK;*
- *"European Biotech 96: Volatility and Values", Ernst & Young Third Annual Report on the European Biotechnology Industry.*
- *IBGE, CNPq*
- *ABRABI (best estimates)*

According to Ernst & Young Third Annual Report on European Biotechnology (1996), there were in the UK in 1995 about 160 dedicated biotechnology companies which together had revenues of nearly US$ 360 million. This study did not take into account medium and large corporations which have their own "in house" biotech teams (like Unilever, Shell, BAT and Glaxo-Wellcome, to name but a few). These large companies probably spend circa US$ 500 million per year in their biotech efforts. Albeit they are geared for the World Market, they still occupy a sizable slot in the British demand for biotech. Also, the globalisation of the technology market will make it hard for British biotech enterprises to hope for more than a percentage of the US$ 12 billion UK internal biotech market, say 30%. One might tentatively conclude that British biotech companies might have space at home to treble their present revenues. Beyond that, signs of market maturation and saturation would ensue.

On the other hand side, a significant increase of the British biotechnology revenues may occur in other markets outside its borders, either as a competitive supplier of new technologies and new applications, or as supplier of capital. The competition with other local and international suppliers of biotechnology will be fierce but highly compensatory in the large central markets existing today (chiefly the US). The exploitation of these large central markets will certainly be led by the larger companies, but they will have to resort to strategic alliances with small and medium dedicated biotech companies in order to be competitive in innovation. Such alliances have been going on for some time and have been reviewed elsewhere (c.f. the Ernst & Young series on the main Biotech Markets in the past few years).

Beyond the large central markets, globalisation is bringing to the fore interesting emerging markets. These emerging markets and their culture are evolving rapidly towards modernisation, but they still pose difficulties to foreign small and medium companies, biotech or otherwise. Large multinational companies are present and are often dominant in certain niches. They bring their competitive technologies and if necessary, their own small and medium high tech partners. But the unattached SME will face large non-tariff entry barriers, among which distance and little knowledge of the local scenario looms high.

Latin America, led by the expanding Mercosul is an interesting emerging market for biotech companies. Brazil occupies an important strategic position in Mercosul. With nearly 75% of the British GDP, three times its population and about 34 times its territorial extension, sunny Brazil is an important world asset where food, water and biodiversity is concerned. Agribusiness is a strong sector in Brazil today. Yet, a sizable portion of its agricultural frontier remains undeveloped and its biodiversity untapped, awaiting for knowledge and technologies that will bring them to the realm of a socially and economically sustainable development. It is also a country of huge inequalities, both in actual development and in distribution of income, education and health. Huge and complex problems await good technological solutions.

The scenario for Brazilian Biotech is therefore positive. It is felt that progress in this arena can be powerfully expedited if Brazilian entrepreneurs and scientists match their efforts with technology and investment brought from abroad. Predominance of traditional biotechnologies in our ample agribusiness constitutes a prime target for modernisation in biotechnology. The increase of the purchasing capacity of the lower income half of the population tends to expand the internal agriculture market and to force several mechanisms of expansion of the Brazilian potential in this sector. Expansion of traditional and modern biotechnology applications are also expected in energy, mining and environment, stimulated by international agreements as those enabled by Rio 92 due to new requirements as ISO 14,000. Expansion is also expected in modern biotechnologies markets turned to human health, with special reference to tropical diseases. Action in all these fields has been spurred further by the approval of the new Law of Patents.

Interesting as it may be, the Brazilian biotech market will move towards a presence in the global markets. Partnering in Brazil is therefore an interesting basis for unattached SME's to experiment in partnerships, strategic alliances and joint ventures, towards development of a strong basis for international expansion in a critical country in the Americas.

The biotechnology enterprises

The 160 UK enterprises active in biotechnology recorded in the study of Ernst & Young ("European Biotech 96: Volatility and Value", p.11, Landscape of Biotechnology Industry) represent over 27% of the 584 enterprises active in biotechnology in the European Union. Among those 160 British biotechnology enterprises, the study singled out 27 as small and medium size enterprises of high technical and scientific competence in innovation. As mentioned above, British biotechnology also counts on the important contribution of multinational corporations that keep R&D Centers in the United Kingdom. It is quite interesting to note that the 27 enterprises represent 31% of the enterprises of this type in the European Union.

UK biotech companies are not only European leaders in their areas. They can also be singled out in Europe for their success in attracting investment, both as venture capital and as publicly traded equity. The London Stock Exchange is the European pioneer in the capitalisation of such structures. The seven main British biotechnology enterprises had, at the end of 1995, a market value above US$ 4 billion. In that year they had revenues of almost US$ 200 million, employed 2,364 people and spent US$ 105 million in R&D activities. Yet, European biotechnology numbers are modest when compared to American biotechnology (2.23 times more companies in America employ and produce approximately 9 times more than their European counterparts). What characterizes the UK as a biotech leading country is the excellence of its biosciences and its world class innovative capacity at the entrepreneurial level.

The majority of the British biotech enterprises deals in the Human / Animal Health segment, seconded by the Equipment and Supplies segment. Agribusiness seems to be a smaller but rising client of advanced biotech in the UK, as elsewhere. Several UK biotech SME's work in partnership with larger companies, and research contract outsourcing seems to be a common practice. The excellence of this contingent of specialised enterprises has attracted attention of companies from other countries, not only in Europe but in the United States and Asia as well.

In 1993, a study performed by ABRABI ¾ the Brazilian Association

of Biotechnology Enterprises ¾ listed in Brazil 250 enterprises with some type of productive activity in biotechnology, several of which were engaged in innovation of their products and services and in the modernisation of their productive technologies. Arranged by sector as in Table I, the clustering of companies is as follows:

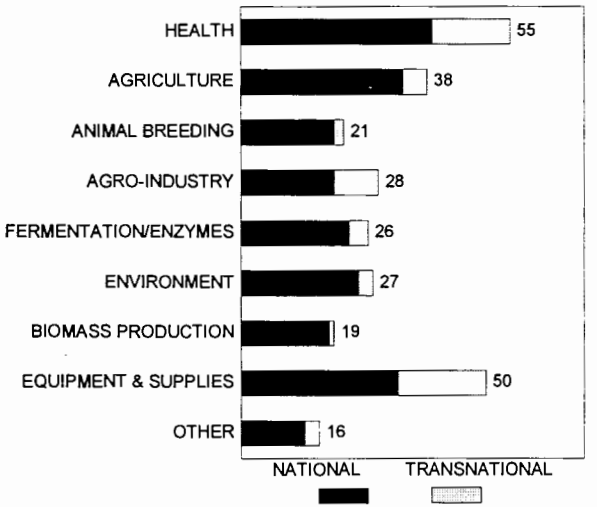
- Human and Animal Health (including pharmaceutical industries): 28%
- Agribusiness (including biomass production): 40%
- Energy, Environment and others: 15%
- Equipment and Supplies: 17%

Figure 1 (next page) shows the spread of these companies in different areas (numbers add up to more than 250 because some companies are active in more than one area). It also shows the relative prevalence of national and international control in each area.

Figure 1

BIOTECHNOLOGY IN BRAZIL

250 National x Transnational Companies in 1993



Source: SINBIO
(ABRABI/BIO-RIO)

In 1995, Américo Craveiro (Vallé S.A.) carried out a careful study on Brazilian biotechnology enterprises in collaboration with ABRABI (Latin American Directory of Biotechnological Industries, see http:// www.bdt.org.br./dbt/biotech/?index). He showed that 76 enterprises were responsible for the R&D activity requirement. Among them, the 20 largest companies (of which half was Brazilian-controlled) ranged in annual sales from US$ 21 million to US$ 1.5 billion. Unfortunately, the data was not refined enough to allow an estimate of their biotech revenues per se. ABRABI's best guess for biotech sales of produces and services in 1996 Brazil is in the range of US$ 500 million.

The scientific ambiance of biotechnology

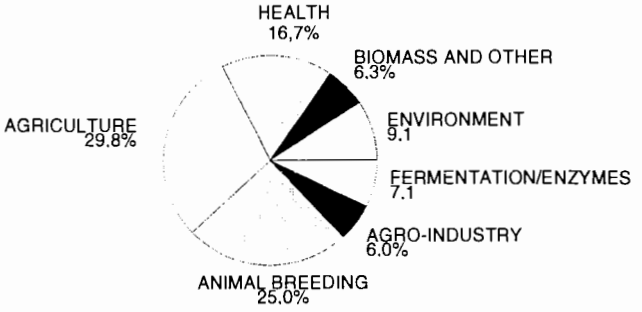
Brazil is the largest science producer in Latin America and second only to India in the developing world. Nearly 40,000 scientists work in universities and governmental institutions. The employment of scientists and engineers by industry is still small by comparison (probably around 10% of the total). This effort amounts to less than 1% of world science and Brazil has one scientist per 4,000 inhabitants, a ratio nearly 1/10 of that found in developed economies. Brazilian Science funding depends mostly on the Federal Government Agencies. With the exception of São Paulo, other State Agencies are virtually inoperative. Research funding by enterprises only recently has received some incentive. According to CNPq's "National Indicators of Science and Technology 1990-95", private and state companies have spent US$ 1.8 billion in R&D, which amounted to 30% of the national expenditure. The country as a whole is still spending less than 1% of its GDP in Science and Technology. Furthermore, if we were to scrutinize expenditures one would certainly note that truly innovative research projects linking academia and industry are still a small part of the whole Brazilian effort.

In Brazil, as in other emerging economies in colonial America, research in the biosciences (health, agriculture and "natural history") developed well before scientific activities took root in physics, chemistry and engineering. Biosciences represent still today nearly 40% of Brazilian Science in all fields, and more than that in scientific productivity (papers in

refereed journals). In gross terms, the State of São Paulo represents about 50% of the scientific effort of the country, with 20% located in Rio de Janeiro. Another 20% is represented by Minas Gerais and the southernmost States, especially Rio Grande do Sul. The rest of the country shares the remaining 10%.

Biotechnology related R&D activities take place mostly (about 80%) in Governmental Institutes and Universities. Most of them are Federal Institutions, with the sole exception of the State of São Paulo, in which the State Universities and Institutes are amply dominant. ABRABI listed in 1993 a total of 266 groups active in biotechnology-related research and development, some of which were large institutions by any standards (e.g. FIOCRUZ, in Health; and EMBRAPA, in Agriculture). Figure 2 illustrates the distribution of these groups by area of interest. (By "group" we mean a scientifically independent operational unit composed of at least one scientific leader and 4 assistants/graduate students, engaged in a clearly defined scientific project.)

Figure 2
BIOTECHNOLOGY IN
Public Institutional Biotech R&D in 1993: 266 groups (*)



Source: SINBIO (ABRABI/BIO-

Institutions engaged in biotech-related R&D harbor around 3,200 scientists and engineers (by engineer we mean the bearer of any higher education university degree in the sciences and/or the university level professions). Beyond producing good science and technology, their task is to educate and train scientists and engineers for both Academia and Industry, in order to bring to the scientific labor market enough people to support a sizable increase in industrial R&D and to spur the emergence of dedicated biotech SME's.

What is the size of the educational task imposed on the Brazilian scientific community ? Let us suppose that indeed there is in Brazil a potential biotech market of nearly US$ 20 billion, to be developed in another 10-20 years. Suppose also that Brazilian Biotech SME's should try to secure for themselves at least 10% of this market. Consider also that the average biotech SME needs one scientist/engineer for each US$ 150,000 of annual revenues. It follows that Brazil would need to incorporate in industrial jobs around 13,000 scientists/engineers until Year 2007, in order to reach that rather modest goal in 20 years. Taking into consideration different types of inefficiencies, the Brazilian science education system would have to turn out at least 25,000 trained people in 10 years. This task is too large for the number of groups and people involved today. Their present rate of graduation is of the order of 500-700 M.Sc and Ph.D. degrees annually.

Considering the above, one may draw the tentative conclusion that Brazilian biotech related science can use all the support it can get from abroad to accelerate scientific education. This conclusion has to be qualified by the fact that we have enough graduate education activity to provide for formal courses in Master's and Doctor's programs; what is lacking is the chance to offer to enough good candidates the occasion to participate in a "bona fide" research project, under adequate scientific leadership, geared for the exercise of the full spectrum of scientific activity: from project planning to reaching measurable goals.

The Biotechnology and Biological Sciences Research Council is the main Government body in charge of research, development and scientific training for biotechnology in the UK. Biotechnology based research is also present within the realm of other import councils, such as the Medical

Research Council. British cooperation in the education of Brazilian scientists and engineers has been a healthy reality for most of the century, especially after the 60's. This is particularly true of medical and agricultural sciences, and more recently of biotechnology related sciences as well. Due to marked differences in the graduate program curriculum and educational strategies (Brazil has adopted the American style Master's and Doctor's program, with an obligatory course of disciplines; in the UK, graduate studies imply almost only independent reading and research work by the degree candidate) it would seem best if students were exchanged after a considerable degree of scientific cooperation is developed between the Brazilian base and the UK laboratory. It is likely that the best interest of both sides will be better served if exchange of trainees are arranged around concrete research programs.

Besides cooperation in education and training of scientists, there is a role to be filled: that of collaborative research involving not only students and research centers, but also associated biotech SME's on both sides. This ideal situation demands an interlocking of interests that will be best discussed in the following section.

The flow of knowledge, technology and investment

Biotechnology is at a stage of development in which it must reside in or very near institutions where fundamental knowledge on molecular biology is being made. There is no doubt in our minds that fundamental research is an extremely important asset where biotech innovation is concerned.

It is no longer admissible that biotech intermediary R&D should use without reward the ideas, discoveries and inventions made by "basic" scientists. The existence of a flow of both knowledge and funding exists today between Academia and the Biotech Industry. On the other hand, large global enterprises display impressive R&D budgets in the billion dollar range. But they have an increasing difficulty in channeling this money to really innovative endeavors inside their domains. Mainly for this reason,

and for the competition for better products for the larger markets, transnational giants are using R&D project outsourcing and partnering with dedicated biotech SME's, wherever the appropriate combination of creativity and reliability can be found. By using SME's more than they resort directly to Academia, large corporations are rationalizing their interactions with science. SME's function here not only as a contractor, but also as a source of fundamental knowledge, what they do well owing to their close proximity to Academia. It is a fact that dedicated biotech SME's spend 15-40% of their revenues in subcontracting work at university laboratories.

The combination of the two concepts above ¾ science-industry flow of knowledge and funding and the universal tendency to outsource R&D through dedicated biotech SME's ¾ leads us to propose a flow chart for bilateral cooperation in biotech, as shown in Figure 3.

Brazil research institutions and their scientists have always maintained strong relations with their counterpart entities and peers throughout the developed world. The United Kingdom has been important in this action. On the other hand, modern times have taxed severely the spontaneity of these relations in several countries, due to both budgetary constraints and the growing connection between high level science and competitive innovation in the global market.

We do not wish to cast doubt as to the continued validity and cost effectiveness of purely scientific interactions in education and fundamental research. However, we submit that the knowledge interchange in biotechnology and related advanced technologies will be easier and flow stronger if research institutions in both sides are linked to the chain of actors that lead to the markets of products and services in health, agribusiness, environment, equipment and special supplies, in Brazil and worldwide. The reason behind is that such links create the environment for diverting into science and technology a fraction of investment in business.

Figure 3

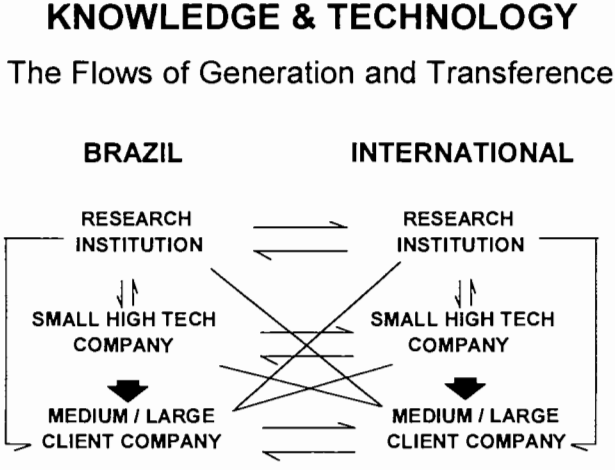


Figure 3 depicts parallel systems for the flow of generation and transference of knowledge and technologies between Academia and Industry. In the international set, developed countries do that today either by direct contracts between large companies and universities (the traditional way) or by partnering and outsourcing through small, dedicated, high tech companies (the modern way, discussed above). On the Brazilian side, this modern flow through dedicated SME's is largely theoretical. Brazilian research excellence is 10% of that needed for equilibrium with the existing target market demands. This ratio is perhaps more critical in the modern biotechnologies. Furthermore, the concept of SME's dedicated to innovation is indeed recent in Brazil. Mechanisms to allow for the deployment of private investment in such companies are still in the conceptual and maturation stage, as well as the work force to man them. Decisive efforts in this direction started in the 80's with the first science parks and incubators around our main centers of knowledge in Academia. The science parks, technology parks and incubators number over 70 throughout Brazil. To take an example, the Bio-Rio Science Park, a private initiative occupying 200,000 m2 in the campus of the Federal University of Rio de Janeiro, houses today fourteen SME's. Of these, eleven are "incubator companies" and three have already set up their own buildings

on park land. All of them are present in the market with their products and services. Their 1996 revenues bordered on US$ 5 million. Yet, none of them had access to public money. All were initiated with very small amounts of owner's capital. As a result, albeit strong interactions with academia, they market today good non-proprietary technologies only. Financing has been equally difficult due to the high interest rates prevalent in Brazil and to rather stiff conditions for loan collateral. Only recently this situation began to change. Venture capital is appearing in more significant amounts. Public capital is also becoming available to innovative SME's through an over-the-counter stock trading system recently regulated by the Securities Exchange Commission.

It is clear that Brazilian medium and large companies still have to resort strongly to the purchase of technology abroad. This has been their way into the club of the ten largest economies in the world. More often now, they find that really competitive frontier technologies are no longer for sale: they are available only through co-investment and partnering. In their effort to be competitive, they continue to resort to partnerships abroad. There are many instances of joint venturing between established Brazilian companies and their foreign technology providers, and this is certainly an immediate avenue for further cooperation in biotech between Brazil and the United Kingdom. Such ventures have the advantage of direct access to the Brazilian market. However, no true maturation of the science-industry flow will occur in Brazil until a healthy competitive sector of high tech SME's appears, in order to provide advanced technologies, products and services in Brazil. This is perhaps the greatest present challenge for international cooperation in Brazil at this moment.

We suggest that stepping up efforts to promote strategic alliances and true joint ventures between Brazilian and UK dedicated biotech SME's may be an interesting path to follow. We feel this can be put in practice if there is official support for smoothing out a few remaining barriers, such as an easier flow for financing and capitalisation of innovation. From the UK side, there appears to be interesting new mechanisms in deployment, besides the more general mechanisms made available by the European Commission for promotion of joint business ventures and for joint R&D. From the Brazilian side, the Federal Government still holds the larger fraction of

S&T funding and innovation financing. The mechanisms to mobilize these valuable resources ought to be made simpler and more "user friendly" in the case of science industry interactions. Also, tax incentives to innovative R&D by companies, which is already a reality for large enterprises since 1995, must now be extended to encompass SME's.

The scenery of cooperation in biotechnology

Perception of Biotechnology by the Society

The international concern for the conservation of the environment and the extensive argument about intellectual property and the moral and ethical aspects of the applications of biotechnology involving mammals and Man has been followed by Brazilian scientists, the Brazilian Congress and the Government regulatory agencies for health, environment and science. This discussion has not really reached the Brazilian society as a whole. It is relevant to note the natural curiosity of Brazilians towards novelty, but most of the modern biotech products have not yet reached the larger food chains or the pharmacies.

Environmentally concerned NGO's in Brazil, mostly instrumented by their European counterparts, have in the recent past attempted to bar biotech products from markets, and continue to do so now. Several attempts have been made to hamper the introduction of GMO's (genetically modified organisms) into agricultural practice. So far, both the Government and private enterprise have been able to buffer these efforts efficiently.

Intellectual Property

Brazil has a fair patent legislation (1995), which grants full patents to inventions relating to microorganisms and to chemicals of any type (including genes), provided the universal requirements of novelty, inventiveness and industrial purpose are respected. Animals and plants, even if transgenic, are not patentable per se; but the interpretation of the law tends to accept plant and animal cells as microorganisms for "in vitro" industrial uses (such as monoclonal antibody production by hybridomas),

provided such uses are not meant to form or reproduce animals and plants per se. In May 1997 another law was passed to protect cultivars (Plant Variety Protection), according to the 1978 UPOV Convention. It is expected that Brazil will soon adhere to the last form of that Convention. Joint interpretation of the Patent and Plant Variety Protection laws tends to protect special patented genes inserted in specific plant genomes for plant breeding purposes.

Other aspects of intellectual property, such as trade secrets, trademarks and author's rights are also covered adequately by Brazilian law. But only the actual practice of the Patent Office and of the Courts will ensure the full development of IPR in Brazil.

Conclusions

"Classical" Cooperation Mechanisms

- Academic and industrial cooperation and partnering are already in place between Brazil and the UK.
- It will be important to set up a review mechanism to evaluate progress, effectiveness and cost efficiency of the inter-Academic cooperation, as this will be crucial for the needed acceleration of specialised training in the different fields of biotechnology action.
- Large industry interests are mostly covered already, but more room should be sought for a better access of medium sised Brazilian industry to advanced technology abroad.

"Modern" Cooperation Mechanisms

Here we emphasize the horizontal relationship between dedicated biotech SME's in Brazil and the UK. An effort in this direction might take the form of:

- Better information mechanisms between SME's in Brazil and the UK, such as creation of interactive data banks available on Internet.
- Special mechanisms to promote actual partnering between Brazilian and UK initiatives geared for the Brazilian biotech market. A regional and

global focus on the commercialisation of innovative products, services and technologies is essential to both sides. These mechanisms should range from preparatory meetings and early project financing, to actual financial mechanisms for capital formation and financing of facilities and equipment at international rates of interest.

- Special training and scientific exchange fellowships to assist in the formation and development of these joint ventures and to promote academic interactions in and around such projects.
- Special innovative project grants to finance really creative projects by Brazilian SME's formed as joint ventures between Brazilian and UK groups (in the style of the American SBIR grants).
- Revision of the tax incentives in Brazil and the UK in order to abet contract R&D carried out by dedicated biotech SME's joint ventures.

Biotechnology, Particularly in Agriculture, and Possible Interactions between UK & Brazil

*B. J. Miflin**

Introduction

Biotechnology is a large subject and offers infinite possibilities. Biotechnology is the application of biological systems and biological processes to the manufacture of products. I will restrict the subject in that I will deal largely with newer aspects of the technology, and particularly those related to agriculture. Many of the technologies are also important in providing ways in which we can understand biological systems better, giving us new and unpredictable opportunities. The most dramatic of these is the ability to rapidly sequence large amounts of DNA so that the researchers are now embarked on deriving the complete sequences of whole organisms. Already one eukaryote (yeast) and several bacteria and viruses have been completely sequenced.

Organisation of Biotechnology Research in Britain

Public sector research in the UK is supported largely through the Research Councils although there is also some support from the R & D budgets of individual Government Departments. The Research Councils

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themselves receive their funds from the Office of Science and Technology but are not direct arms of the Government since they are set up as Non Departmental Public Bodies with their own charters and independent governing Councils. The relevant Research Council for biotechnology is the Biotechnology and Biological Sciences Research Council (BBSRC). This was formed in 1994 from the merger of the former Agricultural & Food Research Council (AFRC) and part of the Science & Engineering Research Council. Its mission in brief is to carry out basic, strategic and applied research and training in support of its user communities with the objective of increasing the prosperity of the country and contributing to the quality of life of its citizens. Public sector support of medical biotechnology research is largely through the Medical Research Council. Both councils support research in Universities and in their own institutes and units. There is also considerable non-commercial support for biotechnology in the medical field from charities. The largest of these is the Wellcome Trust which spends about £250 million a year on supporting biomedical research. The other large supporters are charities concerned with cancer research.

The income of the BBSRC for 1997/8 from the OST is about £180 million. It spends this money as shown in Figure 1. Responsive mode grants are given in response to applications from researchers in universities; in addition there are a number of special initiatives to which scientists from both institutes and universities can apply (Table 1). These funds are distributed via a number of independent committees; the current committees are also listed in Table 1. BBSRC also has a responsibility for research training and it awards supporting grants to about 750 PhD students each year. It also provides 10 junior and 6 senior grants directly to post-doctoral scientists.

The BBSRC sponsors a number of Research Institutes and provides supporting services for a number of others. These institutes are listed in Table 2. The BBSRC-sponsored institutes have a further measure of separation from government since they are all charities and companies limited by guarantee with their own independent management boards. Several of them originate from research organisations set up a long time ago by private trust funds to support sectors of the UK industry and which often own the facilities and property on which the institutes are sited. Their

funding base is diverse and they receive around 60% of their funds from organisations other than the BBSRC as shown in Figure 2. This includes significant funds for international research from the European Union and from the UK Department for International Development, as well as from many other diverse sources. Industry provides 10% of the income and a large proportion of this from Levy Boards who derive their funds from levies placed on the production of agricultural goods such as cereals, sugar beet, meat etc. These funds are distributed by committees made up of representatives of the relevant industries. In this way the farming industry can make a direct contribution to the direction and support of agricultural research.

The institutes specialise in strategic research and have been greatly involved in the development of biotechnology in the UK. Although their focus in the past has been largely agricultural they have, nevertheless, made many discoveries that are relevant to all areas of biology, and have important commercial consequences for the pharmaceutical industry (see below). They have a staff of over 1000 permanently employed scientists plus relevant support staff but this capability is greatly extended by a further 900 researchers in temporary posts plus around 500 associated PhD students. In addition to their staff expertise, they have also built up a wide range of specialist facilities that range from the long-term experiments dating back over 150 years at Rothamsted to state-of-the-art animal disease facilities at the Institute of Animal Health.

Selected research topics

In this section I will give some examples of the range of research that is happening in biotechnology in the public sector in the UK. Of necessity, it will be selective and partial, without reference to the original literature. The aim is to give a flavour of activities - if the reader is interested in further details, please contact the author.

Genetic maps of organisms

Since Bateson at the John Innes was involved in the rediscovery of Mendel's work at the turn of the century, research institutes have been heavily

involved in genetics and in breeding. Over the years, the more commercial aspects of this work have been passed on to the private sector while the institutes have continued to develop technologies and provide more basic information. New developments are coming about by the application of various genetic markers based on recombinant DNA techniques, for example RFLPs (restriction fragment length polymorphisms), AFLPs (amplified fragment length polymorphisms), RAPDs (random amplified polymorphic DNA) and micro-satellites are all being used in mapping projects. The Roslin Institute is involved in leading European projects to map the pig and chicken genome. The John Innes Centre has a major effort on mapping cereal genomes and IACR at Long Ashton is applying microsatellite technology to a range of crops including brassicas, maize, sugar beet and willows. All of these technologies and the maps they produce will allow important traits to be mapped to the genome. This will immediately give methods for enhancing breeding. In addition the technology also provides a means for isolating important genes by the use of map based or positional cloning. One of the most interesting basic findings to come out of this work concerns organisation of the chromosomes and the fact that the order of the genes on them is conserved across several cereals - so-called synteny. This is particularly important in that findings in one crop can be immediately used to derive information for another. Cereal genomes differ greatly in the size of their genomes and the amount of repeated DNA; rice has a small genome with only about 50% repeated DNA whereas wheat is orders of magnitude larger with 90% repeats. Findings in rice are therefore much easier to obtain and provide a significant basis for making similar findings in wheat. Without synteny research in cereal genetics would be considerably slower.

Determining gene sequences of organisms

Various large scale sequencing projects are under way. The Sanger Centre is a new research centre established jointly by the Wellcome Trust and the British Medical Research Council to provide a major focus in the UK for mapping and sequencing the human genome, and genomes of other organisms. The site and laboratories also house the European Bioinformatics Institute (an outstation of the European Molecular Biology Laboratory) and the UK Human Genome Mapping Project Resource Centre. Since 1992 the

Centre has placed over 50 million base pairs of genomic DNA sequences in the public domain. The future goal is for the centre to obtain at least one sixth of the 3000 million base human genome sequence. It is now expected that the completion of the entire human genome sequence will be accomplished over the next seven years by an international collaboration including the Sanger Centre.

In the plant field, the John Innes Centre is part of the European and world-wide effort to sequence the genome of Arabidopsis. This is being done both by sequencing cDNA clones obtained from messenger RNA expressed in different organs and tissues and by sequencing genomic clones. It is expected that the work will be completed in the next 5 to 7 years. However, the availability of large numbers of expressed sequences is already providing a very valuable source for gene discovery. The genomic sequencing of all organisms is being underpinned by a large range of developments in the field of bio-informatics and by rapid communications over the Internet.

Identifying genes for key processes

Sequencing genomes will provide an enormous amount of information, however, even the simplest organisms sequenced so far have been found to contain significant numbers of putative coding sequences of no known function. Once we move to higher organisms the problem increases. Although a certain number of genes will have sequence homology, this only occasionally defines the biochemical and physiological function. Often it may define some biochemical function, e.g. a protein kinase, but not the physiological function of the gene, nor in which cell or tissue and under what conditions it is expressed. There are a number of approaches to identifying both the unknown functions of known genes, and the unknown genes for known functions.

As the complete sequence of the yeast genome is known there is now a considerable effort to find functions for the genes. Various structured approaches are being used and a 'knock out' approach, based on the use of a PCR-mediated gene replacement technique, which relies on the great efficiency and accuracy of recombination in yeast to precisely deleted entire

genes of a known sequence, is being developed. In this way it is planned to generate a complete set of 6000 single-deletion mutants which will be tested for the loss of a testable function. Once a phenotype has been uncovered it then becomes possible to investigate the nature of the gene that had been disrupted. The great skill in this approach is to develop test systems that reveal an informative phenotype.

Genes controlling functions can be derived from mutations caused by random disruption, either by classical mutagenic techniques or by using insertional mutagenisis. In the first case the gene may be tracked down by map based cloning but, if possible, it is probably easier to reselect the mutation from an insertional library. The advantage is that the mutation has been caused by a known DNA sequence inserted into the gene which acts as a tag or hook to fish the desired sequence out of a pool of genomic clones. Insertional libraries have been constructed for a range of plants, including *Arabidopsis*, tobacco and maize.

Many alternative approaches to the isolation of important genes have been developed and the research groups in the UK have been responsible for the cloning of genes for a wide range of biological functions. In the context of food and agriculture these include genes involved in flowering (particularly at the John Innes Centre) in hormone biosynthesis and signalling (at IACR) in leaf senescence and 'stay green' (IGER), in fruit ripening (University of Nottingham) and in breadmaking quality (IACR).

Transformation of crop plants

Initiatives in plant transformation have been in progress for some time and most important agricultural and horticultural crops can be transformed, although many of the initial breakthroughs have occurred outside the UK. Currently, there is a large interest in the transformation of cereals with considerable success in wheat (IACR) and rice (John Innes). A number of field tests have taken place and research done on the impact of transgenic crops in the environment. Many of the initial targets related to traits involved in crop protection but now a much wider range of targets are being studied. Probably the most important use of this technology in the

long-term, is its use to probe the functioning of important crop species and from this, understanding how we can modify basic processes so as to increase the crop's potential to produce biomass.

Transformation of animals

Transformation of 'model' species such as mice and rats has been occurring world-wide for a long time and has considerable significance in studies on mammalian biology and disease. The potential importance of using transgenic, functionally-deficient, animals such as the 'Harvard Mouse' in screening for pharmaceutical products is considerable and will advance medicine.

Advances have also been made in transforming farm animals by scientists at Roslin, with notable successes in sheep and poultry. With sheep they have been able to show that genes can be selectively expressed in mammary glands allowing the proteins they encode to be produced in large quantities and subsequently harvested and purified with relative ease. This process is now being used for the commercial development of products (see below) the first of which are in trials. Transgenic chickens have also been produced although the techniques are difficult and demanding.

In both cases the efficiency of the transformation process is low and in a search to improve the technology research has been carried out on growing cells in culture and then trying to recover complete animals from individual cells. This was first achieved in 1996 with the production of the lambs Megan and Morag who were born after nuclear transfer from an embryo-derived line that had been induced to become quiescent. Subsequently, the technique, which involves nuclear transfer by cell fusion of the donor cell to an enucleated unfertilised egg, allowed the production of a fully normal sheep 'Dolly' from a cultured cell of a mature mammary gland. Besides serving the original aim of improving transgenic technology the finding also has considerable significance for understanding mammalian development, the study of ageing and the nature of diseases such as cystic fibrosis.

Structural Biology

A recent review of structural biology by the BBSRC suggests that the UK has a world lead in the development of new methods for exploring the architecture of large molecules, particularly proteins, and from this, identifying how structure determines the behaviour of the molecules. The availability of protein sequences either determined directly or deduced from nucleic acids has given rise to the hope that it might be possible to deduce from these something about the three dimensional structure. However, the rules that determine how proteins fold are still being determined. Understanding the processes involved is important in a number of diseases such as Alzheimer's disease and the TSEs (transmissible spongiform encephalopathies) such as CJD (Creutzfeldt Jacob disease), BSE (bovine spongiform encephalopathy) and Scrapie. Groups at the Oxford Centre for Molecular Sciences, have developed a range of nmr techniques to follow protein folding which, as well as electro-spray spectroscopy, x-ray crystallography and other physical techniques, are providing more information on how the secondary and tertiary structures are determined. In addition, much effort, for example at Cambridge University and Birkbeck College in London, is being devoted to computer modelling of protein structure based on the findings of physical structures and these are becoming much more accurate in their predictive ability. The knowledge of the three dimensional structures of molecules that are targets for pharmaceutical chemicals is important for that industry.

Molecular ecology and biodiversity studies

Biodiversity and its evaluation and conservation are seen as vitally important especially where the environment is under increasing pressure. A crucial question, given the enormity of the problem and the scarcity of resources, is how can we increase our efficiency in cataloguing and conserving. An answer is to decrease duplication of effort by recognising the genetic diversity present and sampling it widely. This implies that we must develop methods to measure and record genetic diversity. A European Union-funded study co-ordinated from Long Ashton has set out to do this. The aims have been to develop and evaluate methods and to use them for a

number of species including barley, spruce and rhododendrons. The researchers have concluded that molecular methods are useful. Their use makes it possible to obtain an unprecedented understanding of the process and dynamics of biodiversity, its evolution, and natural preservation - providing the right markers are chosen. Of the current market technologies the systems with most to contribute seem to be sequence tagged microsatellites and specific DNA sequences. Their use will require a major effort in the cloning and sequencing of microsatellites and systems of bioinformatics to allow the analysis and compilation of data.

Using biotechnology to inform agricultural practice

One of the challenges in the intensive agriculture of Western Europe is to maintain productivity with minimum use of inputs, particularly pesticides, both for efficiency and for preventing unnecessary chemical contamination of the environment. In some countries this is reinforced by regulations to reduce pesticide use. One approach to achieve this goal is to spray only when and where a problem is likely to occur rather than prophylactically. This requires being able to identify a problem before it becomes economically damaging; however, in the case of many diseases, waiting until there are visual symptoms is too late. Both monoclonal antibodies and DNA-based probes using a PCR (polymerase chain reaction) approach, provide very powerful and discriminatory tools for recognising the presence of pest and disease organisms. The use of these to guide decisions depends on some level of modelling in order to predict what is likely to be a serious level of infection sufficient to cause economic damage and what can safely be left untreated. These are difficult problems which are only beginning to be tackled but this decision-support approach has great potential. Diagnostics can also be used to ensure plant hygiene, particularly in seed and vegetative propagules, to minimise contamination and in breeding programmes to identify germplasm that prevents multiplication of a virus or is resistant to infection by a pathogen.

Another area where diagnostics are becoming increasingly important is in understanding and managing pesticide resistance. This has been particularly well studied in insects where insecticide resistance is wide spread

and affecting over 500 species of insects. Cotton production has suffered particularly from insect attack and many of the pests for example Heliothus and Helicoverpa species are highly resistant to a number of different classes of insecticide. With the introduction of transgenic cotton expressing the insecticidal toxin from Bacillus thuringiensis there is concern that resistance to this protein will quickly build up. There is thus a great need to understand the mechanisms underlying resistance and to have means to identify which are present so that management strategies can be developed and deployed appropriately. Workers at Rothamsted have cloned acetyl-choline esterase, the target site for organophosphate and carbamate insecticides, and determined the nature of the different mutations that confer resistance. They have also cloned the gene for the voltage-sensitive sodium channel of nerve membranes which is the target for synthetic pyrethroids and DDT and identified the basis of the kdr (knock-down resistance) and super-kdr mutations. Having identified them in one insect (the housefly), they have been able to use PCR probes to detect identical kdr mutations in several orders of insect including the mosquito. These molecular probes also allow some of the target site resistance mutations to be identified clearly even in the presence of other resistance mechanisms such as the over-expression on non-specific esterases.

Biological control of pests and diseases

Agrochemicals are expensive to produce and to apply. They also can contaminate environments if not carefully handled. Alternatives are to use biological control methods. Research in the UK has identified a number of novel biocontrol agents for fungi, nematodes, slugs and insects. These can be difficult to produce and apply effectively especially where organisms have to be fermented and then stored for some time before application. For these reasons they are most applicable to high value crops grown under controlled conditions. Alternative approaches in exploiting naturally occurring enemies to agricultural pests and disease also provide possible control. An active area of research in IACR is discovering the chemicals (semiochemicals) that control insect behaviour. Knowing these and the plants that produce these has allowed demonstrations at field level to control stem borers in Kenya. The knowledge of dynamics of soil pests and their enemies

also holds out some hope of better management and exploitation of observed examples of suppression of nematodes or soil borne diseases. Recombinant marker technologies have a part to play in these studies.

The British Biotechnology Industry

Entrepreneurial bioscience companies based on biotechnology are growing in Europe at about 20% a year. In a 1996 survey, 716 companies were identified of which about a quarter were based in the UK. A large majority of these are in the medical biosciences such as therapeutics and diagnostics. Companies in agricultural, food and environmental biotechnology make up less than 20% of the total. In addition, a large amount of biotechnology research is done in the major multinationals. This is particularly the case in plant biotechnology in Europe. In part this is because the companies have invested heavily internally following the lead of Monsanto in the USA and also because two of the most successful small companies were purchased by majors since the beginning of 1996; Plant Genetic Systems by AgrEvo and Mogen by Zeneca.

Independent British companies include British Biotechnology, which probably has the largest market capitalisation of over £1.2 billion; PPL Therapeutics; Axis Genetics and MicroBio. The three latter companies are all ones which are based on technologies derived from the BBSRC institutes. PPL Therapeutics, on the site of the Roslin Institute, has pioneered the production of pharmaceutically active proteins in the milk of transgenic farm animals. Of these, 'Tracy', who was the first famous sheep in this field, has given rise to a flock which produce alpha-1-antitrypsin inhibitor. Axis Genetics have specialised in developing the use of transgenic plant viruses with inserted sequences for the epitopes of animal viruses in order to produce vaccines. Thus in both cases the ultimate market is likely to be in human health care. In contrast, MicroBio have remained in agriculture and are selling more conventional biotechnology products including Rhizobium inoculum and biological control agents.

Genetically modified crops and their products are arriving in Britain. Already modified tomato paste has been on sale in the supermarkets for a year. Processed products from transgenic canola, soybean and maize have

been approved for release in Britain. These crops are not yet being grown commercially in the UK, particularly since the last two are not UK crops of any significance, and the research has mainly been done by non-UK companies. British companies have however invested in plant biotechnology for example the tomato paste is from research in Zeneca. Several multinational seed companies have research bases in the UK and are involved in the application of biotechnology either through the use of markers for breeding or through the development of crop transformation. For example, New Farm Crops (then part of Ciba now Novartis) were one of the first companies to field test transgenic wheat and they did this at Cambridge.

Both animal and plant breeding companies also provide examples of where public research has benefited or given rise to commercial companies. For example, the breeding part of the Plant Breeding Institute was sold to Unilever in 1987, and the Pig Improvement Company (now part of Dalgety) and Ross Poultry Breeders have relied heavily on technology and staff from the Roslin Institute.

Possible interactions with Brazil

The possibilities of interactions with Brazil in the field of biotechnology probably revolve around problems, people, products and processes.

Problems (and Opportunities)

The point of any interaction is to achieve an aim and without that aim being understood it is difficult to derive benefit from the interaction. I do not think those of us from the UK can define the aims of interactions with Brazil from the point of view of Brazil. It is up to Brazilians to define their problems and opportunities which they have and which they think might be relevant to biotechnology. However, given the rapidly developing potentials of the technology it might be wise to omit the final qualifying clause or to interpret it very widely. Given definition of the problems, technologists can propose possible solutions or approaches and then both parties have to work together to plan courses of action. I think that the skills in the research areas that I outlined above could be brought to bear in a

number of areas listed in Table 3.

What are the factors that would encourage UK organisations to interact with Brazilian counterparts. In a commercial context the answer is simple - to develop markets, sell products or processes, and increase profits. In public sector research the motives are broader. From a national point of view, interactions at the level of technology can lead to good international relations; to the promotion of trade; and to competitive advantages vis à vis competitor economies. At the institute and researcher level there are other factors that are centred on people and I will deal with this below.

People

Biotechnology has been transferred rapidly from academic research laboratories into industry. Many studies have shown that this has been achieved effectively because it involved the movement of the people who had developed the technology, or who were well trained in it, from academia to industry. The same model probably works well for transfer of technologies between countries. So in my opinion exchange of people is a key to the interaction between countries and particularly to transferring know-how. The second crucial part in the transfer of technology to industry has been investment by industry in the necessary laboratories, materials and equipment. This is often more difficult to achieve in countries receiving new technologies.

Why would the UK researcher or technologist want to interact with Brazil? Individual scientists are driven by curiosity and motivated to discover the unknown with the belief that by so doing they will be able to improve the lot of man. They are therefore keen to be involved with problems and with countries where they think that they can help to achieve this. New problems from new environments also stimulate the curiosity of researchers and add to or reinforce their motivation. The British research institutes as organisations have a long history of interactions with overseas countries. This stems from their contribution in the development of research within the British Empire and later the Commonwealth. Nowadays that regional drive is not so strong and interactions occur widely around the world wherever a good basis for them can be fostered. At any one time there are

probably more than 25 nationalities working at IACR and the institute scientists travel widely; Table 4 lists some of the interactions between Brazilian scientists and IACR in the recent past. International research is supported by a number of different mechanisms. Besides support from the national's own country, the UK Government Department for International Development (formerly ODA) supports a number of projects or units within the Institute, for example, we have responsibility for their Tropical Weeds Unit at Long Ashton. The British Council has supported many overseas scientists and reciprocal visits. The European Union has a number of programmes from which one can obtain grants for work with non-European countries.

Charities also make a significant contribution. The Gatsby Foundation, for example, supports a collaborative project between Rothamsted and the International Centre of Insect Physiology and Ecology (ICIPE) in Kenya. The International Service for the Acquisition of Agri-Biotech Applications (ISAAA) is a not-for-profit international organisation co-sponsored by public and private sector institutions with the aim of facilitating the acquisition and transfer of agricultural biotechnology applications from the industrial countries to developing countries for their benefit. It has been financially supported by the BBSRC and staff at the John Innes Centre have been particularly active in this programme. Finally, Rothamsted decided to mark its 150th anniversary in 1993 by establishing its own charity, Rothamsted International, which is raising money from a wide variety of sources to support visits from scientists from around the world to carry out research at Rothamsted for a period of three months to a year. So far we have had 50 Fellows from more than a dozen countries including Brazil. The motto for Rothamsted International is Sharing Research Excellence which emphasises the point that we in the institute see that we have as much to gain from the interaction as the overseas Fellow. This has been borne out in practice. Given adequate funding, researchers and the institute would be keen to expand on such interactions.

Products

Many of the biotechnology products, especially high value pharmaceuticals are produced in relatively few centres and shipped to markets around the world. This may also be true for animal health products

and food and industrial enzymes. Innovation in crop biotechnology is also centralised but, because crops have to be adapted to their environment, and the new innovations only involve a few genes out of the tens of thousands that make up a plant, the new genes are most appropriately bred into adapted cultivars in the region in which they are to be used. It this case at least part of the R & D development is carried out in Brazil. Thus, I believe transgenic soybeans which are glyphosate-tolerant have been made available to EMBRAPA to use in crossing programmes to cultivars adapted to Brazilian conditions.

Other crops such as insect tolerant cotton and maize are currently undergoing trials in Brazil and are likely to be introduced in the future. However, these products are being driven in the main by the commercial companies who have invested much money in their development. Such investment is only likely to occur where substantial returns are available, either through selling hybrid seed (maize) or agrochemicals (herbicide tolerant crops) or from the processed product (e.g. tomatoes). In many crop plants and for many possible traits that is not possible because of the low value structure of the seed industry and the difficulty in obtaining sufficient returns for investing in agronomic traits even in countries like Brazil which have adopted systems of plant breeders rights.

Non-commercial access to genes and transformed plants is available through individual arrangements between scientists and organisations. ISAAA is also set up as an organisation for transfer of technologies to developing countries and can arrange access to both public sector and commercial developments. Through arrangements such as this it should be possible to arrange access to a range of genes for use in minor crops or crops where the major breeding is done in the public sector in Brazil.

Processes

Many new technologies around biotechnology are spreading extremely fast throughout the laboratories of the world. Much of the need for interaction between people is to spread the technologies and to exchange experience of the methods surrounding this technology. Backing up the methods must be ways of producing the necessary reagents and enzymes that make up that technology. Processes that simplify and enable the

production of these are crucial, particularly for countries that cannot afford the foreign exchange to import them. I think benefit could be gained by exploring ways to help Brazil ensure that researchers who have learned new methods abroad can use them effectively on their return.

Biotechnology processes in terms of the growth and production of organisms are also clearly ones that can be shared. In part these can be technical interactions in other cases they can be a sharing of legislature and regulatory procedures. For example, Brazil has more than 30 million hectares of soybeans which in the main are grown without Rhizobium inoculation. This probably has more to do with the poor quality of the inoculum than the lack of benefit from effective inoculation. In countries where regulations ensure a level of quality (usually a minimum number of bacteria in a sterile peat or other base) inocula are growing in use. I understand that Brazil may be bringing regulation in this area which could have a very real effect on improving soybean yields.

Legal processes surrounding recombinant DNA technology and the introduction of GMOs (genetically modified organisms) are now established in most countries. In my view the European procedures in this area are ones that Brazil would do well to avoid. Having had experience of both the European and US systems it seems to me that the latter is more uniform and clear which ensures both careful testing of products and efficient product development. In Europe, even though the system may be sound in principle it is currently in confusion and clearance of GMOs seems to take about twice as long as in the US.

Europe has provided good and bad examples of public acceptance of GMO food. In the UK the marketing of tomato paste in the supermarkets has been a very good example of what to do to inform the consumer at the early stages of product introduction. Similarly the marketing of cheese made using chymosin made by recombinant DNA technology as a product of biotechnology and suitable for vegetarians clearly displayed the benefits of the technology. Getting these processes right is of major importance because there is a continual need to ensure and improve the safety of food, its production and the environment. Recombinant DNA technology has much to offer to meet these requirements. It is crucial that the benefits and risks are clearly explained and the processes for bringing the products to market

are well thought out and transparent.

Acknowledgements

IACR receives grant aided support from the Biotechnological and Biological Sciences Research Council. I am also very grateful to Sue McCartney and Judy Mann for their help in preparing tables and enhancing the manuscript.

Table 1: BBSRC Research Committees and their Special Initiatives

BBSRC Committee	Programmes/Initiatives
Animal Sciences	-
Biochemistry and Cell Biology	Intracellular Signalling Integration of Cellular Responses
Biomolecular Sciences	Biological Chemistry Structural Biology & Design Application BioMolecular Design
Engineering and Biological Systems	Mathematical Modelling, Simulation & Prediction in Biological Systems Analytical Biotechnology Applied Biocatalysis Bioprocess Engineering Environmental Biotechnology
Genes and Developmental Biology	Plant & Animal Genome Analysis Genome Analysis of Agriculturally Important Traits Cell Commitment & Determination Animal Cell Technology
Plant and Microbial Sciences	Wealth Creating Products of Plants Resource Allocation and Stress in Plants Soil/Plant/Microbe Interactions Microbial Cell Technology
Agri-Food	Biology of the Spongiform Encephalopathies Biological Responses to Stress Technologies for Crop & Livestock Improvement Raw Material Quality Agriculture in the Environment Microbiological Aspects of Food Safety & Preservation Diet & Health Food Manufacturing

Table 2: Institutes

Research Institutes sponsored by BBSRC BBSRC Office, Polaris House, North Star Avenue, Swindon, Wilts SN2 1UH (Contact: M.Winstanley@bbsrc.ac.uk)		
Babraham Institute		
Babraham Hall Babraham Cambridge CB2 4AT	Laboratory of Molecular Signalling Babraham Institute PO Box 158, Cambridge CB2 3ES	
Institute of Arable Crops Research		
IACR-Rothamsted Harpenden Herts AL5 2JQ	IACR-Long Ashton Research Station Long Ashton Bristol BS18 9AF	IACR-Broom's Barn Higham Bury St Edmunds, Suffolk IP28 6NP
Institute for Animal Health		
Compton Laboratory Compton Near Newbury Berks RG20 7NN	Pirbright Laboratory Ash Road Pirbright Woking, Surrey GU24 0NF	BBSRC & MRC Neuropathogensis Unit Ogston Building West Mains Road Edinburgh EH9 3JF
Institute of Food Research		
Reading Laboratory Earley Gate Whiteknights Road Reading RG6 6BZ	Norwich Laboratory Norwich Research Park Colney Lane Norwich NR4 7UA	

Research Institutes sponsored by BBSRC			
BBSRC Office, Polaris House, North Star Avenue, Swindon, Wilts SN2 1UH (Contact: M.Winstanley@bbsrc.ac.uk)			
Institute of Grassland and Environmental Research			
Aberystwyth Research Centre Plas Gogerddan Aberystwyth Ceredigion SY23 3EB	North Wyke Research Station Okehampton Devon EX20 2SB	Bronydd Mawr Research Station Trecastle Brecon Powys LD3 8RD	Trawsgoed Research Farm Trawsgoed Aberystwyth Ceredigion SY23 4LL
John Innes Research Centre Norwich Research Park, Colney, Norwich NR4 7UH			
Roslin Institute Roslin, Midlothian, EH25 9PS			
Silsoe Research Institute Wrest Park, Silsoe, Bedford MK45 4HS			
Horticulture Research International *(supported by BBSRC)*			
HRI, Wellesbourne Warwick CV35 9EF	HRI, East Malling West Malling Kent ME19 6BJ		

Scottish Agricultural and Biological Research Institutes
Hannah Research Institute Ayr, Scotland KA6 5HL
Macaulay Land Use Research Institute Craigiebuckler, Aberdeen AB15 8QH
Moredun Research Institute 408 Gilmerton Road, Edinburgh EH17 7JH
Rowett Research Institute Greenburn Road, Bucksburn, Alberdeen AB32 9SB
Scottish Crop Research Institute Invergowrie, Dundeed DD2 5DA **Biomathematics and Statistics Scotland (BIoSS)** (Administered by SCRI) University of Edinburgh, James Clerk Maxwell Building, The King's Buildings, Edinburgh EH9 3JZ

Table 3: List of areas for possible Brazil/UK co-operation in biotechnology

Basic Genetics	
	Gene sequences
	Genes
	Libraries
	Databases
Plant Biotechnology	
	Specific Genes
	Transformed plants containing genes
	Transformation of cereals
	Breeding aids - market technology
Crop Protection & Production	
	Pesticide resistance management tools
	Biocontrol agents
	Fermentation & Application technology
Biodiversity	
	Marker Technologies
	Analysis methods

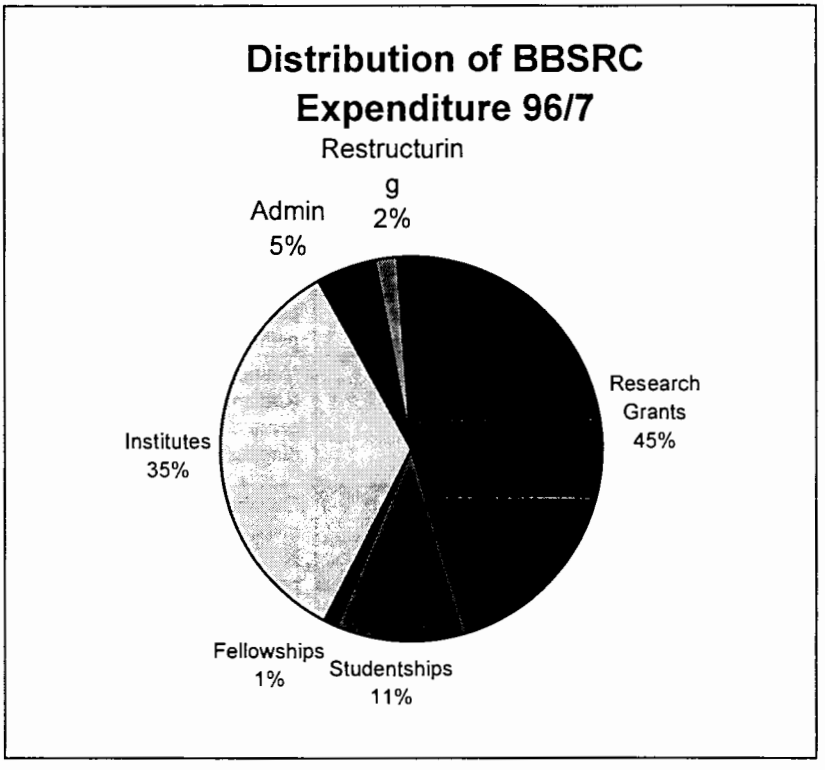
Table 4: List of co-operations between Brazilian and IACR researchers

IACR Researcher	Brazilian Contact	Topic/Activity
Mike Greaves, Crop and Environmental Sciences, (IACR Long Ashton)	T. Passini, IAPAR AFT, Londrina, PR	Ongoing Project - Overcoming adverse climatic effects on herbicide response by understanding the mechanisms of herbicide plant environment interactions.
John Bailey, Cell Biology, (IACR Long Ashton)	Eusebio Sant'Ana Federal University of Alagoas	Project completed 1997 - Mechanisms of infection, pathogenicity and spec'ficity of plant pathogenic fungi.
Peter Shewry, Cell Biology, (IACR Long Ashton)	F A Campos, University of Ceara, Fortaleza	Ongoing Project - Manipulating the composition and end use properties of cassava tuberous roots

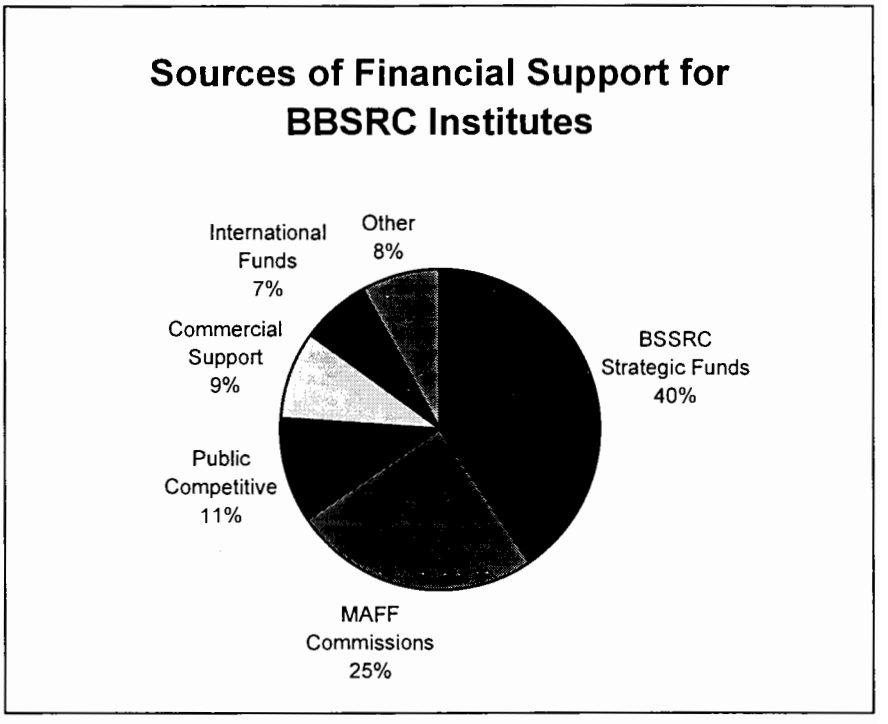
IACR Researcher	Brazilian Contact	Topic/Activity
Richard Bromilow, Biological and Ecological Chemistry, (IACR Rothamsted)	Raphaela Musumeci, Instituto Biologico, Sao Paulo	Collaborative link, including visits - Pesticide or herbicide fate in the environment.
Tariq Butt, Entomology and Nematology, (IACR Rothamsted)	Dr Bonifacio Magalhaes, EMBRAPA/ CENARGEN, Brasilia Soraya Leal CENARGEN Rose Monnerat, CENARGEN	Collaborative link including reciprocal visits and visiting workers to Rothamsted - Entomopathogenic fungi as biological control agents. Work for a PhD done at Rothamsted and completed in 1996 - Characterisation of entomopathogenic fungi using molecular and biochemical methods. Visit made to Rothamsted in 1994 to learn PCR-RAPD pathology techniques
Rolo Perry, Entomology and Nematology, (IACR Rothamsted)	Eutalia Grisi, University Federal de Paraiba	Work for a PhD done at Rothamsted and completed in 1996 - The genomic characterisation of the potato cyst nematode, *Globodera pallida*.
Phil Brookes, Soil Science, (IACR Rothamsted)	Breno Grisi, University Federal de Paraiba	Visiting worker in 1990/91 - Soil microbial biomass and fertility.
John Caseley, Crop and Environmental Sciences, (IACR Long Ashton)	Thelma Passini, IAPAR-AFT Londrina - PR	Visiting worker in 1992/93 - Effective weed control with reduced herbicide inputs.
Andrea Robinson - Smith, Crop and Disease Management, (IACR Rothamsted)	Maria Jose Amstalden M. Sampaio, EMBRAPA/ CENARGEN, Brasilia	Visit to CENARGEN made by Dr Robinson-Smith to hold a workshop in March 1994 - Serological techniques for the detection of plant pathogenic bacteria and viruses.

IACR Researcher	Brazilian Contact	Topic/Activity
Susannah Bolton, Information, Communication and External Relations, (IACR Rothamsted)	Milton Kanashiro EMBRAPA/CPATU Belem	Work for a PhD done by S. Bolton at CPATU and completed in 1992. Links are maintained through reciprocal visits - Soil nutrient cycling and agricultural ecology.
Brenda Ball, Entomology and Nematology, (IACR Rothamsted)	Dr Dejair Message Federal University of Vicosa	Rothamsted International Fellow in 1995/96 - Honey bee pathogens
Janet Riley, Statistics, (IACR Rothamsted)	Milton Kanashiro EMBRAPA/CPATU Belem	Visit made by J Riley to the ODA rainforest project at CPATU in 1994 as an external consultant - Statistics and experimental design.
John Lucas, Cell Biology, (IACR Long Ashton)	Dr Maria Menezes UFRPE, Dr Emilson EMBRAPA/CNPAT Fortaleza, Prof Eusebio Sant'Ana UFAL	Network set up in 1997, with exchange funding from the British Council for three years - Cashew biotechnology and pathology.
Paul Burrows, Entomology and Nematology (IACR Rothamsted)	Dr Renata Tenente EMBRAPA/ CENARGEN Brasilia	Visiting worker to Rothamsted in 1996 - nematode molecular diagnostics.
Brian Kerry, Entomology and Nematology Department, (IACR Rothamsted)	Dr Edna Costa Mano EMBRAPA/ CENARGEN Brasilia	Collaborative link including a visit in 1995 - Nematology and integrated pest management.

BBSRC Expenditure	
Research Grants	84.9
Studentships	20.6
Fellowships	2.2
Institutes	64.7
Admin	9.6
Restructuring	3.5
Other	2
	187.5



BSSRC Strategic Funds	**52,7**
MAFF Commissions	**32,7**
Public Competitive	**13,7**
Commercial Support	**11,7**
International Funds	**8,9**
Other	**10,5**



Informatics in the United Kingdom and Brazil: Possibilities of Co-operation

*Chris Wheddon**

Synopsis

The convergence of computing, communication and content is enabling a range of informatic services that will change the way in which we communicate, work and live. There is not a single aspect of our lives that has gone untouched by the informatics revolution that is now upon us. As the pace of change gathers it has become clear that it will overshadow the impact of the steam engine, the printed word, and the automobile. Healthcare is being revolutionised through telepresense for the delivery of remote diagnosis and expertise. Education is being enhanced by information storage, on screen experience and collaboration over greater distances. Organisations are becoming virtual and working practices are becoming flexible.

In this paper we will explore the uses of technology that convergence is making possible in organisations, commerce, healthcare and education and consider the mechanisms that will enable user acceptance. In so doing we will identify areas where Brazil and the UK might co-operate to share understanding of the informatic opportunity in a Brazilian context. As we shall see, now is the time for Brazil to seize the informatic opportunity. In his inaugural speech President Fernando Henrique Cardoso states:

* The Director of System Engineering in BT. This System Engineering performs all the Internal R&D for BT and is based in 10 Centre in the UK and in USA, and the size of it comprises 6000 researchers and developers. Chris Wheddon studied MSc at Essex University He is a governor of the Centre of Telecom Management at the University of Southern California. He is a Fellow of the IEE the British Computer Society (BCS) and a Fellow of the Royal College of Arts

"Today there is no responsible specialist who forecasts anything but a long period of growth for Brazil. International conditions are favourable. The burden of our external debt no longer suffocates us. Here in Brazil, our economy is like a healthy plant after a long drought."

Introduction

Brazil has a place at the very beginning of the history of telecommunications, Emperor Dom Pedro II having been a former student of Alexander Graham Bell. When Bell's first telephone was being exhibited at an American exhibition and treated as something of a gimmick, the technocratic Emperor renewed his acquaintance and ordered one of the first models. The telephone was installed at the Emperor's summer palace at Petropolis in the mountains linking it to his winter palace in Rio de Janeiro below.

One hundred and twenty years later, the world's telecommunications network has become the largest man-made machine of all time. It conveys in excess of 1000 billion telephone calls and an immense amount of data. The cost of a transatlantic telephone call in 1956 was £2.80/minute - today it is less than £0.2/minute. The growth of world-wide calls is relatively consistent at 5-6% p.a. whilst the growth in data is between 10-15% and looks set to increase. Network power through the use of optical device and fibre technology will provide massive digital capacity at relatively little cost. One fibre, no bigger than a strand of human hair, has the theoretical capacity to carry the voices of every man, woman and child simultaneously.

The computing industry tells a similar story. The first pocket calculator on the market in the early 1970's cost over £80 for just four functions - today superior technology is given away - free! It has been estimated that in ten years' time the laptop computer will be 1,000 times more powerful than today's[1]. This is all characterised by an exponential

1 Benefiting from available technology- a UK perspective, Peter Cochrane, CBI Directors Conference, London, 1997

growth in power, and a correspondent fall in cost - exponentially more for exponentially less!

The pace of change is forcing the computing and telecommunications worlds into ever closer contact; the 120 year old telecommunications industry traditionally involved in carrying calls and data can now be considered as a giant computer in the network. At the same time computer companies are networking in topologies similar to those in telecommunications networks.

Telecommunication companies must join forces with software, hardware, content and distribution companies if they are to provide this range of informatic products and services. As competition increases, careful attention must be paid to the value proposition offered to the customer; from producing content, providing service, network operation and terminal equipment to configuration and presentation of the services to the end user. This is where the power of convergence will be experienced, used and paid for. Yet mass uptake of informatic services is far from simply a question of deploying technology. Acceptance of informatic services is dependent upon three requirements being met; they must be useful, they must be useable and they must be ubiquitous.

The computing revolution

A low cost electronic wristwatch now has more processing power than a mid-range computer of the 1960's, whilst the PC is realising an ability for office and home that surpasses the mainframe computers of only 10 years ago. PCs currently deliver a hardware line up which has echoes of yesteryears' supercomputers. All this at affordable and reducing prices. If the $70,000 automobile of 1970 had reduced in cost and increased in capability at the same rate as computers we would be driving cars that cost 80 cents, do 1000 miles per gallon, and can travel at 6 times the speed of light!

By contrast to the exponential increase in computing power, human capabilities have evolved over millions of years and will take many million more to evolve further. Computers are only starting their evolution. As they become smarter, we will gradually delegate more and more task to

computers. Chances are that the performance/price ratio will continue its upward trend for at least the next 10, and probably 20, years. Such extrapolation tells us that by the year 2015 their will be machines in laboratories equal to humans in terms of storage and processing capability. By 2025 such a machine will be on our desks and by 2030 it will be wearing us! (see figure 1)

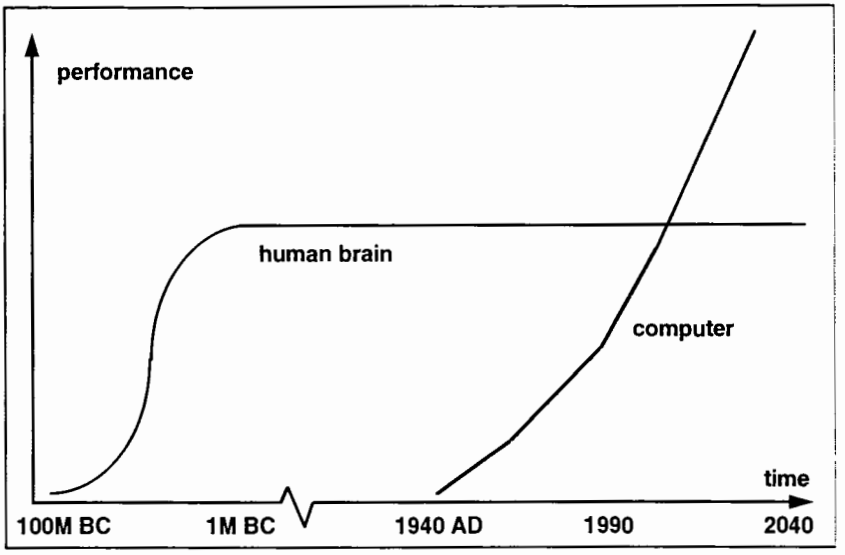


Figure 1: Computer -v- Human evolution in abilities

At a business level evidence suggests the uptake of technology is not as profound as increases in capability. A survey conducted in the early 1990s [2] found that the reasons companies did not make technological change in the '80s were concerns about the uncertainties in Brazil's economy, recession in the domestic market and trade barriers. All three of these impediments are receding. Indeed, according to the survey, companies are expecting to update their technology throughout the '90s. The main purpose of technological changes is to achieve cost reduction and quality improvements driven by the need to improve international competitiveness.

2 Transnational Corporations and Industrial Modernisation in Brazil, Economic Commission of Latin America and Caribbean, March 1993

Throughout the Brazilian marketplace technology consumption is in a period of rapid growth. Sales of colour televisions and video cassette recorders have both increased by approximately 42% between 1995 and 1996. This due in part to the rise of double salary earning families.

Product	1995	1996	%change
Colour TVs	6,065,972	8,621,188	42.12
VCRs	1,923,575	2,739,129	42.40

Figure 2: Growth in TV and VCR sales in Brazil [3]

The total number of PCs, televisions and telephones per hundred inhabitants is still relatively low in Brazil compared with the likes of Japan, USA and the UK (see figure 3). However, Brazil is more "switched on" than the other emerging economies of China, South Africa and India.

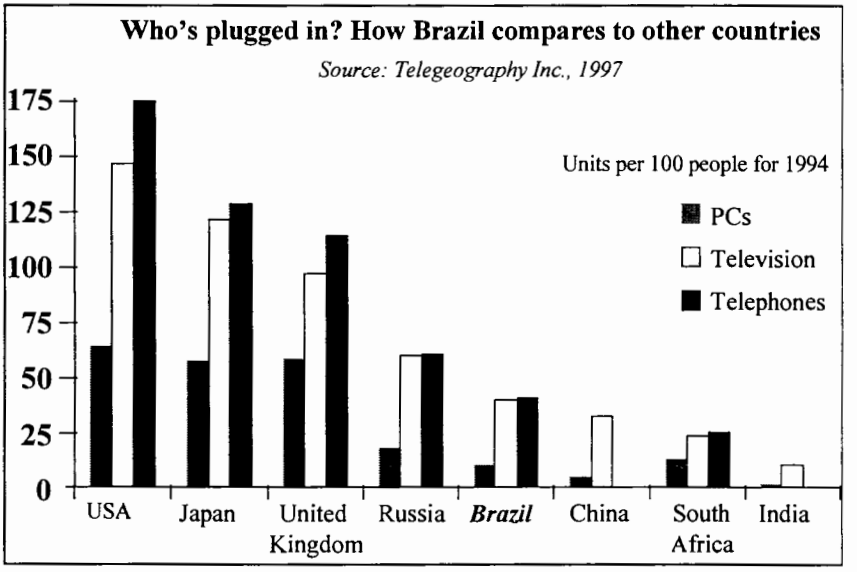


Figure 3; PCs, Televisions and Telephones in Brazil compared with selected countries

3 Brazil Country Report 1st Quarter 1997, Economist Intelligence Unit, 1997

Recent work undertaken by the U.S. Government, Department of Commerce suggests that Brazil is one of the top ten "Big Emerging Markets"[4]. Their work identified that Brazil's IT market exceeded $11 billion in 1993 and has grown at a 9-10 percent annual rate over the past several years. International Data Corporation projects IT market growth at 13 percent for the period 1992 to 1997. If economic stability and growth improve, the market should rise even faster over the rest of the decade.

The continued development of this industry is critical to Brazil's economic growth and ability to compete in global markets, to educate its population, and to link remote communities across the country.

The communication revolution

The same technical and commercial forces that have shaped the computer scene have also been at work on telecommunications. Digital transmission and switching systems now provide near perfect voice communication across most of the globe. Mobile systems allow people to enjoy unprecedented freedom of where they access networks. Satellite technology will see mobile telephony interconnection achieved whilst in the air or at sea. Complementing this impressive world-wide voice network are a number of voice activated services; home banking, database access, messaging and control systems.

The widespread introduction of digital transmission and switching in the 1980s paved the way for the integration of voice and data transmission. Corporate users are now able to specify high rate digital circuits which co-exist with the telephony infrastructure. The last few years have seen the penetration of ISDN into small businesses and homes thereby bringing the benefits of digital transmission to a wider user group.

The copper pair local loop is now being stretched to the limit with the introduction of Video-on-Demand which probably represents the maximum viable information transfer rate achievable. Optical fibre is the only technology that provides true future proofing for network operators

4 Big Emerging Markets, U.S. Department of Commerce, http://www.stat-usa.gov/itabems.html

who have now accumulated over 20 years experience with these systems. Operation at 2.4 Gigabit/s is now commonplace, and 10 Gigabit/s is readily achievable. Current research suggests transmission systems offering the prospect of 1Terabit/s will be available within the decade. The table below explains what can be achieved at various transmission rates.

Bit rate per second	*Transmittable material*
1 Kilobit/s	Telex
64 Kilobit/s	Voice telephony or 1 page fax
2 Megabit/s	Compressed video images
1 Gigabit/s	Entire encyclopaedia Britannica
1 Terabit/s	Every conversation of every person in the world talking simultaneously twice over

These impressive transmission rates are not accompanied by corresponding high system costs - quite the reverse. Each time the bit rate is quadrupled the cost per bit transported falls by a factor of three. Further, the use of all optical amplifiers has extended the reach of optical systems without the attendant cost of optical/electronic conversion. The technological capability now exists for all optical fibre networks - no electronics, no limits, total transparency. The extension of such networks into business premises and homes will provide the bandwidth to meet the demands well beyond 2000.

Telecommunications infrastructure has continued to grow steadily in Brazil, notwithstanding negative periods of growth in the economy (see figure 4). Use of the domestic telephone network is estimated to have reached 12.6bn minutes in 1996 compared with 10bn in 1995.

	1988	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**
Installed telecoms plant	6.9%	7.43%	5.23%	5.09%	8.67%	9.45%	11.20%
Gross Domestic Product	-0.1%	3.3%	-4.4%	0.2%	-0.8%	4.1%	5.7%

Figure 4: Telecommunications and GDP Growth in Brazil, 1988-94 [5]

5 Telecommunications in Latin America, MDIS Publications Ltd, March 1997

Despite its size the national telephone network does not satisfy the country's needs. Brazil has 6.8 lines per hundred inhabitants which is disproportionate when considering the thriving economy; lower than other emerging markets including India, China, Indonesia and Turkey. Demand for cellular lines is estimated at 16 million compared with the 2 million that are in operation today.

Although Brazil's domestic economy is large, 25th in the IMD World Competitiveness rankings, it's ranking for both infrastructure (transport, energy, technology and environment) and people (demographics, education, employment, quality of life) is much lower (see figure 5).



Figure 5: Brazil's World Competitiveness Ranking [6]

Liberalisation of the Brazilian telecommunications market is creating a tumultuous and challenging trading environment. If a bill de-regulating the telecommunications sector is approved, the government expects to sell Embratel and Telesp in 1997 and to define a timetable for privatisation of the entire telecommunications system by the end of 1998. Many national and f oreign private sector groups are showing interest in telecommunications following a law regulating their participation through partnership with Telebras. Over 12 consortia have been formed to participate in tenders for cellular and data services. Investment in cellular alone is

6 World Competitiveness Yearbook 1997, Institute for Management Development, http://www.imd.ch/wcb_over.html

expected to reach $10bn in the next five years. As a member of the World Trade Organisation, Brazil has offered to remove all restrictions on foreign investment in cellular telephone and satellite data transmission services from 1999.

According to American Pyramid Research, Brazil will spend $79 billion in the next three years on telecommunication services and equipment. The Communications Ministry has forecast $100 billion in government and private investment in the sector over the next seven years. The government alone expects to receive $15 billion from the sale of the state telephone monopolies and licenses for cellular services. The ten concessions to be sold nationally for cellular networks will bring from $2 to $3 billion to the government coffers. Industry observers are already calling the future entities "baby-brás," since the Brazilian privatisation plan is being modelled on the break-up of the AT&T monopoly in the US that produced the seven "Baby Bells."[7] Simply considering the size of the country suggests a huge market for telecommunications; figure 6 shows a comparison between landmass of the majority of European countries and Brazil.



Figure 6: Comparative landmass of Brazil and the bulk of Europe

7 Hanging up on the State, Emerson Luis, Brazzil On-line journal, Feb 1997, http://www.brazzil.com

Telecommunication groups will no doubt join forces with software, hardware, content and distribution companies to provide a range of products and services they could not possibly contemplate in isolation. As competition to provide these services intensifies price will no doubt determine the short term winners. The longer term players will use the richness in their groupings to provide innovative services and excellent customer support to differentiate themselves in the long-term.

Competition, encouraged by liberalisation, will bring the cost of telecommunications down. This reduction will be transferred to the customer but will also enable more sophisticated services that rely on higher bandwidth such as good quality voice and video images. Cost reduction will also make speedy access to these services available to a wider group of people in the home and in schools.

The content revolution

Computing and communication improvements have made information a commodity item, accessible across the planet at insignificant cost. Access is made progressively easier by the continued advances in chip, satellite, radio and optical fibre technology that is reaching out to the office, home, car, and mobile computer. This information world is breaching the barriers between work, play, home and office to radically change the nature of commerce and society.

In the 15th Century the Vatican library had around 400 books and it was one of the biggest libraries on the planet. Today most of us own more books as individuals and the library of Congress has an estimated 24M volumes. Video-on-Demand systems are on trial offering a choice from 10,000 videos. It has also been estimated that the total of mankind's published material doubles every year. Indeed if all the information stored electronically were committed to CD-ROM the pile of discs would be high enough to stretch to the moon and back! We now have CD-ROM technology delivering 650MBytes. Complete encyclopaedias, art galleries, museums are increasingly available. Higher value is added to this information by movies, animation and interaction. Soon we will have CD-ROMs capable of storing several gigabytes of information. Some publishing houses are

already predicting that they see the end of paper publishing in sight. For technical and reference volumes this is happening. For the rest it might not be - paper is a very acceptable medium. Indeed, if paper had been invented after the laptop computer it would have been heralded as a most marvellous invention; easy to use, lightweight, reusable, and consumes no power! Soon we will see ultra-thin, portable, flexible, low energy, high contrast screens that begin to deliver the benefits of paper- perhaps then we will truly see the realisation of the paper-less office.

Emerging applications and services; the convergence of communications, computing and content

At BT, we believe the convergence of computing, communication and content has put us on the verge of a new age of communication. Every conversation could take place face-to-face and eye-to-eye. Teachers could share their knowledge with everyone that needs it. Carers could reach out to everyone in need. We could play together regardless of geography. The wonders of the world could be accessible to everyone, everywhere. The services that emerge from this vision will include the following:

Emerging applications and services

Home	*Business*
VR Games	**Data Visualisation**
3D films	**Network agents**
Video telephony	**Mobile working**
Entertainment on demand	**On demand video conference**
Electronic	**Specialist magazine delivery**
Electronic mail	**Universal electronic mail**
Information on demand	**Database access**
Medicine on demand	**Shared virtual work environments**
Home shopping and banking	**Virtual private intranets**

In such a content rich world users will have a bewildering range of services, information channels and entertainment outlets to select from. Our vision of this future system requires the use of agent technology to assist users to manage their personal information space. N. Negroponte (Director, MIT Media Labs) has coined the term 'electronic butlers' for these types of agents. Just like human butlers the agents will have to learn the needs and whims of their owners[8].

The range of information channels and diversity of entertainment sources available will provide significant opportunities for the service providers. Just as the end users will need agent technology to assist them to locate, negotiate and route information, the service providers will need to develop agent systems which assist the targeting of audiences and users. Ideally, the service provider systems should build up a profile of every user connected. Such profiling systems must have the ability to track the changing interests and habits of users and anticipate their future needs. They can then become proactive providers of new information products.

Emerging forms of organisation

Organisations are using the power of computers and telecommunication to become increasingly, and in some cases, totally dispersed. They are virtual and organic with people contributing in an electronic rather than physical space. People can work when and with whom they choose, as appropriate, having access to machine intelligence and information. This is revolutionising the way business is conducted and economies are driven. Already those at the forefront have established group environments where work is passed around the globe, like a baton, from one daylight zone to another. Programmes, projects, developments, creativity and collaboration can be non-stop, non-national, virtual and very fast. Almost any physical assets such as people, office accommodation, manufacturing plant and information technology can be created and dismantled in response to business needs.

Researchers and developers can manipulate information in

8 Being digital, Nicholas Negroponte, Vintage, 1996

electronic environments whilst physical products are created in part or wholly automated factories. As the time between product conception and realisation is shortened, companies are providing high volumes of individualised products. Rather than being product based, manufacturing becomes a service whereby its output is highly malleable to serve the desires of special niche markets. This information intensive work process creates a high demand for knowledge workers who operate in problem solving teams, monitoring and controlling the longer-term performance of automated machinery. The knowledge worker becomes more like the craftsman who sees the job from end to end with a high degree of autonomy and satisfaction.

The prerequisites of entry to this new paradigm of business are knowledge and access to the network. The individuals undertaking the work must have knowledge that is useful to their employer. But this can be rendered irrelevant without access to the network. As networks increasingly ignore regional or national boundaries, these knowledge workers will begin to compete on a global scale. Brazil compares favourably with other large emerging market with similar characteristics (China, Russia, India, S.Africa) in terms of it's domestic economy, people and infrastructure. All of the countries in figure 7 will have to work hard to get a share of the information economy from the likes of the US and Japan.

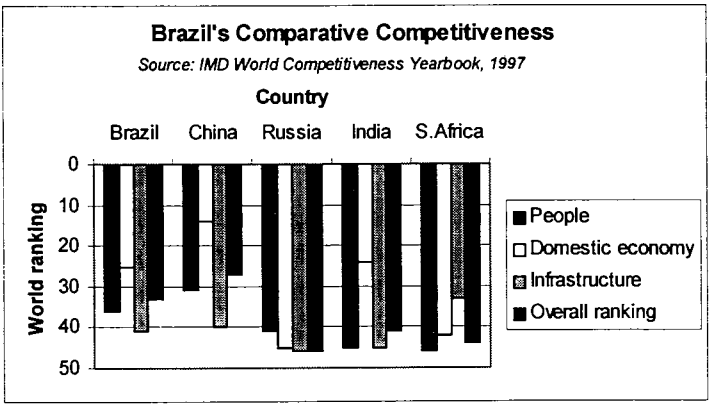


Figure 7: Brazil's Competitiveness compared to other big emerging markets[9]

9 World Competitiveness Yearbook 1997, Institute for Management Development, http:// www.imd.brazzil.com

In virtual business, teams are strongly project orientated and communicate horizontally to serve customers directly. Membership of these virtual teams is based on the skills and resources required to meet a specific customer need. These skills might come from many locations around the world. For example, a UK based firm wishes to open an office in Sao Paulo. A construction project management team in Rio de Janeiro assembles a team of architects from Boston, London and Paris. The physical construction is undertaken by local contractors. This one-off virtual organisation is made possible by a global communication network and electronic media. Project information flows between team members via video-conferencing and electronic mail services. Design activities are performed in real-time, shared multimedia environments.

Once the business need has been met the virtual team may disperse or, at least, have its value to the organisation reviewed. However, in the process of working together an intricate web of contacts and relationships is formed that may create many opportunities for individuals and groups alike.

By putting information on-line it becomes easier for the organisation to combine centralised control with faster decentralised decision making. The role of management is no longer to gather, analyse and give information. Networked computers perform these sorts of tasks. The major role for the manager is to establish an environment in which the virtual business can function, e.g. establish the vision for the business, develop competencies, provide recognition structures and create trust. Managers must bring temporary teams together to achieve specific project goals.

Inside the virtual worlds of computers and communications networks workers are using multimedia "shared spaces" where communities of people can come together to achieve their objectives. Inside the shared space each person is represented by a likeness of themselves - an avatar - which mirrors their words and actions in the real world. You can, for example, create communal areas for peer networking and socialising; as well as private rooms for business meetings, complete with information sources to hand. There is no limit to the number of people who can become part of the virtual environment, which makes this technology ideal for bringing

individuals in distributed businesses closer together and generating a team spirit among them. We predict that shared spaces will play an integral role in helping to build on-line communities around a product, service or brand; and that these growing communities will become a major new channel to market for businesses of all sizes and descriptions. Other applications include inhabited TV, whereby the viewer enters and can make things happen in a virtual world which is part broadcasting and part social interaction.

Existing video conferencing and video telephone technology presents us with images of another human of the wrong size, the wrong colour and generally blurred or jerky and distorted with movement. The images lack good synchronisation between speech and lip movement, have a voice that does not emanate from the lips, but from some loudspeaker to the side, do not permit eye contact or body language and do not approach the illusion of "being there". Moreover, in video conferencing, these limitations are compounded by the need for more than one screen and the lack of any shared work space. This creates an unnatural and sterile work place which is difficult to become acclimatised to if all of the people in a communications session have not been previously acquainted. Through the use of large displays with high definition in 2D or 3D people could appear in full proportion, with the right colour, a voice that emanates from the lips in a distortion free and convincing manner. All of these technologies lead to a feeling of being there! What is more, they are already available today, at various stages of research and development.

The "VisionDome" takes the notions of videoconferencing and shared spaces to a new dimension. In appearance, it looks like a 15ft high miniature of domed cathedral. When you step inside you enter a 3D immersive environment where images fill your complete field of vision accompanied by stereoscopic sound. There is no need for restrictive glasses, goggles or other high-tech paraphernalia. It provides a collaborative space where, for example, engineers from around the globe could meet to review a virtual product design or the public, planners and politicians could walk through a proposed urban development, experiencing the environmental impact. In the future, networked VisionDomes could provide businesses with a unique collaborative working tool. Specialists with different skills, who may be based hundreds or even thousands of miles apart, will be able

to join together as one to visualise and progress designs of everything from pharmaceuticals, to household goods, cars and buildings. A further example of a VisionDome application is a virtual car showroom, where prospective buyers could look at the model of their choice from every perspective and then enjoy the feeling of taking it for a test drive.

Storing information electronically means that everyone in an organisation can access it. Individuals can send information around the global organisation cheaply and almost instantaneously using internal Intranets. Employing the universal web browser interface, Intranets are ideal for any closed group of members, ranging from multi-national companies to communities of interest such as healthcare professionals. Software tools can seek out facts, trends and relationships; putting the power of information into the hands of managers without the need for hierarchy or bureaucracy. However, rather than turn a company into a communication island, businesses can link directly to customer, supplier and partner to provide seamless process integration up and down the value chain creating the truly extended enterprise. Rather than employ a large telephony call centre, Visa offer their corporate directory to customers and suppliers on-line. Similarly, rather than post three million pieces of paper per month, McDonald Douglas distribute technical briefing notes for airline engineers on-line. These are more up to date and more accessible and have almost zero cost to distribute.

The proliferation in effective and usable electronic media has allowed a large percentage of work activity to become location independent and to enable people to co-operate more effectively in the conduct of their work. Two-thirds of Fortune 1000 companies currently have teleworking programs, half of which were instituted in the past two years. A majority of those with telecommuting programs expect them to continue to grow, while nearly 60% of executives from companies without programs expect to institute one within the next three years[10]. People can send and receive information whether at a remote site, at home, at work or on the move. There is now a real opportunity to bend work to suit the individuals' preferences and lifestyle. For example, people wishing to raise a family or

10 Telework Analytics International, 1997, http://www.teleworker.com

care for ill relatives can make use of home working or flexible hours. Those who wish to move from place to place can maintain contact and do work for organisations while pursuing other goals.

Brazil's population is largely bunched along the coast and in cities with a larger proportion in the south (see figure 8). Over the past 60 years there has been a marked shift from rural to urban areas, with the latter accounting for 74% of the total in 1991 up from 46% in 1960.

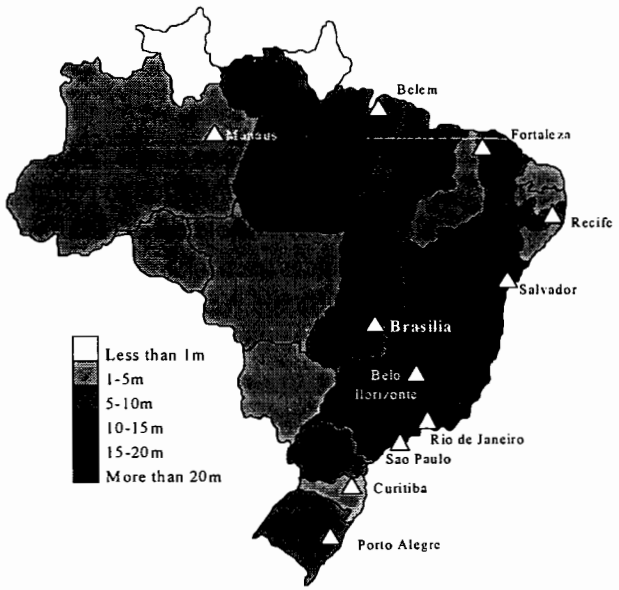


Figure 8: Population distribution by region[11]

There is also great variance between regions in terms of their share of GDP. In a comparison between the States of São Paulo and Pernambuco (which is fairly prosperous in NE terms) São Paulo takes the lion's share with a $4,630 GDP per capita, while Pernambuco's is $1500 [12]. São Paulo has 5.6 million cars and Pernambuco 601,000. The average monthly wage of a *Paulista* worker is just over $1000, while his/her *Pernambucano* counterpart makes $175. The countrywide average salary is $650 per month.

11 Economist Intelligence Unit, Country Profile 1996-97

12 Doing the right thing, Wilson Velloso, Brazzil On-line journal, Feb 1996, http://www.brazzil.com

Re-addressing social imbalances is one of the three main objectives of Brazil's "Real Plan"[13]. Wealth must flow throughout the populace to sustain long-term economic growth and social stability for the entire nation. The opportunity exists to integrate other segments of the population into various parts of the economy through telecommunications. This might take the form of regional telecenters that supply the necessary technology and connections. The value poorer regions of the country can contribute to the information economy will depend on the effectiveness of the education system which we will discuss later. Clearly, the notion of a regional telecenter which enables "remote" business to occur also applies to enabling remote education.

The increasing range of communications media, including Fax, e-mail and mobile phones, have added a new dimension to communications but they have also added complexity. With a whole range of different contact numbers to remember, and separate sources to check for messages, managing communications is becoming more difficult. A development known as BT Magic seeks to solve this problem by combining the benefits of personal numbering and universal messaging to deliver voice, fax and e-mail messages to a single mailbox. Messages can be retrieved and managed easily by telephone, or via an easy-to-use web site. A parallel development is OneFax, which offers the same benefits for fax machines. In addition, improvements in natural language technology are making it easier to retrieve messages by voice.

For global roving, Mobiq is a small terminal at the leading edge of satellite communications. Easy to set up and use, it offers global messaging and voice communication capabilities in a device that looks like an ordinary phone. By taking advantage of satellite technology and services, Mobiq delivers communications in over 200 countries.

These changing workstyles mean that the overriding requirement for an office environment is no longer to support singleton workers interacting with equipment. For example, using a desktop PC to prepare sales bids for customers. This might be done more effectively from the

13 Real Plan, http://www.fazenda.gov.br/ingles/rea01v00.html

peace and quiet of the salesman's home or working with the customer at their location. However, there are still many occasions where direct face-to-face interaction is the most acceptable means of communication e.g. performance appraisal, coaching, negotiation and social interaction. Perhaps, while virtual teams are building relationships and forming norms of behaviour, physical presence is required to cement a strong sense of team membership. This places a very different set of requirements on "office-space". The design of the building should reflect a blend of work and social settings. People need to interact for many different reasons so formal, informal and social meeting places may be required. If individual desks are still required, it may be appropriate for desks to be shared amongst many people to increase the utilisation of space.

Working remotely using telecommunications has further benefits for the environment. Roads are by far the most used transport system in Brazil. The number of vehicles is estimated to have reached 22.6 million in 1996[14]. Brazil has an unequalled stock of biodiversity (more than 20 percent of the world's known plant species live here), and it's forest plays a critical role as a global carbon sink. Any measures which contribute to a control over pollution will obviously benefit the earth as a whole.

Emerging forms of commerce

Electronic commerce will become an increasingly common form of trade. The Internet offers many new opportunities for marketing and selling products to a global customer base. In a Memorandum to his Heads of Executive Departments on the 1st July 1997, President Bill Clinton states;

> *"commerce on the Internet will total tens of billions of dollars by the turn of the century and could expand rapidly after that, helping to fuel economic growth well into the 21st century".*

The US President then goes on to direct the relevant departments to

14 Europa Publications Limited, The Europa Year Book, (London: EPL, 1995), p.637

ensure all the necessary enablers are in place and barriers are removed to make electronic commerce a reality.

There is a developing world-wide portfolio of electronic commerce services including the hosting of on-line merchants, secure business-to-business transactions and intelligent market matching services.

The BT WebWorld Commerce platform supports the sale of medium to high value goods and services through secure credit card payment. We are also looking at ways of enabling businesses to charge for low-cost goods and services. One possibility we are presently trailing allows customers to download tokens into their "PC wallet" and spend them on maps costing just a few pence each. We are additionally looking at integrating telephony and WebWorld to provide an Internet call-me-back service, so that when a potential customer clicks on a Freefone 0800 number on a Web site, they will be automatically connected to a call centre agent.

Before you can feel confident about such trading in the electronic world, risk of fraud must be minimised. When carrying out a transaction electronically, it is essential to reliably identify the person you are dealing with and know that they are trustworthy. In these circumstances a trusted third party is needed to vouch for the users identity and credentials. A trusted third party may also provide a notarisation service - witnessing that a transaction has taken place and producing the necessary evidence in the event of a dispute. You will then be able to call on proof of purchase, proof of sale and proof of payment, in exactly the same way as you do in the manual world.

When trading electronically over the Internet, you also need to be confident that the messages you receive are genuine and have not been tampered with in transit. Digital signatures address this requirement. BT is developing smart card based techniques that enable you to append a unique digital signature to your messages, which can then be sealed in the equivalent of an electronic envelope to guarantee their privacy as they are transmitted over the network.

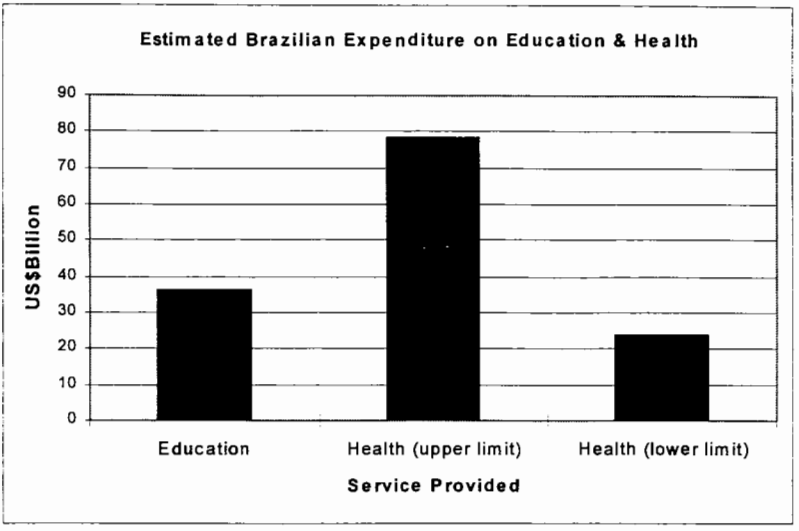
Emerging forms of education

There is no doubt that the information revolution is set to change the nature of education forever. Not just for children, but for people of all ages and abilities, as the need for life long learning becomes paramount. Conversing with experts and sharing knowledge with people around the world will become as commonplace as speaking with those who sit next to us. We will have access to more factual information but the greatest opportunity is to learn about histories, concerns and ways of living other than our own. Education and training will become a continual and necessary process with new technologies introducing novel teaching and learning methods.

One of the biggest educational problems in Brazil is school non-attendance. Reasons for this include insufficient school places and children from large poor families starting work from the age of 10. Only 43% of children who start primary school attain Grade 8[15]. Education standards reflect the skewed distribution of income and imbalances between regions, with the quality generally better in the south and south-east of the country. As with distance working, informatic services present an opportunity to readdress this imbalance through the application of distance education.

It is estimated that Brazil currently spends over US$35bn on education per year. Assuming just 1% of this expenditure can be "displaced" by telecoms then education will provide in excess of US$3.5bn. Similarly, in healthcare current expenditure is estimated at between US$23bn and US$78bn. This would provide between US$2bn and US$8bn worth of telecoms revenue (see figure 9).

15 Unesco, Statistical Yearbook, 1995



Figue 9: Expenditure on Healthcare and Education & Health

In essence, the "chalk and talk" classroom of today must be transformed into the knowledge rich learning environment of tomorrow. Already BT's Internet based "Campus World" service delivers curriculum information and puts teachers and students in touch with one another around the world. "Campus Connect" provides an administrative system for schools improving internal processes and access to information. Soon we will be launching a service which will support training for the business community; delivering the right knowledge to the right person at the right time.

In the future, the very process of education will have to change. The majority of universities are small, with even smaller departments increasingly stretched by a widening curriculum. Staff have to cope with larger numbers of students and teach a wider range of courses in a shorter time. Why then do we have say fifteen lecturers in various dispersed universities giving the same lecture on different days to different groups of students? With IT and telecommunications it is possible for all the students to attend any one of the lectures, or indeed, for the one lecture course to be prepared and broadcast by a small team at one university to all the others. This would allow specialism by department, an increased efficiency and

depth of understanding, a real opportunity to conduct meaningful research, and perhaps most valuable of all an ability to allow students to mix and match modules and create their own degrees at a distance. The distributed degree among five or six key universities would then be a real possibility!

Teaching and education methodologies can also be expected to see radical change. On-line tutorials, lectures and interactive teaching packages for the rapidly expanding science and technology based curriculum would seem a necessity. Indeed, packages are already being introduced in medicine and other professions. The dismantling of high tech structures, the simulation of air flow across an aircraft wing, the current flow in an electronic circuit, or the dissection of a frog or human organ are already available on trial systems. In some universities it is already impossible to get a degree qualification without your own personal computer and telecommunications link.

Perhaps in the not to distant future we will be able to cruise the world's institutions of learning, virtual or real, and drop in for a refresher course presented by an internationally recognised expert - anywhere, anytime! Perhaps project reports and theses will become interactive documents and high quality visualisation will offer immediately informative representations of physical or other situations. Those who have tried and found the traditionally long haul of a many years education to get even a rudimentary understanding too tough, difficult, or plain indigestible, might find that visualisation and/or virtual reality puts them in the picture - at last!

In BT we run two internally customised Masters Programmes; one technically focused the other commercially focused. These are affiliated to University College London and involve contributions from numerous UK and overseas academic and industry institutions. The basic philosophy is to find the best of the best to educate the company based students. We have experimented with teleporting in lecturers (on dial up Digital Circuits) who appear on a 3m back projected screen. It works - the best of the best at low cost!

Brazil's SchoolTV was introduced in 1995 to train teachers and update their teaching techniques. Each public school of over 100 students

receives the exclusive satellite service via a television set, VCR, and satellite dish provided by the government.

As companies virtualise their businesses they will move away from a paternalistic sponsoring of first and higher degrees, to the hire and fire of expertise as required. It will then be the responsibility of the individual to keep learning, keep pace with the technology, broaden their education, and remain a valuable and employable member of society. Education must become continual and customised and be available on demand. However, the attention of most educational planners focuses much more on the acquisition of equipment than on the necessary changes of mentality that are a precondition for success. And the time it takes for these changes to take place is grossly underestimated. Teachers with varying levels of familiarity with technology need time to adapt and appropriate training; children don't seem to need any time at all!

Emerging forms of healthcare

The healthcare industry is currently faced with an exponential growth in patient expectation and the basic raw material of understanding patient needs - information. In Brazil, healthcare spending doubled for 1995 compared to 1993. The number of Community Health Agents rose from 29,098 in 1994 to 34,546 in 1995[16]. Yet there is still a considerable strain on healthcare services. The next decade may see a demographic bulge as the population ages. The number of people available to support this ageing population is decreasing with each new generation. During the last half-century, the fraction of Brazilians under 14 years has fallen from 43% to 34%. The fraction over 60 has risen from 4% to 8%.[17] In some parts of the world, they expect the imbalance to decline to one supporter per two adults. In Japan, this is being addressed by developing robots to undertake the caring and rehabilitation tasks, while other initiatives seek to make the human carer better trained and more effective.

16 Brazil 1996: From Reform to Growth, Presidente Cardoso, 1995
17 Brazil in Brief, Brazilian Embassy, London, 1997

As with GDP, population, business and education, there is large regional differences in the quality and quantity of healthcare. Figure 10 shows the differences between regions in number of beds available and number of healthcare visits.

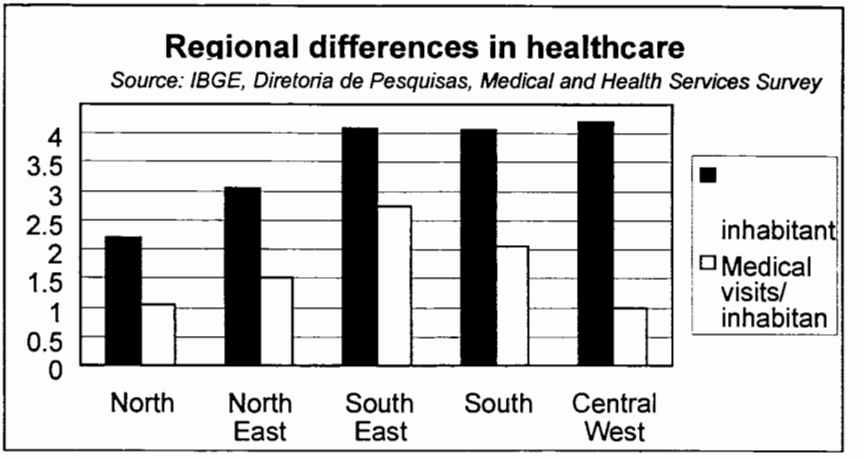


Figure 10: Regional differences in healthcare

Technology has the power to link patient and carer regardless of geography. Many care activities have taken place over the digital network including remote fetal scanning, paramedics transmitting images from accident scenes, remote dermatological diagnosis and remote surgical operations.

The remote fetal scanning trial involved simultaneous viewing of scans in Queen Charlotte's Hospital in London and St Mary's Hospital in the Isle of Wight without loss of quality or definition. Babies could be diagnosed by leading experts without the need for the patient to travel whilst making very efficient use of the consultant time. Similarly, endoscopic examinations on patients at Ipswich Hospital have been carried out under the guidance of a remote expert from St Mark's Hospital, London (see figure 11). In each case the links were provided by the ISDN. In theory, any electronic equipment used in diagnosis can be connected over a network

and the display viewed in as many places as necessary. The only limit is bandwidth, and this is rapidly being overcome by fibre optics.

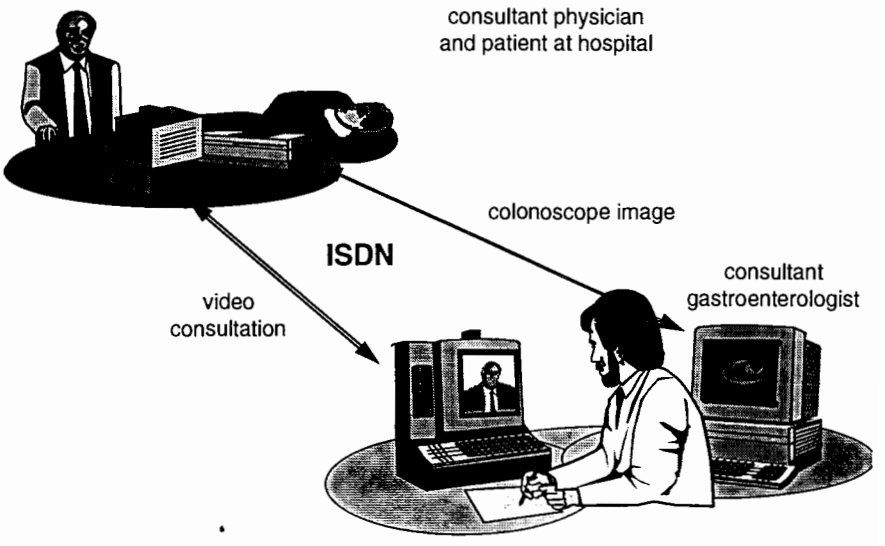


Figure 11: Tele-endoscopy Link.

More recently a still image transfer system for paramedics to transmit pictures from the scenes of accidents has been developed by combining a digital camera, laptop computer, and digital mobile phone.

CamNet offers the capability to place a distant expert inside the body of a surgeon undertaking an operation. The system uses miniature cameras and microphones mounted in a headset to capture 3D images and sound. This can then be transmitted to a remote colleague who can offer guidance or even a multiplicity of sites where students could observe and learn. The remote surgeon only needs to be involved during the critical parts of the operation and can switch between patients as necessary. Their expertise can be made available anywhere as required.

In addition to assisting in people's physical needs, IT might be able, in some part, to enable fulfilment of emotional needs. Networks allow virtual communities to be created anywhere on the planet without the need for introductions (see figure 12).

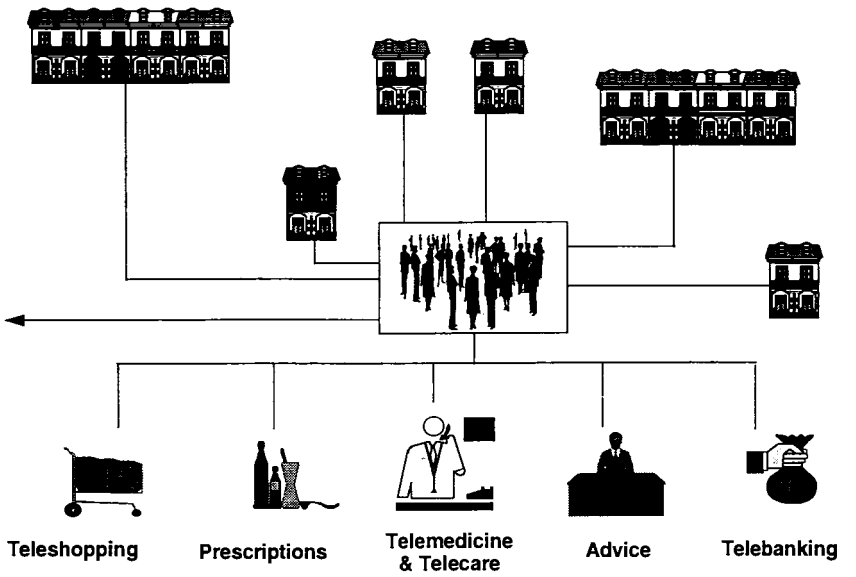


Figure 12: The Virtual Community.

Special interest groups already abound and discuss anything of common interest and exchange experiences. People ranging from scientists to prisoners and the homeless all access and use the Internet. There are already bulletin boards for a large number of diseases and complaints including Aids, Muscular Sclerosis, cancer and many more.

Usability: a key to mass acceptance of technology

Impressive as the capabilities of IT are they still demand a high degree of capability on the part of the user. This need for users to learn the complexities of their systems to unlock potential is an impediment to the mature, but less of a problem for the young.

An information society presents substantial human interface problems for all IT related industries. The ideal is to deliver information on demand, in the right form, at the right time, at the right price to a fixed or mobile terminal anywhere. However, today's IT industry has a multiplicity

of hardware, software and interfaces that present an immediate challenge. In addition, a combination of technophobia, natural inability and bad interface design has frozen out over 80% of the human race from using IT. The move to GUI based systems has seen some latent ability and demand realised. Perhaps the most important step will be the advent of the really friendly and effective computers you talk to - allowing even more people easy access. However, the real breakthrough will be technology that realises a human like ability for co-ordinated sight, sound and touch.

Technology will give us access to more information, more flexibility, more functionality, more choice. Such a huge amount of information soon becomes irrelevant, out of date and represents a meaningless clutter. To access and keep up to date in an information space so vast is impossible. Searching for information can be overcome by artificial intelligence realised as autonomous software agents. Given a profile of your interests software agents already exist that will cruise the internet on your behalf to gather relevant information. The next generation of information agents will tailor source material in ever more sophisticated ways, giving you summaries, integration and visualisations of the information. Instead of buying a complete newspaper, magazines, books and databases, to discard large sections that are of no interest, we have the option to pay more for less. Technologies are needed to help us navigate through the growing field of information, find what we want, access and manipulate data so we can get down to decision and action! Some of these new intelligent systems are already appearing in BT products [JASPER and NetSum].

Conclusion

The informatic services considered here results in a reduced need to travel, a positive contribution to a greener planet, and a wider choice of experience for all concerned. A further outcome is likely to be the restructuring of conurbations. The distributed society working in an information world will create new environments, new cities of the mind, new places to meet and work. The rate of change is unlikely to be limited by the evolution rate of the technology, more the inability of society to subsume advances and make use of them in a positive and economic way.

Putting IT to work might just be the ultimate challenge, and opportunity, for humanity.

The route to creating an advanced informatic infrastructure is to ensure any initiatives will benefit the end user, the funding agency and the informatic supplier simultaneously. From the brief analysis in the paper we suggest that further co-operation and sharing of understanding would most usefully be achieved in the areas of emerging organisations, commerce, education and healthcare.

Brazil's telecommunications market has enormous potential. In order for the country to modernise its governmental and economic structures, it must upgrade informatic services.

Aerospace Industry in the United Kingdom and Brazil: Possibilities of Cooperation

*Donald McLean**

Introduction

The aerospace industry is one of the most significant global industries in terms of its use of advanced technology, its continuing need for skilled engineering and scientific personnel, its impact on the environment, its destructive capacity, its economic and financial demands, its effect on the social habits of every nation, and its safety imperatives. It involves aeronautics, avionics, information technology, space activities, meteorology, military strategy, legislation, politics, and high finance. In aeronautics, the concern throughout the world is with civilian and military aircraft, both fixed and rotary wing, and the ground and air support such aircraft require to be able to operate. Military aircraft involve special considerations relating to offence and defence, and can encompass missiles, munition, communication, navigation, flight guidance, life support and electronic counter-measure systems. For civilian aircraft the aeronautical concerns are more directed to performance and efficiency, safety, and profitability. The technology involved in the navigation, guidance and communication functions (generically referred to as the avionics) is of the same nature as that employed in military aircraft, but used for a different purpose. Space activities are carried out to provide global communications

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and entertainment, for examining the resources and climate of the Earth by remote sensing, or for furthering scientific knowledge. The same technology can be applied for military purposes: the launch vehicles have been developed from inter-continental ballistic missiles, and satellite technology can be used for military intelligence purposes. Both aeronautical and space vehicles must operate in a controlled environment which requires sophisticated and complex operational organisations to function. Not to be involved in the aerospace industry at some level is impossible for a modern state.

It has been pointed out by a Minister for Foreign Affairs of Brazil that if a developing country cannot gain access to advanced technology it cannot overcome its disadvantages. But, as this paper will try to show, the powerful forces of globalisation, so emphatically described by President Cardoso in two addresses in 1996 are creating such pressure in the world-wide aerospace industry that existing national aerospace industries face a difficult future without being involved in international collaborations. Those countries which have no aerospace industries will find it virtually impossible to contribute to the future development of aerospace industry, even if collaboration were possible[1].

This paper will proceed by describing first the current state of the aerospace industry throughout the world, then give an account of the current part played by Brazil, followed by a description of the current UK state, and its relationship with Brazil, with some mention of the UK's future plans.

A short account of the known expansionary plans of the US aerospace industry will also be given to provide a background for the suggestions made about the possibilities of co-operation between Brazil and the UK.

Global Nature of the Aerospace Industry

Without being too exact, it is sufficient for the purpose of this paper to consider that the world population of aircraft at present consists of the classes shown in Table 1.

1 There may be some vestigial activity instituted as part of an offset agreement associated with a major aerospace purchase by that country, but it is unlikely to be sufficient to nurture and sustain an indigenous industry.

Table 1	
General aviation & light aircraft (including busyness and air taxi)	250,000
Civilian Airliners	15,000
Military Aircraft	25,000
Rotary Wing Aircraft (Military, Police, Ambulance & Civilian)	5,000

The difficulties in obtaining exact information about military aircraft and determining the current operational state of registered aircraft are very great, but the relative proportions of the classes shown in Table 1 are reasonably representative.

The majority of general aviation aircraft are to be found in the USA, but product liability laws in that country had a severe effect on the sales of new aircraft until very recently. Yet it remains true that production of aircraft for this class remains an American strength. Such aircraft must be relatively inexpensive, so that reasonable returns over the development and production costs can only be obtained with extensive production runs which implies a large market - which exists principally only in the USA. France is probably the second-ranked producer but the annual production rate of light aircraft there is not large.

The production of military aircraft is subject to political determination, but in the present state of near-world harmony, the needs of the military world-wide can be satisfied from USA, CIS, and European aircraft. The F-16, F-18, SU-25, Gripen, Mirage 2000, MiG-29, Tornado, F-22, and EFA 2000 are, or shortly will be, available, and, in military transport terms, the Lockheed C-130J, the European FLA and, the McDonnell Douglas C-17 and Lockheed C-141, are or will shortly be, available. New projects such as the JAST and the EFA 2000 are multi-national collaborative ventures to meet the large development costs and to reduce the lead-in times. Military helicopters such as the Apache, the Merlin, based on the EH101, and the Eurocopter Tiger are also available*. However,

the largest area of aircraft procurement in terms of numbers, if not value, is in the field of training aircraft. The Tucano, the Beech/Pilatus PC-9 (JPATS), the BAe Hawk, the Yak 130, and the MiG-AT, and the Dassault-Breguet/ Dornier Alphajet are all under active consideration by a number of countries, although a re-engineered Tucano has been purchased in significant numbers by the RAF. The USAF has placed contracts to acquire 711 JPATS aircraft over the next 20 years.

Russia is known to require 250 - 300 new trainer aircraft which will probably be either the MiG-AT or the YAK-130 (which was jointly designed and developed by Aermacchi). Both Australia and South Africa are considering the adoption of the BAe Hawk-200 for their Lead-in Fighter Programme and Advanced Fighter Training Programmes, respectively. The ALX, being developed by Embraer in Brazil, is a new version of the successful Tucano turboprop trainer, but using the Pratt & Whitney PT6 of 1600 shp, and is being considered by a number of Latin American countries. Even the Aermacchi MB-339 trainer is being upgraded, as is the venerable T-38 used by the USAF. These facts indicate that the training aircraft field is a very considerable one for future world-wide purchases, and, in this particular area, both Brazil and the UK are pre-eminent.

The procurement of missiles, satellites and ordnance for military purposes is usually subject to some secrecy, although it is known that, for example, the USAF is actively considering four distinct designs from the Hughes and Raytheon Corporations for the AIM-9X missile programme. The Mistral, Sea Skua and Sea Wolf missiles, produced by Matra BAe Dynamics, remain useful missiles for defence even into the next century.

In civilian aircraft terms, it is necessary to understand that passenger traffic has been growing at over 5% per annum since 1995. Recent figures from I.A.T.A. have indicated that airlines anticipate an average passenger traffic growth of 7.1% per year, exclusive of charter operations. Domestic annual passenger traffic should increase from 1.29 billion passengers in 1995 to 1.72 billion passengers in 2000. International traffic is expected to grow from 397 million passengers in 1996 to 522 million in 2000. The Atlantic traffic to N. America is expected to grow at 6.4% per annum; for Europe the figure is 6.6%. The Pacific Rim region is expected to increase

from a share of 35.8% of total traffic to 38.2% in 2000 A. D. Historical growth has been 6.2% over the last 20 years. If the growth is assumed to be a conservative 5% per year over the next 20 years, there is a requirement for the delivery up to 2015 A. D. of 18,500 new aircraft to satisfy the demand. Including the engine, equipment and support costs associated with the acquisition of such a number of aircraft, it is predicted that the market value of the industry's products over that period will be between $1120 billion and $1167 billion. Of the 18,500 aircraft* required by the world's airlines, as a consequence of this traffic growth and of the retirement of ageing aircraft in present fleets, about 5,450 will be wide-bodied aircraft, 4,350 will be single-aisled aircraft, with a passenger seating capacity greater than 120, 3,250 will be regional jets with a passenger seating capacity of between 50 - 120, and about 5,450 turboprops. Details of the various aircraft types for regional aircraft are given in a separate section.

a. Turboprops

For 5,450 aircraft, the average annual deliveries equal 270. However there are 16 different types available at present, which implies (if market share is maintained) a production run of only 17 units per year per type. It is not difficult to deduce that only about 7 or 8 of these types can survive. Their manufacturers will be compelled to collaborate or go out of busyness.

b. Regional Jets

Seat capacity: 50 - 120. An annual delivery rate of 150 has to be shared between five current types corresponding to an average annual delivery rate per type of 30. Unless existing types are replaced, there is clearly no room in the market for a new project. Even with 30 units per year, it is seriously doubtful if enough R.O.I. can be achieved to justify continuation of any programme. It is certain that in this sector the total number of types must be reduced either through collaboration or death.

c. Single Aisle Aircraft (120+ seats)

The annual production rate is 200 aircraft. But if the Airbus A319, A320 and A321 are considered to be a family representing a single type,

* Growth - 10,000 aircraft; replacement = 8,500 aircraft.

and the B737 variants are taken as a single type, there remains a fraction of about only 50 aircraft per year for other types. It seems conclusive that in this sector of the aircraft market there is room for only two manufacturers**.

d. Widebodies

There are presently seven available types, but with recent changes in the status of McDonnell-Douglas, the total effective number can be considered to be 5, which implies an annual production rate of about 45 aircraft. These figures suggest that there is commercial safety for only two manufacturers. The implication is that these manufacturers will be Airbus and Boeing. The CIS manufacturers have the technology and the capacity to bring out a competitor aircraft, but doubts about the financial support available over the time period suggest that this is unlikely to occur. It should be noted that both "manufacturers" are in fact amalgamations of international collaborators.

e. Future Projects

Boeing has withdrawn from plans for the production of the B-7XX long-range 700+ seater aircraft, claiming that there was an insufficient market. Airbus expects the development cost of its "super-jumbo" to be about $8 billion - $10 billion for a production run over the next 20 years of 600 - 700 aircraft. Boeing, in its most recent study, has decided from its survey that a market for such an aircraft does not exist and it is concentrating instead upon extended versions of the B-747, B-767 and the B-777 which it believes can meet market demands. Airbus has considered the development of such a large aircraft as being essential for the reduction of air traffic congestion in the year 2010. Lockheed Martin the American company is reported to be discussing the possibility of co-operating with Airbus on the A 3XX. Airbus' involvement in the FLA project, however, which is a direct competitor of Lockheed's successful C-130 J and the suggestion by Lockheed that European Air Forces adopt the C-141 to meet Europe's Multi-

** This presumes competition on equal terms. There is, at present, (July 97) a profound difference in outlook between the EU countries and the USA, and Boeing, in particular, about the validity of Boeings marketing manoeuvre of tying up airlines to long contracts in exchange for favourable (subsidised ?) terms. At 21 July 1997 the reaction of the EU Commission to what is regarded as Boeing's restrictive practices is eminently expected (Times, 21 July 97).

Role Tanker/Transport requirement, imply that the proposed collaboration may not materialise. The capacity of the world's aerospace industry to meet these new demands may be inadequate and will inevitably require international collaboration.

Regional Aircraft

These represent a significant class in the future aircraft requirements listed earlier. They are a class of aircraft in which Brazil and the UK have a strong market presence. Hence this section of the paper will present a summary of the present world situation in relation to such aircraft. At present, there are 18 aircraft types available in this class. They are listed by seat capacity and manufacturer (with country of origin) in Table 2.

Table 2

Class	Manufacturer Country of Origin	Type	Cruising Speed	Range (n.m)	No of Seats
Turboprops 19 - 35 seats	Fairchild Dornier *USA*	Metro 23	290	900	19
	AI(R) *Europe*	J.41°	295	740	29
	Beech *USA*	1900	288	500	19
	Embraer *Brazil*	EMB-120	310	400	30
	SAAB *Sweden*	340	285	755	37
	Bombardier *Canada*	DASH-8/100 DASH-8/200	270 300	760 940	37 37
	Fairchild Dornier *Germany*	Do 328	355	900	30
Turboprops 40 - 50 seats	AI(R) *Europe*	ATR42-500	304	1020	50
	Bombardier Canada	DASH-8/300	285	825	56

Class	Manufacturer Country of Origin	Type	Cruising Speed	Range (n.m)	No of Seats
	SAAB *Sweden*	2000	375	1320	50
	CASA Spain	CN-235	355	1079	44
Jets 50 seats	Bombardier *Canada*	CRJ	464	1620	50
	Embraer Brazil	EMB-145	426	1270	50
Large Turboprops	AI(R) *Europe*	ATR-72	280	900	66
	Bombardier *Canada*	DASH-8/400	350	1140	78
	IPTN *Indonesia*	N-250-100/200	358 358	800 800	64 72
Large Jets		AVRO RJ 70	0.73^{+}	1670	82
	BAe *UK*	AVRO RJ 85	0.73^{+}	1570	100
		AVRO RJ 100	0.73^{+}	1420	112
	AI(R) *Europe*	AI(R)* 60	0.75^{+}	1500	60
		AI(R)* 70	0.75^{+}	1500	70
	Bombardier *Canada*	CRJ-X*	0.81^{+}	1540	70

° Going out of production * Not yet in production $^{+}$ Mach No

Regional aircraft are characterised by having low operating costs and low acquisition costs. Airline requirements are to acquire an aircraft which will have the lowest direct operating costs (d.o.c.) and the highest earning potential. As traffic density and the numbers of aircraft seats decrease, and route lengths shorten, then seat-kilometre costs rise. To reduce the seat-km cost requires that the aircraft's purchase cost is reduced or the number of seat-kms flown for the same monthly finance charge is increased. In attempting to satisfy these demands, the practical choice is usually

between a turboprop aircraft, which has a lower acquisition cost (about one-half of an equivalent-sised jet), or a faster jet, with the prospect of faster block times, hence more flights (and revenue) in a given period.

Passengers tend to favour jets on longer routes; the passenger tolerance time for turboprops is generally accepted as 90 minutes. In assessing d.o.c. the following breakdown of factors is representative:

Table 3

Ownership : 58%
Manufacturing & Vendor Costs
Finance Costs
Manufacturing Lead Times
Residual Value
Fuel: 22%
Powerplant Efficiency
Weight Reduction
Drag Reduction
Flight Crew : 8%
Maintenance : 12%
Component Costs and Life
Component Reliability
Overhall Costs
Inspection Periods and Time

It is evident from inspection of Table 3 that producing a successful regional aircraft is a difficult and demanding task. One minor feature is the need to achieve performance and load capacity with the least weight to reduce the landing fees to which the aircraft will be subject. The fees at New Orleans International, for example, is $2.45 per 1000lb. The shorter block lengths of regional aircraft attract proportionally greater expense in terms of such fees than heavier wide-body jets because they carry out landings more frequently.

Space Activities

A considerable amount of satellite activity is evident throughout the world, with CIS, China, E.S.A., India and the USA providing the launch

capability. Satellites are used principally for telecommunications, T.V., meteorology, mapping, remote sensing of earth resources, and remote observation of military activity. For countries like Brazil, with a considerable and extensively undeveloped land mass, the use of satellites for remote sensing is of enormous benefit.

Rotary Wing Aircraft

Throughout the world there is considerable development of helicopters and helicopter operations. The principal manufacturers are Russian, American, French, Anglo-Italian, South Africa and India. A considerable amount of licensed manufacturing takes place: in Brazil, this activity is carried out by Helibras of Itajuba. The principal uses of helicopters throughout the world are military attack, search and rescue, emergency medical services, communication, passenger services, anti-submarine warfare, and law enforcement, particularly in the fields of illegal immigration, drug running and contraband.

Maintenance and Repair and Overhaul Supply

The MRO market for aviation is very significant: at present, it represents an annual expenditure of $23 billion, which is expected to grow to $33 billion by 2005 AD. MRO is one of the few areas of major expense which remains within the control of an operator. It is, however, complex and technical, and it is extremely intensive in its use of capital and labour. Thus, aircraft and component manufacturers (OEMs) use it to enhance revenues and to improve customer relationships. However, there is a growing tendency for aircraft operators to outsource, although every operator remains accountable for the maintenance of its aircraft, whether it performs the work using its own engineering maintenance staff, or whether it delegates the work to a MRO supplier. The major aircraft, engine and component OEMs are entering the MRO market since the aftermarket is a major source of revenue. For example spare parts alone account for $10 billion sales each year. OEMs control the spare parts supplies, they build aftermarket services with new product sales, proprietary processes, and technology, and they provide in-depth product knowledge. The development of cost-per-

flight-hour programmes to assure customers of predicable cost levels in exchange for long-term agreements is highly beneficial to aircraft manufacturers. For airlines, the money saved through outsourcing can be usefully re-invested in activities which are more visible to the customer, such as punctuality and passenger amenities. In a recent survey 25 airframe MRO suppliers, 9 avionics and component MRO suppliers, and 5 engine MRO suppliers were listed. The suppliers were located throughout the world. With the considerable increase achieved in engine reliability, holding spares is expensive for airlines, and there is a growth in engine manufacturers leasing spare power plants with guaranteed delivery world-wide within 24 hours.

Aeronautical Industry in Brazil

As a country Brazil has peacefully defined borders with 10 neighbouring countries, and has been free of external conflicts for about 125 years. It ranks amongst the countries of the UN with the lowest expenditure on armaments (expressed as percentage of GDP); it has reduced spending on its armed forces from 8.5% of GDP in 1985 to 1.5% in 1993 and its air force has only about 50,000 personnel. Moreover, Brazil has been a frequent contributor to United Nations peacekeeping operations and has a distinctive view on the UN's future role. It has been a member of the Missile Technology Control Regime (MTCR) since October 1995 which reflects the country's policy of curbing the spread of weapons of mass destruction.

Brazil is the outstanding Latin American country in aerospace. Embraer has a significant capability for the design and production of aircraft and enjoys considerable international standing for its products. With the licence to manufacture the Rolls-Royce Spey engine for the Italo-Brazilian AMX fighter-bomber, Brazil, through Motores Rolls-Royce, became the only Latin American country capable of manufacturing aero engines. GE Celma is one of the major engine MRO suppliers in Latin America. Such engine MRO is also provided by Motores Rolls-Royce, particularly for helicopter engines. Helibras undertakes assembly, marketing and overhaul under licence from Eurocopter. By 1995 Helibras had sold 270 helicopters

to 80 countries. Of the total some 10% were exported, 110 were supplied to the Brazilian armed forces, and 133 to the state Police Forces.

Brazil has a space programme which is supported by a world class research establishment, INPE, at Sao Jose dos Campos and a number of excellent advanced technology companies including Equatorial Sistemas, Digicon, Compsis, Avibras, Akros, Neuron Electronica, and Tectelcom. A number of these companies work on collaborative space and defence projects with UK companies. Communications, surveillance radar, navigation aids, inertial reference systems, computer systems and networks, antennas, and sensors are all designed and manufactured and integrated which indicates an advanced technological capacity capable of meeting most of the requirements of a national space programme.

A number of these advanced technology companies also support Embraer, a major aeronautical company which has delivered 4,875 aircraft by 1996. Its current products are the EMB-120, the EMB-312, the EMB-145 and the AMX tactical fighter (jointly with Alenia and Aermacchi). It is also the prime contractor/systems integrator for the upgrade programme of the F-5 E/F aircraft of the Brazilian Air Force (FAB). Its subsidiary, Nevia, manufacturers light aircraft such as the EMB-202, and agricultural aircraft, and, under licence from the Piper Aircraft Corporation of the USA, the EMB-720D (PA-32-301) and the EMB-810D (Seneca IV-PA-34-220T). Recent orders for the EMB-145 amount to 67 with a further 25 options. 42 aircraft (plus the options) were won from AMR Eagle in a direct competition with Canadair RJ. A long range version (1600nm) is now being offered and a new 37 seat regional jet, the EMB-135, is being considered. A stretched 70 seat version of the EMB-145, denoted the EMB-170, is also expected to be announced at the same time. Embraer also carries out sub-contract work for other aircraft manufacturers. For example, it provided 100 sets of the outboard flaps for the McDonnell-Douglas MD-11 and has received an order for a further 40, with 100 more sets on option. It provides wing-tips and vertical fairing for the Boeing B-777 and has become one of six international partners in Sikorsky's Helibus (S-92) medium lift helicopter programme. The others in the consortium are Mitsubishi, of Japan, Jingdezhen Helicopter Group of China, Gamesa of Spain, the Aerospace Industrial Development Corporation of Taiwan, and Sikorsky of the USA. Seats and structural parts

are provided by Aeromot of Porto Alegre to Airbus, Boeing, Fokker Embraer and McDonnell Douglas. Aeromot also produces motor gliders (having purchased Fournier of France in 1985) and is planning to produce an all-composite 4-seat light aircraft.

The considerable period of international stability which Brazil has enjoyed with her neighbours in Latin America and her prominence in the Mercusur trading bloc still requires vigilance. The re-equipping of the air forces of Ecuador and Peru with American and Russian combat aircraft, after the border clashes over the Ceepa Valley during 1995, brings a new shift in air power in Latin America. Peru has recently purchased 12 - 18 MIG-29 fighters and is to purchase from Belarus 14 SU-25 Frogfoot ground attack aircraft. The Ecuadorian Air Force is trying obtain 15 US Navy A-4MS which are in storage to augment its 9 Israeli Kfir C2s and 14 Mirage F1J/Es. It also has 8 Jaguar ES/EBs. Peru has 22 Mirage 5P/2000Ps, 17 A-37s, 32 SU-20/22M and 19 elderly Canberra. The Brazilian Air force has already embarked on a fighter and fighter trainer procurement programme, but must now consider the most sophisticated combat aircraft to maintain its security. The firm of Mectron is regarded as very capable in the guided weapons field and can contribute significantly to Brazil's defence requirements.

Aeronautical Industry in the UK

The UK Aerospace industry has a share of about 10% of the world market. For both military and civilian aircraft it has exported over 70% of its products to more than 90 countries. It is wholly committed to collaboration and only the AVRO RJ aircraft and BAe Hawk remain wholly British. The collaboration has principally been with European partners.

Defence spending has been set at $36.4 billion for 1997 - 98, rising to $37.1 billion on 1998 - 1999. Procurement spending is planned to rise over the three year period from 40% of the total budget to 45%, an increase in equipment spending of about 15% in real terms. Major procurement programmes for the future include the Euro-fighter 2000. The Future Large Aircraft project is under consideration, but Lockheed C-130Js have been purchased from the USA to fill the gap. Decisions about NIMROD Maritime

Reconnaissance replacement aircraft have been made and orders for the Merlin naval helicopter and Apache ground attack helicopter have been placed. Tornado updates are in progress. The acquisition of 130 Tucanos (re-engineered EMB-312 by Shorts) and BAe Hawks has fulfilled the RAF's training needs. However, the UK has great concerns about the future of its aerospace industry, and that of its European partners, in view of the dedicated aim of the US government "to ensure continued leadership in aeronautics". The level of long-term strategic commitment by governments in Europe to maintaining the aeronautics technology base has been less than in the USA where there is a policy of maintaining a strong level of research and technology support as part of its future defence capability. Since 1993 the UK has been considering future plans for developing and maintaining its aerospace industry. A report by the Stollery Committee for the UK government's Department of Trade and Industry proposed the creation of a National Strategic Technology Acquisition plan for aeronautics based upon the committee's determination of those features which would be important in civil airliner development and which were already discernible. From these features, which are partly listed in a brief account of the Stollery committee's report, the plan was based on three categories:

1.Foundation technologies which are fundamental to the well-being of the UK aeronautics industry

2.Enhancing technologies which improve effectiveness

3.Supporting technologies

The Stollery Committee proposed that category one technologies required significant amounts of national funding to ensure that the future competitiveness of the industry is sustained by technological superiority. Category two was seen as requiring some national funding, but most of the support was envisioned as coming from the European community's research programmes. Table 4 lists some of the technologies in the three categories.

Growing out of the Stollery committee recommendations, the Government responded with its Technology Foresight programme which looks 20 years ahead across 15 industrial sectors, of which aeronautics is one. Foresight presumes that the new technologies which Britain needs to

acquire will be established from perceived market requirements.

The Society of British Aircraft Constructors (SBAC) has launched its Foresight Action plan as the industry's response to Technology Foresight. Technology acquisition is considered to have three main phases:

pure research

strategic and applied research

technology demonstration.

Table 4	
[illegible]	Systems Integration
	Advanced Wing Design and Manufacture
	Emissions Limitations and Control
	Aircraft and Engine Noise Control
	Low cost Manufacture using fibre composites
	Active Controls and Smart Systems
	Rotary Wing Technologies
	Advanced Cockpit Technologies
[illegible]	Health and Usage Monitoring Systems
	Ice Accretion Modelling Techniques
	Real time Data Fusion
	Low Cost Position Sensing/reporting Systems
	Low visibility conditions Sensors
[illegible]	Design and Manufacture of Smart Systems
	Impact Modelling Techniques
	Knowledge-Based Systems
	Safety Critical Software Development
	Integrated Computer Control of Design, Development and Manufacture
	Improved Reliability and Maintainability

Examples of what might be appropriate for consideration as pure research and strategic and applied research are given next.

In the defence sector of the industry it requires simulation, mathematical modelling and synthetic environment technologies to model the battlefield. These same techniques can be used to study highly complex systems with many interactions which are only imperfectly understood, such as the air transportation system, which is generally taken as comprising three elements: the aircraft, the airport, the air traffic control. These three elements are necessary to transport passengers, baggage and cargo from one place to another. Thus, simulation, mathematical modelling and environmental technologies have been chosen as key technologies in Foresight. (See table 4).

World class capabilities in materials and aerodynamics are a pre-requisite to high performance. The ability to produce low weight, high performance and environmentally acceptable systems relies on improvements to materials and manufacturing processes for structural and temperature critical duties Advanced aerodynamic design is required for efficiency, noise and emissions improvements.

The SBAC focused on the importance of technology demonstrators. SBAC's Foresight Action encompasses three product themes;

A competitive airliner

Future military aircraft

Next generation rotorcraft.

The UK aerospace industry has responded to this initiative by funding pilot studies of three projects within the framework:

Powered Wing in which the key elements of large transport aircraft wings such as advanced structure, wing systems, landing gear and powerplant are integrated.

Flight Crew Environment in which avionics are use to achieve mission satisfaction, safety and cost effectiveness.

Ultra Reliable Aircraft - the aim is by 2010 to double the reliability

levels of military aircraft and to increase the reliability level of civil aircraft by 50%.

All these actions represent collaborative projects in which companies from each level of the supply chain are involved. The projects should ensure that busyness processes, such as systems integration, are demonstrated concurrently with the product technology.

The future of the European (indeed world) aerospace industry lies in collaboration. Yet it is becoming clearer that there are considerable difficulties to overcome to ensure successful collaborative ventures. There must be a management process in place to enable rapid decision making to be possible in quickly developing situations, despite widely different cultures.

Logistics is directly proportional to the geographic separation of the partners - which is one of the benefits of European collaboration for Europeans, but international partners can provide the potential for orders from prospective governments or national airlines which can be seen as conferring both political and economic benefits in placing work with their national industries. The workshare agreement can be emotive and high profile. Final assembly, for example, is commonly seen as the most glamorous part of the production process and it sometimes has a political importance in demonstrating this aerospace capability with its associated customer interface. Fortunately, since final assembly represents only 6% of the recurring costs, duplication of production can readily be justified if there is an associated incremental market. What is important to acknowledge in considering the difficulties of collaborative ventures is that it is becoming increasingly difficult, as a consequence of the effects of globalisation, to play a major role in world aerospace as a single nation enterprise.

In space, the UK has confined its attention to satellite technology, with only a small contribution to the European space programme. UK satellites are used for telecommunications, TV, meteorology, some remote sensing and mapping, and for military purposes. There are some scientific research satellites, but the principal effort is again an Anglo-French collaborative venture.

Collaboration between Brazil and UK in aerospace

Major aerospace projects now involve very large financial investment and require long time cycles before an acceptable ROI can be achieved. The process, which is the same for an aircraft, an engine, a satellite, a missile or an aircraft system, starts with a concept study, followed by market assessment, design and development, then production. This process may take as long as ten years, and the product and its derivative can be in service for several decades thereafter. Unanticipated changes in the available market, or in technical or operational factors, can have profound implications for the financial success of the product. So great are the risks in modern aerospace ventures that it is now necessary for there to be international collaboration on all new projects. For Brazil and UK there is scope for further collaboration, beyond the current arrangements with BAe and Rolls-Royce, Shorts and Matra-Marconi. Six areas seem potentially beneficial to both the Brazilian and UK aerospace industries if successful collaborative agreements can be constructed. They are:

1.Flying Training

It has been shown earlier in the paper that there is a considerable degree of re-equipping taking place world-wide in training aircraft for air forces. The requirements range from basic trainers, like the EMB 312 (Tucano) or its derivative, to fighter trainers, such as the BAe Hawk, to Advanced Fighter Trainers, such as the BAe Hawk 100/200. There is a proposal by Canada's Bombardier and CAE to use both the Tucano and the BAe Hawk to provide pilot training for all NATO countries. The current pilot training requirement for many NATO countries is provided by the USAF in Texas, where 300 students a year train in T-37s and T-38s. Training is required by NATO for a further 65 per year and it is this overflow requirement which the Canadian proposal seeks to match. A similar arrangement could be envisaged for complete pilot training to be provided for the countries of Latin America in Brazil, in collaboration with the UK. The use of the Tucano, Super Tucano, and the BAe Hawk, and the supporting training environment, with procedure trainers and simulators, and joint FAB and UK flying instruction, would provide a powerful and useful service to the Mercosur and other Latin-American countries.

2.Regional Jets

In the section on Regional Jets in this paper it was shown that, although there is a considerable future market for such RJs in the next 20 years, and that Brazil (through Embraer) and the UK [through AI(R)] are pre-eminent in the field, there is considerable over-availability of types, to the extent that some rationalisation is inevitable. International collaboration between Embraer and AI(R) should be explored. The possible collaboration between Europe and China for the design and production of a 120 seat aircraft is an indication of future trends. A collaboration between Brazil and AI(R), with risk-sharing partners form Taiwan, Malaysia and Korea, say, to provide a 70 - 100 seat jet for feeder services in the ASEAN region would be worth exploring, given that IPTN of Indonesia has developed a turboprop aircraft.

3.UAV

There is already considerable difficulty in military conflicts, or peace-keeping operations such as Bosnia, in providing adequate communication relays via satellites. In such situations, the need to provide commanders, and subsequently the politicians, with a reliable picture of the dispositions of friendly and "enemy" forces is paramount, and a communications bottleneck, as a result of limited satellite capacity, can be detrimental to a successful outcome. Consequently, the use of an unmanned aerial vehicle (UAV) to act as a communication relay for mobile forces with small handheld receivers/transmitters would be of considerable operational benefit. Such a UAV could avoid the need, as in Bosnia, for example, to position communication sites (manned by up to 50 signallers and protected by another 50 soldiers) on mountain tops. The savings in manpower could significantly reduce the cost of peace-keeping operations, and could increase the effectiveness of the mission. The design and manufacture of such and UAV, with a range of about 3000 nm at a height of about 50000 ft, and an ability to loiter at about 20000 ft for 36 hrs, is well within the capacity of Embraer and BAe. The necessary antenna and communications technology could also be provided by existing Brazilian and UK companies. A collaborative project between Brazil and the UK would meet a growing UN requirement and would assist both countries in

increasing the effectiveness of their peace-keeping roles without increasing the cost significantly..

4.Long Haul Aircraft

The tension between Europe and the USA arises from the competition for civil airliner busyness. The biggest area of competitiveness in the next 20 years will relate to the "super jumbos", the A3xx and Boeing's stretched versions of the B-747 and B-777. The UK is involved in the A3xx, through BAe, with design and manufacture of the wings, inter alia, and Rolls Royce, with provision of engines from the Trent family. The market figures presented earlier in this paper in the section on the Global Nature of the Aerospace Industry, indicate that this sector will represent a substantial portion of the predicted aircraft expenditure in 2010 and thereafter. There is scope for Brazil to participate in the project in a risk-sharing capacity, for Embraer has the capability to handle such work. Long haul aircraft should interest Brazil; they help to encourage tourism from Europe. As it grows older, an increasing proportion of the European population has the means and time to take extended vacations out of Europe. The growth of air travel to Brazil should be encouraged, and newer long haul aircraft, with more comfort, would appeal to that sector of European travellers most likely to vacation in Brazil.

5.MRO Centre

Already in Brazil, some MRO is provided, particularly for aircraft engines through Motores Rolls-Royce but there is considerable scope, in the light of the growing tendency to outsource such MRO by airlines, and even military and police forces, to provide an MRO for Latin America in Brazil as a collaborative venture with UK companies. The benefits to the growing airlines in Latin America would be considerable.

6.Satellite Programme

Both Brazil, with its colossal eastern Atlantic seaboard, and the UK, with its present and historical interest in Antarctica and the South Atlantic Ocean, have a great mutual interest in observing and protecting the resources of the Southern Atlantic Ocean. Such observation can only realistically be carried out by satellite. Thus, there is the opportunity for

joint satellite venture whose purpose is to monitor, by remote sensing, the fish stocks, possible oil fields, shipping movements for environmental surveillance, the ocean state and climate and weather. A collaboration between IPRE and Matra-Marconi, with some specialist input from those UK universities with space and oceanographic departments, could provide an instrument which would produce information and data of great value to each partner.

No specific mention has been made of research and technology exchanges between such respected research establishments as CTA in Brazil and DERA in UK, or between Brazilian and UK universities with aeronautical and space departments. Such exchanges will occur naturally if the collaborative ventures listed above proceed. Underpinning any projects of an advanced technological kind, as discussed here, is the continuing need for highly trained engineers and scientists which, fortunately, both Brazil and UK can provide.

Conclusions

Both Brazil and the UK are active participants in the world-wide aerospace scene. Brazil has an effective, whole capability, aircraft manufacturer, whose products of training aircraft and regional aircraft have earned respect throughout the world for their quality. However, this paper has tried to show the future perspective for aerospace to indicate that the process of globalisation has already had a significant impact, which will grow considerably in the future, on the capacity of individual aerospace companies to stay competitive without resource to international collaboration or merger (enforced national collaboration). Already the UK aerospace industry has responded to these pressures, and almost all the current UK aerospace projects, and inevitably all future projects, are undertaken in collaboration with European or other partners. A summary of the UK's view of future aerospace activities, as determined by its Foresight programme, has been provided to indicate the future direction of some of the UKs aerospace activities. From this summary, and that provided in the section on the Global Nature of the Aerospace Industry, six areas of best potential for collaboration between Brazil and the UK have been proposed

together with some "indication" of the likely benefit which could be expected. Collaboration between the armed forces of Brazil and UK companies is already significant and will increase as the importance of Brazil, as the leading country of Latin America, grows in world affairs.

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Brazil and the United Kingdom Opportunities for Co-operation in the Information Technology Industry+

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Collaboration from Ana Paula de Almeida Silva

Considerations on Competitive Development

Brazil

The image of Brazil in the outside world, the credibility of its institutions, the stability of its economy and the long-term rules for guiding its system of production, are basic conditions for the competitive development of the country. Indeed, in the 90s these conditions have come about with the consolidation of the political system and the economic reforms, both supported by the success of the anti-inflationary Real Plan (Plano Real). But to equip a nation with competitive advantages from a technology base needs public and private investment, government initiatives and access to the new technologies, all of which would represent a step forward in the country's economic and social progress.

The *World Competitiveness Report, 1993* established the following concept of competitiveness: "it is the capacity of a country to acquire economic value and sell its products in the domestic and international markets". Using this definition, Brazil's information technology industry has still not achieved the desired standards of competitiveness. Indeed, we

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should examine the following statistics:

	1990	1991	1992	1993	1994	1995	1996
Hardware Industry							
Sales (US$M)	3719.00	3660.00	4169.00	4586.00	5274.00	6413.00	7516.00
Exports (US$M)	124.00	192.60	213.30	186.50	196.50	242.00	347.00
Imports (US$M)	405.80	427.50	626.60	903.20	1166.20	1591.50	1775.80
Employment (1K)	38.00	30.00	25.40	22.60	20.50	16.50	16.30
Employment Indicator	10.22	8.20	6.09	4.93	3.89	2.57	2.17
Export Indicator	3.33	5.26	5.12	4.07	3.73	3.78	4.62
Import Indicator	10.91	11.68	15.03	19.69	22.11	24.82	23.63

Source: ABINEE
Employment Indicator - Employment by sales value of US$ 1M
Export Indicator - % of Exports over sales value
Import Indicator - % of Imports over sales value

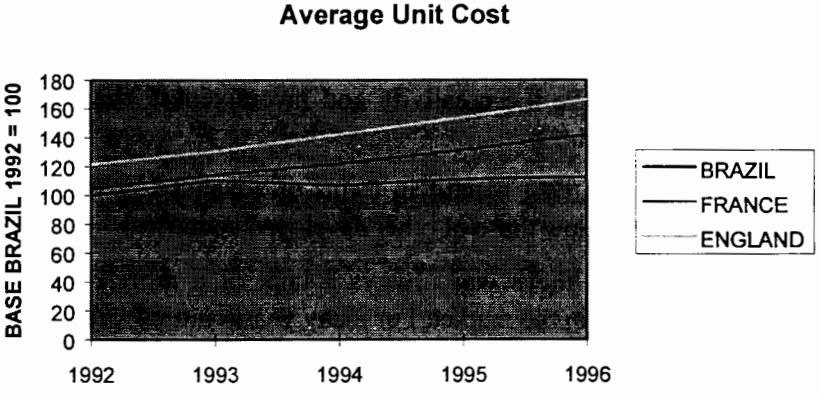
In the last seven years the internal market, measured by the sales of firms linked to ABINEE (The Brazilian Electro-Electronic Industry Association), has doubled in terms of the information technology industry. In the same period the export indicator varied more or less one percentage point around 4.3%. The import indicator shows the direct effect of opening up the market in the area of the information technology industry in Brazil: in 1990, 10.9% of the sales value was imported - today this figure is 23.60%, with the level of exports remaining steady. These data show that the process of opening up the market resulted in Brazilian firms targeting production at the internal market, which was not a positive outcome reflected, as would be desirable if we applied the idea of competitiveness, in terms of the industry's ability to increase its value and market its products abroad. The table below shows the development of the trade balance of manufacturers of information technology equipment.

	1990	1991	1992	1993	1994	1995	1996
Export balance	*						
Imports (US$M)							
Hardware Industry	(281.8)	(234.9)	(415.0)	(716.7)	(969.7)	(1349.4)	(1428.4)

Source: ABINEE
[*Data in these columns illegible or blanked out of the original. *Trans.*]

In 1966 the trade balance represented 30% of the deficit in the national balance of trade. In fact it was more than this proportion because those figures do not include industrial automation and micro-electronics nor under-valuing and smuggling, which for the year in question made up 50% of the domestic micro-information technology market.

The prices charged for micro-computers in the internal market in 1966 are higher than prices on the US market, but 82% of French prices and on a level with UK prices. So prices of micro-computers on the Brazilian market are acceptable when compared to the European market. The graph below shows the development of unit prices of PC s on the Brazilian market.



Source: *Informática no Brasil: Fatos e Números.* Fenasoft, 1966

United Kingdom

The United Kingdom reached the stage of innovation of competitive development in the 19th century. Even now it maintains a competitive position in a large number of industries. In terms of this characteristic - of the diversity of industries in which it is competitive - it is in third position in the world, after Germany and Japan. Nevertheless, Britain is not particularly strong in many areas. In the information technology industry this characteristic is shown by the presence of British firms in several areas of the industry without being outstanding in any of them.

The number of competitive British industries that lost segments of world exports between 1978 and 1985 (Porter, 1993)[1], was far greater than those that gained them. As for gains related to the computer industry, these were usually influenced by American investment in the country.

The British education system is quite elitist, with access to high quality education restricted to a small minority. The percentage of students who enter higher education is low compared to that of other developed countries. In addition, there is a tendency for a sub-culture to exist that regards humanities and pure sciences as superior, to the detriment of more practical subjects like engineering. Because of this, Great Britain maintains a competitive advantage in those areas that depend most on basic science, such as micro-electronics, optical electronics and fibre optics.

British inventiveness is found in most industries and may be explained by the system of university education which trains students at the higher level to have the creativity and inventiveness characteristic of independent thought.

There is a cost benefit in terms of advanced human resources (salaries are far below those of other developed countries).

However, there was always a lack of a more dynamic and competitive drive in the market. For many years cultural values restricted competitive aggression. Competition was seen in some way to be 'common' and for this reason many firms chose conservative policies. The exceptions

1 Porter, Michael E., *A Vantagem Competitiva das Nações*. Editora Campus, Rio de Janeiro, 1993.

are closely linked to outside investors who are not steeped in this culture.

In addition to this, there has been evidence of a decline in demand which, as a result of a decline in British standards of living, has become less sophisticated and demanding.

Nevertheless, from the 1980s on, the British government increased incentives for development and the spread of new technologies by promoting partnerships between government, the private sector and the academic community. This led to a strengthening of industry-related R & D, mainly in terms of technologies based on micro-electronics.

The solid finance system of Great Britain, the stability of its insurance companies and its position between Japan and New York, are some of the attractions for foreign companies which are encouraged to invest in the country.

Great Britain has an efficient transport system, low-cost telecommunications services, the best postal system in Europe and cheap, safe and modern energy sources.

In 1991, the level of production and employment in the electronic data-processing equipment sector was as follows:

UK	13.036	63.4	4.86

Employment Indicator - Employment per US$ 1 million of Production Value
Source: Information Technology Outlook, 1995.

Employment and Competitiveness

The employment indicator is a valuable source of information on the nature of industrial unemployment and on the concepts of productivity and competitiveness. Looking at the estimates of the CSPP (Computer Systems Policy Project) for the main computer firms in the US, which is the undisputed leader in international competition is all parts of the industry, we have the following table:

US Computer Industry (1995)	*USA*	*%V USA*	*%H USA*	*Non USA*	*%V Non USA*	*%H Non USA*	*Total*	*%Total*
Sales (US$1B)	56		38	92		62	149	100
Employment (1K)	394	100	68	184	100	32	578	100
Manufacturing	92	23	69	41	22	31	133	23
R & D	115	29	87	17	9	13	132	23
Marketing/ Sales	75	19	64	42	23	36	117	20
Services	46	12	44	58	32	56	104	18
Other	66	17	72	26	14	28	92	16
Employment Indicator	7			2			4	

Source: *Freedom to Grow.* Computer Systems Policy Project, 1995.

In the USA the information technology industry uses 7 employees to make US$1 million. Away from the centre (the USA), we find shown above in the ABINEE statistics relevant to this sector, evidence of the tendency experienced by the Brazilian hardware industry: from 1990 to 1996 there has been a reduction in the number of employees needed to make US$1 million, from 10.2 to 2.2. When we analyse the results in this table at the centre and away from it, we find that:

- R & D and SERVICES represent 41% of the jobs in this industry;
- There is a trade-off: at the centre 29% of the workforce is in R & D and 12% in SERVICES - away from the centre the proportion is practically reversed, with 9% in R & D and 32% in SERVICES;

In manufacturing the level of 22% at the centre is replicated away from the centre.

These data show also that the concept of productivity usually used by many economists (value of production per employee) is not useful to understand the employment structure in the information technology industry. Nor, most probably, in national employment. In fact, a casual reading using this concept superficially, would give a falsely optimistic interpretation that productivity in the non-central countries is better than that of the central countries, and that job-creation in services is an unquestionably healthy phenomenon. In reality, R & D jobs are created at the centre and SERVICE

jobs are created outside it.

For the labour market this industry is important in creating knowledge-intensive jobs. In Brazil we must adopt a policy of competitiveness that has implications for the creation of quality jobs, avoiding being left with the option of a manpower-intensive industry. The question that is raised is that the competitive advantage of lower wages, where it still exists in certain industrial areas, is being cancelled out, mainly by China which has an almost inexhaustible stock of this production factor.

In the United Kingdom in 1991 (see the table above) the computer industry used 4.9 workers to make US$1 million. As a result of the incentives provided by the British government at the end of the 80s to promote the production of new technologies based on micro-electronics, it is probable that the present figures would be 6 employees to make US$1 million in the information technology industry.

Industrial and Technological Capability

Brazil

At the beginning of this decade (1992), the top ten countries producing electronic data processing and office equipment were:

	% of World Production	*Value of Production*
Japan	30.8	62.2
USA	26.3	53.1
Singapore	5.2	10.5
Germany	4.7	9.5
UK	4.4	8.9
Taiwan	4.0	8.1
France	3.9	7.9
Italy	3.6	7.3
Brazil	2.4	4.9
Others	14.7	29.7
TOTAL	100	202.1

Source: *Information Technology Outlook, 1995*

Between 1992 and 1996 it is possible that the relative positions of these countries may have changed, but it should be noted that in this period the growth in sales of Brazilian products reached the high rate of 20% per year, implying that even today Brazil must be included in the top ten.

In fact, there is a basic level of industrialisation in the country. In 1980 there were 402 hardware factories in Brazil. With the opening up of markets, this number reached its lowest point in 1992, with 206 firms, with numbers rising steadily after that year to level off at 230 firms in 1995. The level of concentration, as at the international level, is high - about 4% of firms are responsible for 50% of the industry. These figures show that there is a significant industrial network in the country which should be built on during the next stages of competitive development.

The most important companies involved in dynamic international competition have already decided to instal in Brazil their regional centres of production for the Latin American market. Their modern industrial plants represent about 22% of the jobs generated by the information technology industry. We should note that this choice on the part of global companies favours the competitive advantage of this country in relation to other Latin American countries, and that this situation is a result of existing legislation relevant to the sector, the size of the Brazilian market and what we have identified in the previous paragraph as the basic level of industrialisation.

Brazil has a Science and Technology infra-structure with qualified personnel carrying out much activity in the area of information technology, made up of the Technological Research Institute (IPT) at the University of São Paulo, Telebrás' R & D Centre (CPQD). the Information Technology Centre (CTI) of the Ministry of Science and Technology (MCT) and specialised university laboratories. Examples of the potential for development that exists in the country are: investment in R & D already made according to Law 8248/91, as in the case of IPT and some university laboratories; projects carried out in technological research institutes like Telebrás' CPQD and others. We should mention that Brazil has at present "Centres of Excellence" in postgraduate studies and research that are producing a great deal of important scientific material.

LABOUR FORCE: manufacturers of information technology and

telecommunications hardware currently employ about 50,000 people, 30% in manufacturing, 9% in R & D, 17% in marketing/sales, 21% in services and 23% in other activities. To these must be added those who are working in the area of software and technical services, making a total of more than 100,000 direct jobs. Although this profile does not compare with those of the OECD countries, the presence of the industry in Brazil has created a specialised workforce and has professionalised the channels of distribution and service, which in turn has resulted in Brazil's workforce being qualified to a greater degree than workers in countries at similar stages of development. The table below identifies the workforce by sectors in the information technology industry.

Workforce in the Brazilian Information Technology Industry

Sectors	*Total*	*Highest Number*	*%*
Hardware	53,269	18,468	34.66
Data Processing	25,991	11,118	42.77
Tele-information	17,572	5,165	29.39
Industrial Automation	6,480	1,617	24.95
Micro-electronics	2,127	373	17.74
Digital Instruments	1,099	195	17.74
Software	4,681	2,161	46.16
Services	45,746	15,043	32.88
Private	13,238	4,731	35.73
Public	32,508	10,312	31.72
TOTAL	103,696	35,672	34.40

Source: *Panorama do Setor de Informática*

We should mention access to Mercosul. The agreement of the information technology industry within the compass of Mercosul is attractive to exist companies that or to those that are coming to this region, since their products have significant added value. For Brazilian industry, supplying Mercosul should be a natural stage in conquering new markets. And, importantly, the base of innovative ideas can be expanded by means of co-operative technology projects.

United Kingdom

Although we do not have as much information available regarding the United Kingdom as we have for Brazil, we shall underline some important aspects of the Industrial and Technological Capability of this country.

England [sic, *trans.*] also belonged, at the beginning of the decade, to the group of top ten countries producing electronic data processing and office equipment, with a production of about 4 billion dollars more than Brazil. Nevertheless, this difference is decreasing. In 1995, when the sales value of the Brazilian information technology sector was 6,413 million dollars, the value of the British market in the same sector was 8,992 million dollars, as we can see in the table below.

Market Value

United Kingdom	*1991*	*1992*	*1993*	*1994*	*1995*
Hardware (US$M)	9546.00	9836.25	9876.24	10112.31	10320.00
Information Technology (US$M)	8559.15	8685.57	8601.72	8772.00	8992.59
Tele-information (US$M)	986.85	1150.68	1274.52	1340.31	1327.41
Software (US$M)	3907.41	3959.01	4263.45	4593.69	4956.18
Services (US$M)	9251.88	9629.85	10163.91	10772.79	11281.05
TOTAL	32251.29	33261.36	34179.84	35591.10	36877.23

Source: European Information Technology Observatory, 1994

The apparent paradox of an economy as strong as the British having a level of production of information technology equipment so close to that of Brazil is explained by the fact that a strong characteristic of Brazilian manufacturing is its diffusion, while production in Britain is driven by innovation. Thus the United Kingdom may have a similar share of world production to that of Brazil, but its industry is producing much more wealth inside the country than ours, since it adds more value to its products.

It is interesting to emphasise that Great Britain has a large and growing capacity in the areas of software and, mainly, services, which brought, respectively in 1995, US$ 4,956 million and US$ 11,281 million to the value of the British market, as can be seen in the table above.

The export indicator varies around the level of 23% of sales and in the range of 29% of imports.

The level of concentration in the market is quite high, as may be seen in the next table, which shows the section of the market related to the ten biggest British companies in the different sectors of the industry. It is important to point out the relative non-concentration of the hardware industry, found at this time, in contrast to the concentration of the service area.

Concentration in the Industry - Top Ten

United Kingdom	*1990*	*1991*	*1992*
Hardware	70.90%	72.40%	52.50%
Software	15.20%	17.40%	17.10%
Services	18.60%	23.50%	30.90%

Source: European Information Technology Laboratory, 1994

The United Kingdom which, until the mid-60s concentrated on capacity in military R & D and basic research, was responsible in 1985 for 15.2% of world exports of Central Digital Processors, more than 12% of office equipment, spares and accessories for automatic data processing machines, more than 6% of radios and televisions, specialised software and information. In the "Semi-conductors/Computers" area, the country accounted for 6.3% of world exports and in the "Telecommunications" area for 3.9% (Porter, 1993)[2].

We may say that the United Kingdom today has the capability to create and use information technologies, especially in relation to micro-electronics and applied research.

The British workforce is quite well qualified and relatively cheap compared with those of other developed countries. The education system creates able and innovative students. Different government programmes have encouraged collaborative research between firms, research institutes and academy.

2Op. cit.

Even though the British government does not give incentives to the so-called Science and Technology Parks, which were not even mentioned in the 1993 White Paper, they have been in existence for about 20 years and have multiplied in recent years. Today there are about 51 of them, involving about 1300 firms and employing 25,000 people.

The United Kingdom also has many resources for distance education, which allows it to give quality education to a huge section of the population at relatively low cost.

The Open University, which opened in 1969, dealt with 150,000 students in 1997. In 1963, when its creation was proposed, there were about 130,000 students in all the universities in Britain (Daniel & Stevens, 1997)[3].

The average cost of each university student in England, which is about US$ 10,000 in conventional institutions, falls to about US$ 350 in Open Universities.

At the moment, the Open University is held to be the tenth in Britain in terms of quality of teaching, just behind the University of London, which is in ninth place.

The courses are founded on a base of solid research with high quality multi-midia materials and an efficient delivery system that ensures that each student receives the right materials and information at the right time and place. In addition to this, each student has his or her own tutor who comments on and corrects assignments, organises group tutorials and offers support by telephone or e-mail.

It is important to point out the teacher training programme that was put in place some years ago due to government demand which is today the main scheme of its kind in the country. The British government wanted a programme in which professionals in the market place, especially those connected to science and technology, trained primary and secondary school teachers. The scheme was started by the Open University and in 1997 won the Queen's Anniversary Prize.

3 Daniel, John, and Stevens, Anne, *The Success Stories: The Use of Technology in 'Out-of-School' Education.* Annals of Education in the Information Age: An Agenda for Action in Latin America and the Caribbean, 1997.

In the same way, the Modern Language Programme is today the main university language programme in Britain and calls for the training of teachers throughout the country.

Technological Policy

Brazil

Information technology policy in Brazil was developed at the start of the 70s with a tendency to protect local technological development which led to the passing of the Information Technology Law in 1984. It was successful in generating technological capacity in several critical areas. At the end of the 80s national information technology companies were making about 4 billion dollars and employing ten times more engineers in R & D activity, per dollar of sales, than the foreign firms based in the country.

However, excessive levels of nationalisation contributed to the loss of competitiveness in the national industry. With the speeding up of technological development in the industry world-wide, it became impossible to restrict the flow of technology. Thus there began, at the beginning of the 90s, the process of liberalisation of imports.

A new Information Technology Law (law 8,248 of October 3rd, 1991, ratified in April, 1993), did away with import controls and encouraged local manufacture.

The open market changed markedly the strategies practised by Brazilian information technology companies, which began to increase their links with overseas providers of technology and products, to look for niches in the market or started programmes of dis-investment (Tigre, 1996)[4].

The links with foreign companies left the national firms with the marketing, service and manufacturing activities, while they used the R & D that had been developed abroad.

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4 Tigre, Paulo Bastos, *Informática no Brasil e na India: Evolução da Política Industrial, Capacitação Tecnológica e Perspectivas de Cooperação.* A paper developed for the Brazil-India Seminar, Institute for Research in International Relations, Ministry of Foreign Affairs, Rio de Janeiro, 1996.

United Kingdom

The technological policy of the British government is much more interventionist than the attitudes expressed in its public statements (Erber and Cassiolato, 1997)[5]. Several programmes and incentives have been used by Great Britain, co-ordinated by the Department of Trade and Industry.

From the 70s, British technological policy came to concentrate on supporting generic technologies through special R & D programmes and through schemes of financial assistance to industrial R & D and the spreading of advanced technologies based principally in micro-electronics.

At the beginning of the 80s the Alvey programme was started with the aim of linking the public and private research systems and encouraging co-operation between firms in the information technology area. In the second half of the 80s the programme was cancelled because of cuts in the government budget.

Nevertheless, other measures were introduced, such as the different collaborative programmes of support for collaborative research or participation in co-operative European projects such as EUREKA.

At the end of the 80s the Department of Trade and Industry launched a series of new schemes which, when analysed, reveal their basic intention of speeding up the spread of new technologies through the British economy, to promote and stimulate the production of new technologies from a base of micro-electronics and to improve the R & D infra-structure. Among these programmes it is interesting to point out the Micro-electronics Industry Support Programme aimed at stimulating R & D in integrated circuits, processing technology and other areas of micro-electronics, the Micro-electronics Application Scheme, aimed at developing micro-electronics applications, re-qualification of personnel and consultancy support, and the Software Production Scheme to develop software.

In 1993 the government published a White Paper (*Realising our Potential - A Strategy for Science, Engineering and Technology*) which

5 Erber, F.S. and Cassiolato, J.E., *Política Industrial: Teoria e Prática no Brasil e na OCDE.* Article to be published in Revista Econômica Política - photocopy, March, 1997.

outlined plans for increasing competitiveness in local industry through partnerships between government, industry and the academic community. It set out a complete re-think of scientific and technological policy that prioritised innovation strategies, access to the national technology base and the diffusion of 'best practice'.

Among the current joint programmes in the United Kingdom, we feel it is important to indicate the LINK, ISI, ITS, PTP and EUREKA programmes.

LINK

The LINK programme is today the main means of government incentive for collaborative research between industry and the science and technology base. The government, through the Government Departments and Research Councils, pays about 50% of the costs of the projects.

LINK offers financial help to individual research programmes. Today there are 56 LINK programmes, each related to a particular type of technology, that range from technology in bio-sciences to electronics and communications. Each programme supports a fixed number of research projects lasting from two to three years.

Each project must involve at least one firm and one institution with a scientific research base. Firms of all sizes are accepted since the programme encourages small and medium-sised companies to take part.

Multi-national companies are also accepted as long as they can prove that they have significant production and R & D within the UK. In addition to this, benefits from the research must be used to produce wealth within the country or in the European Union.

Seminars and journals are organised to disseminate information relevant to each programme.

ISI - Information Society Initiative Programme for Business

The ISI is a partnership between government and industry with the aim of promoting and disseminating the use and development of information and communication technologies. The 'Information Society' is one of the

British government's main initiatives.

The programme implements support schemes for innovations and creative ideas and offers financial support for the development and dissemination of key technologies. As well as this, it is building a network of local support centres throughout the country, which will provide specialised literature and where events will be organised which will help industry to answer its biggest questions about implementing new technologies.

The ISI is open to all British companies, with an emphasis on small and medium-sised firms.

TCS - The Teaching Company Scheme

The TCS is a programme intended to enable British firms to take better advantage of the talent available in the universities in the areas of engineering, technology and business.

Each TCS programme involves one or more newly-qualified students working in a company for two years on an important project. The project is, however, supervised by both company management and academic staff.

The universities involved receive financial support. The government and the participating company contribute to the costs of the programme, the proportions depending on the size of the company in question (the larger ones contribute more).

PTP - Postgraduate Training Partnerships

The PTP is an initiative supported by the Department of Trade and Industry and by the Engineering and Physical Sciences Research Council - which involves eight centres for research and technology, each of which is in partnership with a university.

The programme recruits each year more than ten doctoral students for each partnership, who will work on projects relevant to the industry, under the supervision of academics and of the research and technology centres.

The firms involved in projects contribute to costs.

EUREKA

EUREKA is a pan-European agreement involving organisations from 24 countries and a European Union Commission, with the aim of promoting collaboration in research and development projects that lead to advanced products, services or processes. Firms, research institutes and postgraduate institutions participate in this scheme.

About 50% of the resources of the programme are used in research projects which may be developed in any area chosen by the participants, as long as the group of participants includes at least two independent organisations from two different countries.

Journals, seminars and a series of events are produced to present the different projects and to gather together interested organisations.

Opportunities for Co-operation

Bearing in mind the technology policies of Brazil and the United Kingdom, the different stages of competitive development of each of these countries and their capacities in the information technology industry, it is worth recommending possibilities of co-operation between these countries. On the one hand we have an emerging country developing with high levels of growth, giving access to a market of significant size and offering possibilities for regionalising production facilities. On the other hand we have a country with an information technology industry which, in spite of its size being the same as that of the former, produces goods with advantages based on innovation.

We must identify some basic concepts in technological transformation[6]:

- INVENTION: idea, project, patent, prototype or pilot plant with no commercial application.

6 Tigre, Paulo Bastos, *Informática como base técnica do novo paradigma.*

- INNOVATION: invention applied commercially with economic impact restricted to the innovator.
- DIFFUSION: reproduction of innovation by the production system with wide economic impact.

The challenge to the Brazilian information technology industry is to reach the competitive development stage of innovation. Brazil has excellent research centres but its inventive production is atomised. In terms of diffusion, the basic level of industrialisation the country has reached succeed to reproduce innovation with increasing competence. The missing link here is a system of innovation capable of providing competitive advantage from the technology base for the country's industries.

In addition, for Brazil to create a healthy environment for competitiveness it needs to enjoy continued economic stability and to widen/ modernise its physical infra-structure, concentrating investment on education and training.

In the information technology industry the United Kingdom could contribute to this competitive development through its experience in the following areas:

- SCIENCE AND TECHNOLOGY PARKS
- COLLABORATIVE RESEARCH
- EDUCATION AND TRAINING
    - DISTANCE LEARNING
    - PROFESSIONAL TRAINING
    - INFORMATION TECHNOLOGY IN EDUCATION

The United Kingdom has a diversified industry which, however, is not exceptionaly strong in any single sector. Its exports are mainly into the European Community. In Latin America its presence is negligible.

The industry in Britain is essentially driven by innovation. We believe that the country needs a more aggressive policy of penetration into the world market and of dissemination of its innovations.

For these reasons the forming of strategic alliances with the information technology industry in Brazil or participation in government projects, could significantly increase the United Kingdom's market share

in this area, since it would provide:

- ACCESS TO MERCOSUL
- FACILITIES FOR REGIONALISING PRODUCTION STRUCTURES

We feel it is relevant to present as an appendix, a case study of a collaborative research project between a laboratory in a Brazilian university, a multi-national company and researchers in overseas research centres. The programme provided a significant innovation in the development of real-time systems and may show the direction for Brazil and the United Kingdom to follow.

Appendix

The Case of LMF-DI

The Laboratory of Formal Methods of the Information Technology Department of the Catholic University of Rio de Janeiro (LMF-DI of PUC-Rio) is developing formal techniques for the specification, validation, development, calibration and testing of large software systems. In other words, it is trying to give programming an engineering aspect in order to help resolve a software problem.

The LMF-DI is taking advantage of the favourable environment provided by Law 8248 that gives tax incentives to R & D development in industrial sectors for the development of research applied to solving industrial problems and the support of basic research.

The LMF-DI co-operates with industry in the most direct way in order to obtain financing for applied research and, in the medium term, to re-invest the profits from selling solutions and exploiting patents, in basic research.

The State operates here as a capitalist partner providing risk capital in the form of taxes that it does not collect, in the form of tax incentives and by investing in research grants, purchase of equipment, etc.

The LMF-DI believes that the problem of exploring the potential international software market in high technology products is not solely one of mastering the technology. It also concerns the marketing necessary to introduce these products, which is an area completely outside the experience of a laboratory such as LMF-DI.

Thus, a policy is being adopted of selling its products to firms that specialise in this type of business, which can reach a market that is unimaginable to a research laboratory like LMF-DI.

It is important to point out the most important contract that the LMF-DI currently has: the consortium formed by Equitel, Forschunginstitut fur Angewandte Software Technology (FAST), Ludwig-Maximilians Universitat Munchen (LMU), and the Imperial College of Science. Technology and Medicine - University of London (IC), which concentrates

integrates and coordinates the work of the others.

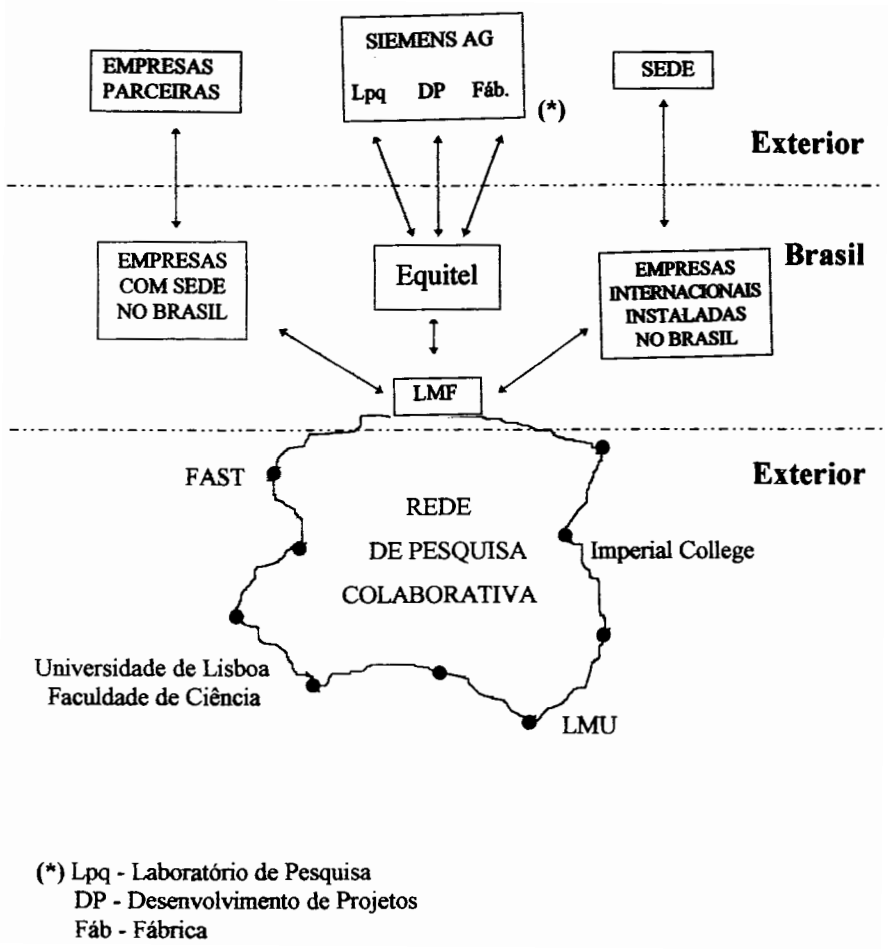
Equitel (SIEMENS of Brazil) produces telecommunications equipment and gives to R & D, as laid down in Law 8248, 5% of the net turnover on goods whose production is encouraged by the government. These funds are managed by the LMF-DI, with which Equitel has a partnership programme.

Given the complexity of the problems involved in applying information technology and, more particularly, of formal methods in the industrial sector and the decrease in government investment in R & D, it is very difficult to imagine that one single research centre can contain all the technology needed to develop the solutions required by a company like Equitel.

So the LMF-DI, which has a long tradition of international co-operation with centres of excellence, has built an *international network* of high technology laboratories, coordinated by it, which is developing series of projects for Equitel. The LMF-DI has intellectual property rights and Equitel has the right to use the products developed by the partnership programme.

As a result of this partnership, the LMF-DI is maintaining contact with research directly connected to SIEMENS AG, both in the area of product development and in laboratories concerned with basic research and shopfloor (processes).

The LMF-DI Case Study is described in the diagram below.



(*) Lpq - Laboratório de Pesquisa
DP - Desenvolvimento de Projetos
Fáb - Fábrica

Energy in Brazil and in the United Kingdom: Cooperation Opportunities+

*Luiz Pinguelli Rosa**

Introduction

It is an extremely opportune moment to discuss opportunities for broadening scientific and technological collaboration as well as industrial and commercial partnerships between the United Kingdom and Brazil, especially in the energy sector, the object of the present article. It may be useful to make a parallel between the two countries so as to identify differences and similarities between them in their current state.

Currently, under the auspices of the new Labour government, reform is being discussed in the United Kingdom, though it is to be moderate enough to preserve consolidated aspects of the conservative governments' macroeconomic policy, begun by Thatcher's ultra-liberal (in the economic sense) administration. Everything seems to point to a dynamic British economy that is in good shape in the European context, with an unemployment rate lower than that of many other countries of the European Union. According to his year's first trimester Country Report of the Economist Intelligence Unit (EIU), the challenge is now to effect "social changes without socialism" by reviewing "negative aspects" such as "cuts in social spending" and seeking to reduce the "growing distance between the rich and the poor" without giving up positive aspects such as "tax reductions".

In Brazil, the generically termed "neo liberal" reforms were begun, though late compared to the rest of Latin America, especially countries like

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Chile, Mexico and Argentina, at the start of the current decade by a rightwing government that was stopped short in its tracks by a constitutional impeachment process. The dismantling of the State aggravated the economic crisis, which in turn worsened social problems generated by the unequal development process, characterised by very poor income distribution and the destitution of significant swaths of the population.

Itamar Franco's Presidency, which followed the impeachment, sought to correct the country's course. Working with organised civil society, it launched a joint program, under the leadership of a national celebrity, the sociologist Herbert de Souza, also known as Betinho, to fight destitution and hunger and favour job creation. Though he recently passed away, his movement remains alive, and the current government has created a similar program called "Solidary Community".

Monetary reform was carried through by overvaluing the new currency, the Real, with respect to the American dollar (at one point, one US dollar sold for only 0.80 Reals). The successful control of inflation allowed for the election of the government's candidate: today's President Fernando Henrique Cardoso.

The current government, the result of a solid center right coalition that was victorious in the first round of the last elections, has stuck to reform. By opening up the investment and economy, one has sought to attract foreign investment and maintain the stable currency, which, by garnering much popular support out of fears that inflation may someday return, is the trump card of current economic policy.

Yet privatisation of large state enterprises, such as the mining Vale do Rio Doce, has given rise to intense controversy in the country. One issue has arisen out of unemployment and the reduced role for national technical expertise in the country's development as a result of so-called competitive globalisation. Another issue has been made of the lack of an effective regulatory apparatus, which is still in the making, to face the new situation.

Compared with the above mentioned Latin American countries that underwent liberal reform before Brazil, it may be stated that the Chilean economy is doing well. But Mexico still faces serious problems rising from

the recent monetary crisis. Argentina is unstable, though being helped by Mercosul, which has generously opened the Brazilian market to the Argentines with little regard for the trade balance between the two countries. Thus, if one could apply the criterion of falsitibility - used by an exponent of neo-liberalism in the philosophy of Science, Karl Popper-in order to draw conclusions regarding the truthfulness of liberal thought, one would find the latter does not pass the empirical test in Latin America.

Frequently the political debate around globalisation becomes polarised: some believe the phenomenon to be historically new, economically predetermined, geographically homogeneous and politically positive, whereas others find it to be entirely negative. Nevertheless, it is the historical development, studied by various authors [Hobsbawm, 94; Arrighi, 94; Thurow, 96], of the evolutionary process of world capitalism, accelerated by the collapse of real socialism [Schweicckart, 96] and reinforced by contemporary technology. Globalisation is extremely heterogeneous, with enormous variation from one country to another and with both positive and negative aspects for developing countries. It has been better for the countries of East Asia, which currently live out their economic miracle, than for Latin America, where Brazil previously underwent an economic miracle of its own [Conceição Tavares and Fiori, 93; Sader, 95; Barros de Castro, Possas and Proença, 96; Almeida Magalhães, 96]. Hence thoughtful reflection should look for "options" for policy makers so that they may avoid that which is negative and take advantage of that which is positive. That is the intention of the present paper. I am honoured to be here to discuss it with the distinguished guests of this conference.

The exaggerated anti-interventionist liberal stance is now being reviewed by one of its most influential multilateral proponents. In its 1997 World Development Report, the World Bank, in an article entitled "The State in a Changing World", takes note of the "important role of the State in the East Asian economic miracle" and frets at the "collapse of States" in many parts of the world. The report demonstrates that "the determining factor behind such contrasts is the effectiveness of the State" [World Bank, 97]. Both its spirit and its message contrast with the previous year's report, which dealt with the transition to the market economy [World Bank, 96], though there were some points in common.

The following section II compares the UK's energy sector with Brazil' s. Some aspects of the sector's institutional reform are dealt with, especially regarding electrical power generation. The reform process currently under way in Brazil and the opportunities for partnerships and British co-operation are dealt with in section III. One should take note of the difference between the Brazilian hydroelectric-based system and the British thermoelectric system, which is considered a paradigm for competitive thermoelectric power generation.

The environmental problems of power generation are taken up in section IV, including the issue of renewable energy sources and the problem of global atmospheric pollution and the greenhouse effect - the heating up of the Planet due to fossil fuel gas emissions - coal, oil and natural gas. The use of the latter, which is encouraged by the privatisation of the Brazilian energy sector, is compared with possible uses for sugarcane chaff and ethyl alcohol, which could be exported to Britain as clean fuel.

The conclusions (section V) amount to the following recommendations: (I) that the United Kingdom should support the Brazilian proposal for the implementation of the Climatic Convention at the Kyoto Conference in December of this year. (ii) that the British and European markets should open up to alcohol exports for use in road vehicles. (iii) that Petrobras should join up with British Petroleum and/or Shell in opening up the Brazilian oil sector. (iv) stronger economic ties between Mercosul and the United Kingdom.

The UK energy sector compared to Brazil's

The evolution of energy sources in the United Kingdom: from coal to hydrocarbons and electricity

In Brazil, up until now, the State has intervened heavily in the energy sector, such as has occurred in the United Kingdom, where there were important state enterprises prior to the Thatcher administration. This paper's matter is concerned with those economic activities to the exploration of coal, oil, gas, electric and nuclear energy.

The United Kingdom was the cradle of the Industrial Revolution, in which coal played a crucial role as an energy source. Its place in world energy use increased throughout the second half of the 19th century, from 14% in 1850 to 53% in 1900. The United Kingdom was the great beneficiary of the technological and energy advances of that period. Its industrial production increased fourfold from 1850 to 1900.

Technological breakthroughs and changes in the availability of energy sources gradually diminished the importance of coal in the 20th century. After World War II, in 1950, the breakdown of world commercial energy sources was as follows: coal 59%, oil 32%, natural gas 12%, and subject related primary electricity (hydroelectric and nuclear) 2%. In 1987, after the passing away of the 1973 and 1979 oil shocks' acute side-effects, those figures respectively changed to: 32%, 41%, 22% and 5% [Martin, 90]. The comparative fuel costs in Europe at the end of the 1980s, expressed in terms of dollars per equivalent oil ton (US$/eot) were as follows: coal - 83 to 106; oil - 103 to 142; natural gas - 76 to 176 [Percebois, 87].

The United Kingdom is home to two of the so-called oil "majors": British Petroleum (BP), an offshoot of the old Anglo-Persian, and the Anglo-Dutch Shell, the result of a merger in 1907 between the former Shell and the Royal Dutch company. The acquisition of Anglo-Persian stock sought to ensure an adequate oil supply to the United Kingdom, including the Royal Navy, which switched from coal to oil use during World War I, thereby guaranteeing Britain an advantage over Germany [Yergin, 90].

The control of world oil supply by the "majors" changed significantly with the advent of national oil enterprises in, for example, Latin America, such as the Mexican Pemex, the Venezuelan PDVSA and the Brazilian Petrobras. In 1970, prior to the oil shocks, the "majors" controlled 61% of world oil supply; that total changed to 25% in 1979, the year of the second oil shock, and reached an all-time low of 19% in 1987 [Martin, 90], at the time of the anti-oil shock, the result of a collapsing international price and the downfall of OPEC. The oil industry in the 90s has changed but the "majors" still control nearly 40% of the world market [Martin, 90], by acting in the "down stream" refinery, transportation and distribution- in order to compensate for their diminished role in the "up

stream". Shell and BP are among those "majors" that remain prominent.

It was in 1977 that Labour resolved to privatise 17% of BP, prior, therefore, to the Thatcher government, which saw through an intense privatisation that included the entire energy sector - both the gas and the electric companies.

The privatisation of the British electric sector by Thatcher's government has become a model for deverticalisation and for competitive power generation and commercialisation, with its freely accessible transmission and distribution net. In the United Kingdom, one has created independent generating and distributing enterprises, with a single transmission company linking them up. The generators can sell their power supply, through the transmission net, to any area, and the distributors may hire the net to supply the areas of other distributors. At first, there were problems with privatisation in England; these difficulties led to the program's revision, as in the nuclear sector, for example. Nuclear power generation is of little interest to private capital, due to its riskiness and lower profitability, and was thus, until recently, propped up by the State, which is still responsible for continuously monitoring transmission according to strict regulations that may entail intervention if not fully complied with. Hence the State still has an important role to play.

Comparing energy sources in the United Kingdom and in Brazil

The breakdown of energy consumption in Brazil is quite different than in the United Kingdom, as shown by Tables 1 and 2. The first of these shows that the role of coal and natural gas is proportionately much larger in the United Kingdom than in Brazil, as is the total use of fossil fuels. While primary electric power in Brazil is almost entirely hydroelectric in origin - only 0.2% of it is nuclear -, in the United Kingdom it is predominantly nuclear. There is, however, a problem with comparing the percentage use of hydroelectric energy, since the conversion from Mwh to eol is based on different factors in each country: in Brazil, one uses the equivalent oil energy needed for virtual thermoelectric (which has low returns) as opposed to hydroelectric generation (of superior return), which seemingly magnifies the amount of hydroelectric power that is used. Since the official figures of

the National Energy Balance are being used here, one should pay attention to the above mentioned fact, given that it slightly reduces the renewable component of the Brazilian energy base, which is exceptionally clean notwithstanding. Nevertheless, one still notices the practice of heavy log-burning, partly used inefficiently in the rural countryside.

Table 1 - Power use breakdown according to primary source in 1993

	United Kingdom	*Brazil*
Coal	25.0%	5.3%
Oil	36.1%	31.7%
Natural Gas	28.3%	2.5%
Sub total		
Fossil Fuels	89.4%	39.5%
Primary Electrical Power*	10.6%	36.1%
Biomass**	-	24.4%
Total	100.0%	100.0%

(*) Includes hydroelectricity, nuclear power and imported energy; there is a problem with comparing the percentage use of hydroelectric energy, since the conversion from Mwh to eol is done differently in each country.
(**) Includes log-burning (12.9%), sugarcane products (alcohol and chaff, 9.9%) and other sources (1.6%).
Sources: National Energy Balance, Ministry of Mines and National Energy (MME), 1996; The Europa World Year Book, 1995.

Table 2 shows that commercial power use in the United Kingdom is much greater than in Brazil, even though the Brazilian population is larger, which translates into a per commercial energy consumption that is 5.4 times greater in the United Kingdom than in Brazil. In Brazil the annual average rate of growth in power use is significantly larger, and the GDP per commercial power use (the inverse of power use intensity) is slightly larger. But net energy imports are proportionately much higher for Brazil. To conclude, Table 3 compares energy production in both countries (3a and 3b).

Table 2 - Commercial power use index

	United Kingdom		*Brazil*	
	1980	1994	1980	1994
Commercial power				
use (Mtep)*	201.2	219.2	72.1	110.0
Per capita energy				
use (kep)**	3572	3754	595	691
Annual average increase				
in use (%)***	1.0	0.6	4.3	3.2
GDP per commercial				
use (US$/kep)	2.7	4.6	3.5	5.0
Net energy imports(%)	2	-9	65	38

(*) Millions of oil equivalent tons
(**) Oil equivalent kilo
(***) Average annual rates for 1980-1990 and 1990-1994
Sources: World Bank, From Planning to the Market, Report, 1996.

Table 3a - Fossil Fuel Production in the United Kingdom

	1991	1995
Coal (Mt)	94.2	52.8
Oil (Mt)	86.8	121.8
Natural Gas (Gtherm)	587.8	821.9

Source: Country Profile, UK, EIU, 1996-7

Table 3b - Fossil Fuel Production in Brazil

	1991	1995
Coal Vapor (Mt)	4959	5093
Steel Coal (Mt)	0.229	0.080
Oil (Mt)	31.6	34.8
Natural Gas (Mm3)	6597	7955

Oil and natural gas: the transition from the Petrobras Monopoly to market liberalisation

Oil was the object of a constitutional amendment allowing for government concessions to private enterprise, with a National Oil Agency in the making. Nevertheless, Petrobras was maintained as a state enterprise that is permitted to partner up with the "majors" in order to exploit already-known oil and natural gas reserves. To understand this scheme of things, a retrospective look beginning with the current situation would be most useful.

Brazil, today, is home to the world's foremost deep-sea offshore oil exploration technology, developed in the country in cutting-edge fashion. It is an example of a technology developed successfully by Brazil on its own, in conjunction with universities collaborating with their research center, the CENPES, at the UFRJ (Federal University of Rio de Janeiro) campus, which is at the forefront of that which is found in developed countries. Thus, the CENPES has an important contract for transferring deep-sea oil exploitation technology to Shell. This reinforces the idea that state-owned Petrobras, if strengthened, will become a good busyness partner for private enterprises and multinationals.

Refined oil derivatives are much cheaper in Brazil than in most other countries. Petrobras is one of the few national companies that ranks highly on an international scale. It includes one of the greatest refineries in the world and has a well-balanced upstream (exploitation)/ downstream (refinement, etc...) production index. It is responsible for yielding the returns that it invests, despite the low prices it charges.

The national energy planning initiative, begun in response to the oil shocks, yielded fairly satisfactory results, among which one may highlight the increase in national oil production, through the development of cutting-edge deep-sea oil exploration technologies, and the development of large-scale, alternative, renewable power generation from sugarcane (carburet alcohol). The Barrel's End Program allowed for the adaptation of the oil refining structure to the market's needs.

Table 3c - Fossil Fuel reserves, production and imports in Brazil

Resources	*Resources*	*Production*	*Duration*	*Consump.*	*Imports*
Reserves	*Anual*		*Years*	*Moep*	*Moep*
	Moep			Moep	
Oil	410.8	32.6	12.6	56.7	24.1
Nat. Gas	119.8	6.4	18.7	4.1	-
Coal	2571.0	2.0	1285.3	10.0	8.0
	(A)	(B)	(A/B)	(C)	(C-B)

Source: National energy balance - 1991 figures

Energy is a strategic good that is essential to the production process and to the comfort and well-being of the population. Its generation and use have a great impact on the environment. Any policy must take into account regional peculiarities, disparities in economic development and in power consumption and diverse environmental conditions. The large volume of financial resources involved, the need for technological maintenance, and long term maturity rates require the State to play a fundamental role in the planning of the sector, so as to establish, from a prospective standpoint, the political directives for the use of public and private funds that guarantee that the generation of energy will not be a limiting factor in the country's integrated development.

For those reasons, Constitutional reform has maintained the State monopoly in the oil sector, though it is no longer held only by Petrobras. This monopoly has allowed for the creation of a vertically integrated enterprise that acts on all of the national territory, that is today responsible for the supply of derivatives and for the production of 70% of the oil consumed and that possesses a refining and transport infra-structure that allows for the optimisation of national derivative and natural gas supply costs.

To evaluate this institutional framework, it is necessary to highlight some basic aspects of the oil industry in the world, from its early days to the present: busyness is highly-concentrated in only a few firms; the integration of activities; the entrepreneurial risk; technological development and innovation; and capital-intensive activities with large profit-margins.

Private, national and foreign investments in the Brazilian oil sector will only become a reality if domestic consumer prices match international ones. The existence in the sector of an integrated state-owned enterprise has allowed for a price structure that rewards the firm by generating a social surplus on the basis of domestic prices that are inferior to international ones. However, though Brazilian reserves for use in the country have increased, it is known that, geologically, there will not be enough oil for export in the future.

- Investments in the oil and natural gas sector must aim for:
- greater autonomy in power generation through the increase in reserves and in the production of oil and natural gas;
- increasing and adapting the refining structure, including the carrying out of a technical and economic analysis with a view to installing a new refinery in the Northeast region;
- an improvement in the quality of products and of the environment;
- the construction of the Brazil-Bolivia natural gas pipeline and of conduits for other products, and the modernising of existing installations.

With respect to partnerships with the national and international private sectors, the moment is filled with opportunities if one takes into account the fact that infrastructure projects, such as those in the field of power supply, are critical to the presaged process of renewed economic growth. The project for the Brazil-Bolivia pipeline is currently being realised, and opportunities for realising other projects of a similar scale are being studied, such as the use of gas from Urucu in the region, the import of gas from Peru and Argentina and the installment of new conduits for gas and oil and of new industrial plants.

The current institutional model governing the use of the state oil monopoly allows for the creation by Petrobras of new branch facilities for projects that, by virtue of their size and/or of their particularities, realised with the help of private enterprises.

Power supply policies have been hostage to an energy pricing policy, the prime objective of which was combating inflation through the control of prices and Government tariffs. Besides being ineffective, such a procedure led to very grave distortions in the relative price structure and compromised

the capacity to expand the power supply of many areas.

The demand and supply of each energy product can be directed according to regional endowments and through a fine balance between regulatory and price policies. Thus, the pricing policy must stay in tune with energy policy directives, so as to sustain the power supply and provide signals for the efficient production and use of energy products. Subsidies such as the ones that go into the production of alcohol should be transparent so as to avoid wasteful loss, thereby respecting the fuel-rationing policy.

As economic growth heats up once again and leads to elevated energy demand expansion rates, one should expect some pressure on the costs of this input, accentuated by increasingly stringent environmental protection requirements. In this context, environmental saving programs should be enhanced, so as to induce more rational and efficient habits among consumers, as well as stimulate the development and adoption of less energy-intensive technologies.

The production of renewable energy from carburet alcohol has potentially an important role to play in the attainment of goals for job creation, social advancement and consolidating previous environmental gains. While many countries throughout the world seek to replicate Brazilian experience in the field, we are watching, in our own country, a gradual and unnoticed process of deactivation.

Natural gas has an important role to play in diversifying the Brazilian primary source supply base, though with oil derivatives it is possible to sustain growth in the demand for energy at competitive costs. Natural gas will contribute to the increase in the productivity, efficiency and competitiveness of the industrial sector, and, also, to the preservation of the environment in urban centers and in the more critical industrial areas.

Electric power: privatisation and the problem of optimisation in a competitive environment

In the case of electric power, a concession law was approved and two federal distributors (Light and Escelsa) and two state ones (CERJ and COELBA) were privatised while the regulatory agency - ANEEL - is still in

the making. Tariffs will go up since the liquidated power stations, paid by the consumers, will be revalued by privatisation. Moreover, private capital aims for a return of 15% to 20% every year, while public capital aims for something between 5% and 10%. In Argentina, the average Kwh costs US$100 and in Brazil US$65, approximately.

It is necessary to analyse the inefficiency of state-owned enterprises on the basis of some empirical evidence. Without denying administrative deficiencies and the diversity of enterprises, the figures for labour productivity per number of employees, measured by the power generated (Mwh), show an increase of more than 100% between 1975 and 1988, according to a study by Coppe published by the UFRJ Forum for Science and Culture [1992].

The Brazilian electric system, through predominantly state-owned, had a structure that was made diverse by federal (Furnas, Eletrosul, CHESF e Eletronorte) and state generating enterprises (CESP), as well as federal (Light and Escelsa, already privatised), state (some of them very significant, like CEMIG and COPEL), and private distributors. Eletrobras served as a holding, and collegiate organs decided about the expansion and operation of the hydroelectric system linked to reservoirs that are reviewed every few years.

Preserving this optimisation is the problem that privatisation faces today, as a study by Coopers and Lybrand Consulting reveals, since pure competition would result in the loss of nearly 28% of the power available today.

There were diverse situations in the relationship between the number of employees and the amount of energy sold. The federal generating companies have the best average index among them, Furnas being the best of them all, with a power generating capacity of 7870 Mwh per employee, followed by CESP, with 4324 Mwh. The generators' better indices are to be expected, given that distributors must put up with the burden of a spatially disperse consumer network.

Distributors in the South-eastern region showed an average of 1600 Mwh per employee, while this index drops to 1000 Mwh in the South. to

760 Mwh in the Center-West and to 600 Mwh in the Northeast. The worse indices with respect to the Southeast may be partially understood as a result of the lower power density of those regions according to the Coppe study [1992].

In Brazil, there were approximately 210.9 thousand employees working in the electric sector, which corresponded to the generation of 1,005 Mwh per employee. This value corresponds to the average trend among South American electric companies. CEMIG, for example, with its 1490 Mwh/employee, ranks sixth among an arbitrarily chosen set of seven companies (Table 4), ahead of ESB-Dublin and a little behind Italian ENEL. CEMIG is taken as a benchmark for its considerable generating capacity and for being a distributor. Table 4 was constructed according to the amount sold per employee. If one takes the percentage of returns spent on personnel as a parameter, CEMIG improves its rank to four. Given that electric power prices in Brazil are below average costs and inferior to prices in developed countries, it is interesting to take note of another index: expenses with personnel per energy sold (US$/Mwh). In that case, CEMIG ranks third, with 1'5 US$/Mwh, very close to Southern California Edison and to Ontario Hydro.

Table 4. The International Comparative Efficiency of CEMIG

Company	*Energy Price*	*Sales/empl.*	*Personnel Expenses/ Returns*	*Personnel Expenses/ Energy sold*
	US$/Mwh	Mwh/Employee	%	US$/Mwh
Tokyo Electric				
Power	129	5550	8	10 (1)
Ontario Hydro	66	4850	24	16
Southern				
California	97	3460	14	13 (2)
State Elect.				
Company	62	1700	38	24
ENEL	105	1610	34	36
CEMIG	48	1490	32	15 (3)
ESB Dublin	107	1200	26	27

Source: L. P. Rosa, Discussion texts No. 2, Forum for Science and Culture, UFRJ, 1992.

Brazilian electric companies on average produce energy at a lower cost than the majority of developed country electric companies analysed. Such a result, obtained from the analysis of empirical data, is explained mainly by the predominance of hydroelectric generation in Brazil. Hence, from this point of view, electric power production in Brazil is efficient. While analysing the conclusion above one must bear in mind that energy prices in Brazil are below cost in the case of the aluminium multinationals, which in 1992 were responsible for a US$ 125 million loss by Eletronorte.

Renewable Energy in Brazil and Environmental Issues: alcohol and hydroelectricity

Alcohol and sugarcane chaff and the emission of greenhouse effect gases

In the context of this policy, the supply of liquid fuel was made viable by the integration of the state sector, represented by Petrobras, with the private sector, represented by alcohol producers, engineering companies and the capital goods industry.

The Petrobras transport and distribution infrastructure contributed decisively to making carburet alcohol a viable substitute for gasoline. Furthermore, agricultural and industrial techniques for sugarcane production were improved for the production of alcohol, and the otto cycle motor was developed exclusively for use with hydrated alcohol. One should add to that the environmental gains resulting from the use of hydrated alcohol in vehicles and the adding of anhydrous alcohol to gasoline, from which the removal of tetraethyl lead was facilitated as a result.

Nevertheless, a World Bank study on Energy in Brazil [1992] recommended the abandoning of the use of alcohol and the building of thermoelectric terminals instead of hydroelectric ones. Such technological homogenisation would entail the loss of a comparative advantage for Brazil in international competition. In the future, it could mean an additional burden, due to the level of CO2 emissions into the atmosphere. The greenhouse effect is the heating up of the Earth as a result of the unbalance between the Sun's radiation of luminous energy and Earth's thermal radiation back out

into space, part of which is captured by gases in the atmosphere like CO2.

Brazil is more efficient than the United States in its emission of CO2 per unit of electric energy produced and in the use of cars, since emissions from the burning of alcohol are reabsorbed by the growing of new sugarcane, and hydroelectric terminals avoid the combustion of coal, oil or natural gas that occurs in thermoelectric ones. Yet there is a tendency to reduce the role of hydroelectric in favour of thermoelectric terminals and to diminish the role of alcohol.

There has been an enormous drop in the sale of alcohol-powered cars since the 1989/90 supply crisis.

In the case of electricity, there has been a strong correlation between privatisation and the substitution of thermoelectric for hydroelectric generation, since the former entails less investment capital and shorter return horizons. There are high hopes with respect to the use of natural gas, but its amount is insufficient for it to play a large role in generation, even if one includes Bolivian gas. Thus the use of sugarcane chaff in co-generation should be considered.

In Brazil, the role of independent production in electric generation amounts to a little less than 5% of the total. With the exception of that part corresponding to state-owned enterprises like Petrobras, which practice independent generation, the figure represents a role for private national electric generation. Therefore, independent production is an area in which the role of the private sector may expand, as long as conditions are favourable in comparison with buying energy from the public network. Here, the issue of electric energy tariffs arises once again. Independent producers are natural candidates for selling their energy surplus for distribution in the public network. This also depends on incentives, since in general the enterprise must invest in order both to generate independently and to yield a surplus. It will be successful in doing so if conditions favour the sale of that energy, especially in the following sectors: sugarcane-alcohol, paper and cellulose, chemical and petrochemical, textile, food and beverage, glass, rubber and others.

An Eletrobras study addressed the potential for steam-driven co-

generation, which may be done by elevating the pressure and temperature of the boilers' steam so it may be used with turbines attached to electric generators. Some of the industries studied, such as sugar-alcohol, already practice co-generation for their own use.

There is a chaff surplus that may be put to other uses, such as the production of briquettes that substitute for combustible oil in other industries or electric co-generation for sale through the distribution network. The problem is stimulating sugar producers to channel resources into realising the necessary investments. Moreover, the cost of chaff co-generation is higher than the price of consumer electric energy or the average cost of generation, yet not necessarily greater than the marginal cost or the cost of expanding the system.

The production of renewable energy with carburet alcohol and electric co-generation chaff has the potential to play an important role in attaining goals for job creation, advances in the social area and the consolidation of previous environmental gains. At the very moment that various countries in the world are attempting to replicate Brazilian experience in the field, the country has experienced a gradual deactivation process of the alcohol program, the discussion of which has been rekindled.

In the production of alcohol, the following is necessary:

- understanding what the renewability of alcohol means, in comparison with traditional forms of energy, and the importance of preserving a healthy domestic market for this form of energy; its impact on the decentralisation of economic development, and the economies generated by urban infrastructure; its positive impact on the environment, both in local (lower CO, HC and NOx emissions) and in global (CO2) terms; the spreading out to the countryside of capital-labour relations that were previously present only in urban areas;
- the creation of permanent mechanisms for financing the growth of sugarcane, and of the guarantee of alcohol reserves at costs compatible with returns to producers;
- drawing a plan for alcohol-driven cars, the sales of which are dropping to nil, thereby compromising the carburet alcohol market in the long run.

A problem being discussed today is posed by mechanised sugar cutting, which seeks to reduce local pollution resulting from the burning of sugarcane prior to its being cut. Yet such mechanisation reduces the number of alcohol-related jobs.

It is a mistake to examine only the productivity per employee index in a country deprived of capital and with a labour surplus, to the point where the scarcity of jobs threatens to become a social crisis. In rich countries, there is social security so that the unemployed may survive. One has created a social mechanism that allows one to coexist with chronic unemployment provoked by technological change or by inter-sectorial competitiveness, up to a certain point. In Brazil, as in the other undeveloped countries, such social protection for the unemployed does not exist, at least not in more than a limited amount that does not allow for a dignified survival.

The country's specific circumstances should not be forgotten. Such is the case with the energy sector, in which Brazil has a comparative advantage in the use of renewable energy, such as hydroelectricity and biomass. International technological homogenisation is pushing the country to abandon them.

Hydroelectricity and the case of the Amazon

Hydroelectricity is an old technology that has been mastered in the country. However, with the 1975 nuclear deal with Germany, Brazil chose to buy a technology which at that time was thought to be the most modern one. It made a mistake, since the cost of nuclear energy per Kwh turned out to be several times larger than that of hydroelectric energy. The international technological trend now points to thermoelectricity, which is where investments in development are now concentrated - in reducing atmospheric pollution and in augmenting thermal efficiency (natural gas with a combined cycle).

The issue of the hydroelectric dams in the Amazon has attained an international dimension as a result of the so-called global effects of the destruction of the rainforest and the issue of indigenous land. Among the former one may point to those of carbon dioxide (CO2) resulting from forest fires, which increase the concentration of the gas in the atmosphere,

thereby aggravating the greenhouse effect. Despite the margin of uncertainty in the results, two facts are undeniable: the amount of Amazon fires have attained such a high level that their contribution to the increase of CO2 in the atmosphere was a sensitive concern on the occasion of the UNCED-92 that took place in Rio; nevertheless, the greenhouse effect remains largely a result of the burning of fossil fuels in rich countries. The latter fact in no way diminishes the responsibility of the Brazilian government for the destruction of the rainforest, which was propitiated by a fiscal incentive system for stimulating the occupation of the region through the artificially support of agro-pastoral ventures that would not have been economically viable otherwise. Besides this type of venture, projects for the utilisation of mineral resources also contributed to the predatory occupation of that region.

The "nationalist"-type attitude in this case, on the one hand, has covered up the poor use of the region's potential, which could be more rational and balanced. Moreover, it has contributed to the irrationality and unbalancedness of the presence of large enterprises.

To escape from the polar opposite choices of either destroying the rainforest completely or preserving it untouched, studying the region's diverse aspects is fundamental: not in order to give an academic veneer to a problem with strong political connotations, but in order to better inform political decisions. In the case of hydroelectric dams, the effects are much smaller than those of the forest fires. The area to be flooded by the projected hydroelectric reservoirs is relatively small, including those hydroelectric taken from Eletrobras planning horizon, which correspond to 0.3% of the region's total area until the year 2000 and to 2% if all of the hydroelectric potential is utilised. Given the number of hectares, these values are small. They are much inferior to the area affected by the agricultural and mining projects. However, qualitatively-speaking, the hydroelectric dams affect a noble area: the river margins, where many people live. The biggest problem is that of the Indian lands, which goes beyond merely social aspects and involves the cultural and the ethical.

However, the problem of electric energy in the Amazon is not that of the supply of energy to the region, which may be obtained from various alternatives, but that of hydroelectric generation for transferring energy to

the Southeast and the Northeast. There was controversy over the construction of the Altamira hydroelectric complex on the Xingu River because of the Indian lands. The 2010 Plan predicted the inauguration of a 6,300 MW stage, Cararaô, later called Belo Monte, until 2001. Upon revision, it was removed from the planning horizon.

The hydroelectric dams compete with nuclear power plants and thermoelectric terminals. The former, given the example of Angra dos Reis, are very expensive and prone to technological problems, in addition to the risks of radioactivity to the environment. Thermoelectric generation based on the burning of fossil fuels causes atmospheric pollution.

A study by COPPE/UFRJ in collaboration with the National Museum's Social Anthropology Program, with the support of the International Development Research Center/Canada, compared the impact of hydroelectric dams with that of nuclear power stations. In the case of the dams, the impact on the riverside populace and the indigenous people was noteworthy. These problems were addressed in an authoritarian fashion at the time of the military governments, and an effort is them some other way.

According to recent research conducted by the COPPE/UFRJ Energy Planning Program, in collaboration with Eletrobras/Environment, the impacts of the hydroelectric dams were analysed from the standpoints of biodiversity and the emission of greenhouse effect gases, in comparison with thermoelectric terminals.

Regarding biodiversity, on the basis of an expert zoning of Amazon biodiversity areas, we constructed a matrix in which we layed out different existing and potential hydroelectric uses, grouped according to the power (in watts) per square meter density (Table 5), those areas may be put to.

Table 5 - Hydroelectric dams and Biodiversity

	Power density of the dam	
Biodiversity	High	Low
Low	Better situation	Waste
High	Vulnerable	Worse situation
	Not classified	Situation of uncertainty

Applying this methodology, 84 existing and potential enterprises in the Amazon were ranked (Table 6).

Table 6 Classification OF Potential Dams in the Amazon

Situation	Enterprises		Power	
	Number	%	GW	%
Uncertain	37	44	11.3	24
Better situation	3	-	0.3	1
Waste	17	20	5.3	11
Vulnerability	6	7	11.2	24
Worse situation	24	29	19.3	40

In the case of gas emissions, we took into consideration the CO2 and CH4 emissions resulting from the decay of biomass submerged by the dams' water compared with the burning of fossil fuels by thermoelectric terminals that is equivalent to energy generated over 100 years. The results show that, with the exception of a few rare cases of densities on the order of 0.1 watt per square meter, hydroelectric dams emit fewer greenhouse effect gases.

Possibly, it is preferable to look through democratic mechanisms for solutions to the dam problems, alongside other renewable sources, such as non-predatory biomass, industrial co-generation and the conservation of energy.

Conclusions: Recommendations

Brazil has contributed to facing the greenhouse effect problem by using renewable energy such as hydroelectricity, and alcohol and sugarcane chaff. Alcohol interests the developed countries for environmental reasons, including the greenhouse effect. The US intends to create a pool of cars powered by alcohol, which they already use as an additive in limited form. Sweden uses alcohol-driven buses. But in order to produce alcohol, they burn CO2 emitting combustible oil, since they do not have sugarcane chaff. It would thus be logical for Brazil to export the latter. However, there are

customs and cost barriers, since alcohol is much more expensive than gasoline. It is necessary to finance this extra cost.

One possibility would be the obtaining of resources from those developed countries obliged by the Climate Change Convention to reduce their C02 emissions to the 1990 level. The United Kingdom and Germany are the only ones that have complied with this commitment. There is also the "joint implementation" proposal, according to which rich countries would finance the control of emissions in developing countries. But the latter are not obliged to reduce their emissions, which are small on a per capita basis. At the Kyoto World Conference on Climate Change, Brazil proposed that those developed countries that did not sufficiently reduce their emissions should contribute to a world fund to be used in developing countries.

The conclusions include the following possibilities: (I) that for the United Kingdom support the Brazilian proposal implementation of the Climate Convention at the Kyoto Conference in December of the current year; (II) the opening up of the British and European markets to the export of alcohol for road vehicles; (III) that British Petroleum should join up with Petrobras in the Brazilian oil sector; (IV) stronger economic ties between the United Kingdom and Mercosur today under pressure from FTAA.

Science and Technology Parks in the United Kingdom and Brazil

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Introduction and Context

The purpose of this paper is to compare and contrast Science and Technology Parks in the UK and Brazil, and to see how far and to what extent such initiatives are relevant to the needs of dynamic economies. We will review the context in which Science Parks operate, define our terms, consider Science Parks in the United Kingdom and Brazil generally and finally look specifically at developments in Curitiba and Cambridge, before arriving at some overall conclusions.

Brazil and the United Kingdom are very different in size, population and stage of economic development. Brazil is the largest country in South America and in relation to other countries only Russia, Canada, the People's Republic of China and the United States are larger. In 1994 according to IBGE Brazil had a population of 155 million - the six largest in the world -

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1.96 times the population of Germany and 2.7 times the populations of both France and Great Britain.

Brazil's GDP in 1995 (Brazilian Institute of Geography and Statistics) amounted to $688 billion and with the exception of the 1980's and early 1990's Brazil's GDP has grown faster than the world average GPD and faster than that of many developed countries.

Annual GDP Growth Rate 1970 - 1994 Selected Countries

Country	Yearly Average
Brazil	4.2
Japan	3.8
USA	3.3
Mexico	3.2
Germany	2.8

Source World Bank

Brazil has an integrated economy similar to that of the average developed economy GDP - By kind of Economic Activity - 1991%

	Brazil	Developed Countries	Developing Countries
Agriculture	8.0	24	17.0
Industry	24.0	26.2	27.5
Services	62.0	65.3	48.1
Construction	6.0	6.1	7.4

Source World Bank

The UK is a developed country and a member of G7. Its GDP in 1994 amounted to £579,140m and employment structure was:-

Agriculture	3.1
Industry	29.9
Services	59.3
Construction	7.7

(Source Witcheries Almanac 1997)

By contrast the UK's annual GDP Growth Rate averaged 2.7% in the period 1980-1995.

It is very difficult to compare and contract developments of countries as diverse as the United Kingdom and Brazil. However the last decade has seen great changes in the international economy which have direct effects on both the UK and Brazil.

'Globalisation' particularly since 1989 has become a "buzz" word which tries to explain the dynamics of the historical process that has brought all nations under a more interdependent and complex international order. As yet there seems to be a lack of a "unifying theory" to explain adequately the genesis of the charges and the course of the rapid developments underway in contemporary economies. Academia is still in the process of mapping and understanding the causes and potential consequences of the events which are changing our lives at a hitherto unimaginable speed.

Spolidoro has, however, identified some of the changes that are taking place in the global economy, placing particular emphasis on the change from an 'Industrial' to a 'knowledge based' society.:-

Characteristics	**Industrial Society**	**Knowledge Society**
Market	Domestic markets, expanded through wars.	Global market, expected to be regulated through international agreements.
Products	Medium quality. Medium intellectual content	Very high quality Very high intellectual content
Competitiveness	Cheap labour, natural resources, capital etc.	Education of the people and its capacity of generating and using knowledge and innovations.
Mean Goods and Services	Petrochemicals, automobile, electronics, civil construction	Humanware: the convergence of activities related to areas as education, culture, leisure, sports, health care, arts and modern technologies, such as Ecological Tourism. Knowledge Engineering + the synergy of the different specialisations aiming at solving the increasing complex problems of the new era. Information services = the convergence of telecommunications, the information technology and the content of the information

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Unemployment	Associated with recessions	Structural - due to the automation and other factors.
Political models	Strong centralisation. Nation-state	Decentralisation and democracy. Nation Communities. Region states within the nation communities.
Environment	Irresponsible use of the resources of the planet	Ecological awareness. International regulations.
Approaches	"Mass production" culture. Isolation of specialisations	Respect towards individual rights and minorities. Pluridisciplinarity, synergy.
Changing Speed	Slow	Very fast
Information Infrastructure	A few local TV channels, a few local newspapers etc. Limited access to telecommunications services	Optoelectronic interactive world-wide networks, virtually with unlimited number of channels. Easy access to global telecommunications service. Easy access to interactive global data banks services.

Reprinted from the Proceedings of the V World Conference on Science Parks 1996 - 'The Paradigm Transition Theory: A Tool for Guiding Technopolitan Transformations'. Roberto Spolidoro.

It is perceived that with globalisation and the move to a knowledge based society based on rapid scientific and technological change the gaps between richer and poorer countries, and within those countries between different sections of society, could grow wider. The global community and

nations internally could face serious tensions based on a division between those who can change quickly and use knowledge (the key to present and future wealth and power), and those who will only change slowly, not being able to use knowledge to their own advantage.

All countries face the challenge therefore of maximising their national knowledge base in terms of increasing the intellectual capacity of the work force, and in exploiting their educational systems for direct commercial purposes. Failure to meet these challenges it is argued, may well lead to economic decline at a national level and the emergence of 'slave' nations and groups within nations.

In response to these challenges, therefore, there are a number of economic development initiatives in Europe, Asia and the Americas which are designed to try and assist the growth of new and existing technology based businesses and to promote technology transfer between existing companies and between Universities and Research Institutions and busyness.

The most comprehensive approach is that of the Technopolis which has found particular favour in Japan and France. A Technopolis is an attempt to promote growth on a regional basis by establishing an integrated economy involving education and / or institutions involving a knowledge based community.

At other end of the spectrum, operating on a local basis, are incubators which focus on early stage or start up businesses. These can be "general" or "specific". "Specific" sector incubators aim to exploit local resources to develop new busyness in a specific technical area with the intention of becoming a focus for new growth locally by assisting in the creation of clusters. "General" incubators cater for a broad range of businesses with no specialisation although there is usually an emphasis on innovation.

Science of technology parks lie between these two extremes. The generally accepted definition of a Science or Technology Park is :-

A property based initiative for the establishment and growth of technology based enterprises.

An organisation which provides or has access to management support for tenant companies and which is formally and operationally linked to at least one centre of technical expertise. These are usually Universities or Research Institutes but can be the corporate research laboratories of large companies.

In summary:-

	AVAILABILITY OF MECHANISMS			
Innovation Habitats	Innovative planning and administration aiming at to prepare the region to overcome the challenges brought in by the Knowledge Society.	Promotion of the synergy of the innovation agents in the region.	Premises for knowledge-based companies, research centres and ancillary institutions, associated to basic services and promotion of the synergy intra and extra muros	An ambience for emergent companies and research groups, with built areas, basic services and promotion of the synergy intra and extra muros.
Technopolis	YES	YES	YES	YES
Poles	NO	YES	YES	YES
Science Parks	NO	NO	YES	YES
Incubators	NO	NO	NO/YES	YES

Pre-printed from the Proceedings of the V World on Science Parks 1996 - 'The Paradigm Transition Theory' A Tool for Guiding Technopolitan Transformations' Roberto Spolidoro.

It is important to appreciate that these developments designed to aid the formation and growth of businesses, each have a different focus although there may be overlaps in their activities. In the case of Science and Technology Parks the emphasis is upon exploitation of research knowledge and the provision of accommodation at an economic level, and letting conditions suited to the needs of the tenants. Incubators and Innovation Centres (technology based incubators) on the other hand have as their main priority the transfer of busyness skills to their client businesses.

Science Parks in the United Kingdom - Overview

Between 1950 and 1993 the United Kingdom did not have a formal strategy for science, engineering and technology. This situation was rectified by the production of the White Paper in May 1993 "Realising our Potential - Strategy for Science, Engineering and Technology".

For the first time in almost half a century the UK Government tried to create a strategy designed to get maximum value for money from the UK expenditure of some £6 billion per annum on science and technology.

In particular the White Paper decreed:

"Government's use of funds and its effort in science and technology will be made more explicit and open. Individual Departmental mission statements will be widely disseminated. A Forward Look will be published each year to give the industrial and research communities a clear and up-to-date statement of the Government's strategy.

Technology foresight, jointly conducted by industry and the science and engineering communities, will be used to inform Government's decisions and priorities. The process will be carefully designed to tap into the expertise of people closest to emerging scientific, technological and market developments. The aim is to achieve a key cultural change: better communication, interaction and mutual understanding between the scientific community, industry and Government Departments.

The Advisory Council on Science and Technology will be developed into a new body, the Council for Science and Technology, which will draw on the findings of the Technology Foresight Programme. The new Council will help ensure that the Government benefits from outside independent and expert advice when deciding its own research spending priorities. The information generated by the Council will normally be made openly available.

The Government's schemes for technology transfer will be developed to re-emphasise the importance of the interchange of ideas, skills, know-how and knowledge between the science and engineering base and industry.

There will be easier access, especially for small and medium-sised firms, to the innovation support programmes run by the Department of Trade and Industry and the Scottish, Welsh and Northern Ireland Offices.

The Science and Engineering Research Council will be converted into an Engineering and Physical Sciences Research Council and a Particle Physics and Astronomy Research Council. The Agricultural and Food Research Council will be modified into a Biotechnology and Biological Sciences Research Council. All the Research Councils' missions VA11 be reformulated to make explicit their commitment to wealth creation and the quality of life. Their management structures will be modified to give each one a part-time Chairman and a full-time Chief Executive.

The functions of the Advisory Board for the Research Councils will be absorbed within the Office of Science and Technology. A new post of Director-General of Research Councils will be established within that Office.

The dual-funding mechanism will be maintained in recognition of the distinctive part which research plays within the overall mission of our universities. Clearer mechanisms will be developed for co-ordination between the Office of Science and Technology and the Education Departments to ensure that the two streams of University research funding are complementary.

The Rothschild customer-contractor principle will be maintained and strengthened, in relation to Departmental applied research and development. Departments will continue to develop their role as intelligent customers for science and technology. The Government believes that many of the services currently provided by Government research establishments could be carried out in the private sector, and that privatisation is a realistic prospect for a number of establishments. There will be a further scrutiny of the best organisational and management structures for those laboratories which are likely to remain in the public sector.

Better arrangements will be introduced for drawing together Government initiatives in science and technology, co-ordinating cross-

Departmental science and technology issues, ensuring value for money from the science and technology which the Government applies in its statutory, policy-making and regulatory roles, and monitoring performance against the new Forward Look.

Government negotiating positions will be better co-ordinated across the range of European and international science and technology programmes.

The arrangements for the training of post-graduate scientists and engineers will be developed so that the MSc can become the normal initial post-graduate degree in science, engineering and technology, and that PhD training for those who progress beyond the Master's degree is properly underpinned. Greater attention will be given to the relevance of post-graduate training for all careers. Those post-graduates who go on to a career in academic research should be better managed.

There will be a new campaign to spread the understanding of science and technology in schools and amongst the public."

It can be seen, therefore, that UK government policy does not mention Science or Technology Parks. Indeed the formation of the Science Park movement in the UK predates the White Paper by some 20 years. The first two parks formed in the UK, at Edinburgh and Cambridge, were both established by their respective Universities.

The number of UK parks in 1997 has now risen to 51 with a property investment of over £750m and a lettable area of 750,000 sq. mtrs. In total the parks house over 1300 companies and employ around 25,000 people, the majority of them qualified scientists or engineers. The companies represent all the major growth areas of technology.

The close involvement with the University, higher education institute (HEI) or centre of technical excellence is critical to all. For funding, the Parks may form joint ventures with, for instance, the local authority, a development agency or a private sector organisation. The prime objective behind the development of the Science Park movement is the support of regional growth rather than either a straight commercial property venture

or to provide space and opportunity for University Spinouts businesses. About 33% of the investment in UK Science Parks come from public sources, mainly EU programmes. Central Government have played no part in the direct financing of Science Parks. About 11% of the investment comes from Universities and 25% from external private sources. Tenant companies owning their own buildings constitute a further 25% of the investment. The proportion of private money in UK Science Parks has increased three fold in the past 8 years and the proportion from the Universities has decreased in the same timescale.

UK Science Parks are 'bottom up' initiatives and political and economic constraints mean that the UK has not to date produced any large operations which are recognised as technopoles, although the area around Cambridge could probably be classed as such should it choose to do so.

Most of the companies on the UK parks are small employing around 15 people on average but some of them have grown quite rapidly. Ionica for example founded in 1991, on the St John's Innovation Park, Cambridge, is now employing over 1000 people.

About 1/4 of the Science Park firms have spun out directly from the associated University or centre of technical excellence. There are now about 300 such spin off companies in the UK.

Science and Technology Parks in Brazil - Overview.

Jorg Meyer - Stammer in his article "New Departures for Technology Policy in Brazil" (Science and Public Policy, October 1995) has argued that there is no national system of industrial innovation in Brazil and apart from a few isolated cases there has been little interaction between universities and technology institutes on the one hand and industrial firms on the other. He argues that in the past national development policies have been based on the view that a key ingredient for industrial development is the existence of a science and technology infrastructure, and that the Science and Technology Institutes and industrial firms would somehow join hands in the development of technology. This approach was based on the experience of advanced industrial countries, and the experience of countries such as

the Far East Asian NIC's (Newly Industrial Countries) has underlined that this notion does contain a certain truth.

Nevertheless over the past 20 years there have been initiatives connected to the commercialisation of science and technology in Brazil. The Technological Innovation Programme set up in 1982 under the aegis of the CNPq - National Scientific and Technological Development Council was the first nation-wide government programme designed to link academic and busyness activities. One of the achievements of the programme was the establishment of 13 Technology Innovation Centres at Universities and Research Centres in Brazil. In 1984 this programme was expanded through the addition of the Science Parks Implementation Programmes programme which gave rise to the first 6 Science Parks and Business Incubators in Brazil.

In 1987, the FINEP - Studies and Projects Financing Agency, and the Organisation of American States, The Economics and Administration School of the University of São Paulo and the Engineering Graduates Programme Co-ordination Departments of Rio De Janeiro Federal University combined to develop a study mapping all Science Park projects underway in Brazil. Nation-wide, 16 ventures of this type were pinpointed, located in various Brazilian towns and cities. Clusters of high technology companies in São Paulo and São José dos Campos were also analysed. As a result of these studies the National Association of Institutions Promoting Advanced Technology Ventures - ANPROTEC was established. Based on the experience of this organisation the formalised concept of a Science Park and more specifically Business Incubators was launched in 1993.

In 1990 the Small and Micro Companies Support Service SEBRAE was established, run by a national council consisting of representatives of 13 organisations, 5 public and 5 private including ANPROTEC. SEBRAE has managed to alter the climate of opinion to acknowledge the importance of an enterprise culture in the national economy.

Another important initiative is the Columbus Project an outreach programme linking universities in Latin America and Europe. This programme included assisting Business Incubators and improving the relationship between small companies and incubators.

As a result of these initiatives ANPROTEC had identified (September 1996) 60 busyness incubators of which 35 are members of the association with an additional 45 incubator programmes being implemented. There were 7 Science Parks in operation, Campinas, Grande, Rio de Janeiro, São Carlos, Florianópolis, Brasília, Curitiba and Uberaba. Compared to the UK the number of companies successfully incubated is small. The ANPROTEC database indicates 459 incubator companies and 82 graduate companies. In July 1996 there were nearly 2,500 people working in companies set up in busyness incubators in Brazil.

Mauricio Guedes and Luis Bermudas have identified a number of difficulties that Technology Parks, Science Parks and Incubators and their companies have encountered in Brazil:-

Lack of an entrepreneurial culture disseminated through society at large

Lack of family tradition and busyness experience of the people setting up companies.

Difficulties in accessing credit due to economic policy with high interest rates.

Lack of sources of venture capital

Lack of experience and training in marketing

Lack of busyness discipline in technology based University courses

Limited funding for investments in busyness incubators.

In the UK three important reports have been published in the last 12 months identifying the problems facing knowledge based businesses:-

"Growing Success - Helping Companies to Generate Wealth and Incubation". Report from the Enterprise Panel set up by the UK Treasury to look at problems with Business Incubation. Published July 1996.

"Tech Stars - Breaking the Growth Barriers for Technology Based SMEs". Report carried out by the Federation of British Industry Small and Medium Sised Enterprise Council. February 1997

"Financing the Growth of Technology Based Businesses" - Published by the Bank of England in October 1996.

The CBI Report focuses on the problems of building management teams, development of entrepreneurship and market focus, and raising finance, as particular barriers to growth in this sector in the UK. The Enterprise Panel Report highlights the difficulty of establishing and financing incubators.

It can be seen therefore that the problems of establishing and growing 'knowledge' based businesses are very much the same in the UK and Brazil, although perhaps as befits 'a nation of shopkeepers' there is a stronger tradition of entrepreneurship and of running small businesses in the UK than in Brazil.

We will now review the development of Science and Technology Parks in Cambridge and Curitiba to see if any overall lessons can be learnt from specific experiences in the United Kingdom and Brazil

Development of Science and Technology Parks in Cambridge

In 1975 Cambridge was a market town with a population of 100,000. The busyness infrastructure was poor and government statistics indicated that the area was in the poorest quartile in England. The town did, however, house a University with an international reputation particularly for science, and was, and still is a substantial recipient of government funding for research and education.

Over the past 25 years, 30,000 new jobs have been created in science based businesses in the Cambridge area, there are over 1,000 technology based firms compared to 20 in 1978 and the total turnover of these new businesses is around £2-3 billion per annum with a strong export content. The area is now in the top quartile for wealth in the United Kingdom. Science and Technology Parks have played an important part in the growth of businesses in the area. They are however only part of the overall process.

The Cambridge Science Park was established by Trinity College, Cambridge University in 1970 on a 120 acre site, 3 miles to the north of the University. The Park has never had an active management team on site with

the function of technology transfer or busyness support. The importance of the Park however should not be under estimated despite the absence of a proactive busyness technology transfer development team. It was the first attempt in Cambridge to signify through the University that commercialising knowledge was acceptable. The Park itself only really started to develop in the late 1970's and early 1980's, and it took perhaps two other events which enabled it to fulfill its potential. The first was the commercialisation of the microprocessor in the late 1970's which led to the possibility of software and hardware industries spinning out of the University and other research organisations in the area. The second was the identification by one bank, Barclays, in Cambridge that there was the possibility of assisting in the creation of knowledge based businesses by, in effect, running a virtual Science Park alongside the Trinity initiative. Over the 5 year period 1978-1983 Barclays ran a busyness technology club, encouraged spin out from the University by taking part in University programmes, and assisted early stage technology based businesses with advice on busyness planning and fund raising.

Pre-dating the Cambridge Science Park, but of importance in the creation of an innovative milieu was the existence of potential incubators capable of spinning out businesses such as the Computer Aided Design Centre before it was privatised. Of particular importance has been the existence and growth of private technical consultancies. Cambridge Consultants (CCL) itself a spin out from the University in 1960 was one of the first tenants on the Science Park. The culture created within CCL meant that in addition to working on commercial contracts, spin out activity in the form of new busyness was encouraged. Domino Plc, an ink jet printing company whose turnover is now running at a rate of around £100 million per annum was one of the first spin outs. Formal (i.e. planned spin outs) and informal spin outs (i.e. individuals within the organisation who have spun out without the organisations official encouragement) probably now number well over 100. In addition CCL has spun out directly or indirectly other technical consultancies, PA Consultancy in the 1970's which in its turn has spun out Scientific Generics, The Technology Partnership and Symbionics. These consultancies have produced even more busyness spin outs so that the total number of businesses generated by technical consultancies in the

Cambridge area is probably now in excess of 150.

In 1987 St John's College founded, on a site opposite the existing Science Park, the Innovation Centre focussed on providing a supportive environment for early stage indigenous knowledge based businesses 'in house' and in the region - the role that had previously been carried out by Barclays. St John's provided a purpose built Innovation Centre tailored to the needs of these businesses and was complimentary in busyness terms to the Cambridge Science Park. The Centre currently houses over 60 companies, and over 100 businesses have graduated. The failure rate of companies in the first 5 years of the Centre's existence was only 12% compared to 50% for similar technology based businesses in the Cambridge area. The Park has already housed a number of successful companies:-

S Limited - Technical Consultancy. £15 million turnover after 7 years. 150 people employed from 5 at the outset.

I Limited - Telecommunication Company - Raised £500 million. Now employing 1000 plus people.

T Limited - Satellite communications - £12 million turnover after 5 years. The two founders now employ 168 other people.

CM - £15 million turnover after 6 years. 60 people now employed.

M Limited - Computer games company - £15 million turnover and 120 people employed.

Over the last decade a relatively sophisticated support infrastructure tailored to the needs of knowledge based businesses has been developed in the Cambridge area:-

Two seed capital firms have been established (CRIL and Quantum perhaps assisting 10 companies per annum).

A local venture capital fund (Prelude) with the regional office of 3i based on the Science Park. (Assisted Domino, Unipalm and a number of biotech companies)

A number of patent agents

5 of the big 6 firms of accountants now have offices in the

city. (Andersons, Coopers and Lybrand, Deloitte Touche, KMPG, Ernst Young)

Local law firms have developed expertise in IPR and contract law. (Mills Reeve, Hewitsons, Taylor Vinters)

The area is poised for further growth provided planning and environmental problems can be overcome. New initiatives include:-

The recent establishment of an East of England Investment Agency should attract R & D businesses from overseas.

The South Cambs Development Partnership should help stimulate growth by ensuring better co-ordination between local government offices.

The Industry Links Unit established through the Institute of Manufacturing and Industry. (University of Cambridge Development of Engineering) should encourage technology transfer from the University to SMEs in the Region.

The proposed Bio Science Innovation Centre should help stimulate further activity in the BioScience area.

The Business Link set up in 1995 should be able to provide focussed support for the more established technology based busyness.

The lessons that can be learned specifically from the Cambridge experiences are:-

An important knowledge based busyness region can be created even without explicit government support although a supportive planning policy is essential. What has happened in the Cambridge area appears at least as successful as Sophia Antipolis, often quoted as Europe's best example of a technology transfer development.

Commercial organisations can make money supporting knowledge based businesses. Barclays Bank failure rate in this sector was lower than the national average for businesses generally and they have picked up many successful clients. Both Trinity and St John's College are making a commercial return on their investments.

As a precondition there must be knowledge that is capable of being commercialised.

It is helpful for there to be a specific capability of funding start up businesses particularly in providing seed corn finance.

Development is assisted through "incubators" either in the University, R & D organisations, or other businesses. These need not however be property based

Progress is stimulated if there is a sense of mission and a number of "flagships" in order to raise profile, and give people confidence that they are contributing to an important initiative. This profile has been assisted not just by the Science Parks but also by Barclays Bank and by the Segal Quince Wicksteed report "The Cambridge Phenomenon - The Development of High Technology Business in the University Town" which was published in 1983 and which gave credibility and recognition to the importance of what was being achieved.

Individual role models are helpful "pour encourager les autres"

It can be seen therefore that although Science Parks have played a role in assisting technology transfer in the area, particularly by providing a supportive environments for businesses wishing to commercialise their intellectual property, they are only part of the story and they only directly 'house' around 15% of knowledge based firms in the Region. In the first instance there has to be 'knowledge' capable of being commercialised. A supportive environment, including Science and Innovation Parks, which enables teams of people or individuals with ideas to become genuine busyness men, by providing support, particularly financial support, and guidance on busyness issues, accelerates the process.

Development of Science and Technology Parks in Curitiba

Curitiba, in the state of Paraná, is now renowned for its emphasis on planning and the environment. Until the 1960s however Curitiba like many Brazilian cities had shown high growth rates and suffered from a lack of direction to guide its development. In 1966 however a Development Plan

for the city was approved and a strategy was established to "carry out the policy of promotion and development of industrial sectors, both commercial and service based, in order to transform Curitiba into a Centre of excellence promoting the harmonisation of profitable activity with the preservation of the environment and human resources".

Although Curitiba managed to establish its reputation as a 'green city', large amounts of public investment did not change the economic profile of the City and State. In the late 1980's the principle activity in Paraná continued to be that of cattle raising and agro industry, and in Curitiba service sector continued to be predominant.

The Federal University of Paraná (UFPR) together with representatives of public, local, state and private sectors therefore formed a study group to evaluate the possibility of establishing, in Curitiba, a technological centre for computer science. After several meetings and surveys it was realised that Paraná did not have a population with appropriate qualifications in the area of hardware and software computing to get the project moving. Their initiative was therefore channelled into the creation of the Centre of Technological Integration of Paraná (CITPAR), a private institution whose purpose is non-profit making and whose objective is the co-ordination of projects and action in the area of technology with the aim of state industrial development. The first act of CITPAR was the co-ordination and creation of the Masters Course in Industrial Computing which was set up initially at the Pontifical Catholic University of Paraná (PUC-PR) and is now based at the Federal Centre of Technological Education of Paraná (CEFET-PR).

In addition, and also with the support of CITPAR, INTEC the technological "greenhouse" of Curitiba was created in 1989, with the object of encouraging and stimulating businesses with a technological base in the areas of electro-electronics, metal mechanics, new materials, computing and biomedical engineering. INTEC, based in the grounds of the Technological Institute of Paraná (TECPAR), in the CIC, has its own premises (1,500 square metres) and has the support of its own institute, the Federation of State Industries of Paraná, the state secretariat of science and technology and the support service for micro and small businesses (SEBAE-

PR, CITPAR and PUC-PR).

In 1990-91, led by CITPAR, the CIC and the Association of Brazilian Software and Computer Services Businesses (ASSESPRO-PR), formed a new group to study the possibility of establishing a software technology centre in Curitiba, which gave rise to the International Centre for Software Technology (CITS), created in June 1992.

CITS is a non-profit making organisation, formed by different public and private institutions and which has as its mission "the promotion of the modernisation and competitiveness of busyness through professional qualification and the research and development of software".

Provisionally based in the premises of TECPAR-CIC, the CITS is developing its activities around 4 areas: continuing education, the SOFTEX 2000 Programme, strategic projects and institutional relations, specifically:-

A Software Export laboratory, has been set up with resources from the SOFTEX 2000 Programme, equipped with servers and work stations with UNIX and DOS/WINDOWS, connected to the INTERNET.

A technological laboratory IBM-LTS, created on the one hand for training using OS/2 and AIX and the software engineering tools placed at their disposal by IBM, and on the other hand, for the development of joint projects in software.

The technological laboratory of software LTS, established in the premises of TECPAR-CIC, with the resources of the Financier of Studies and Projects (FINEP) and from the state government; this laboratory is for shared use of TECPAR/CITS, and is for carrying out of tests and analysis and for the development of new software.

In the first 7 years of activity, 11 businesses have already graduated from INTEC and are active in the areas of commercial, banking and industrial automation, biomedical equipment, electronic control systems, telemarketing etc. They have directly created 150 new jobs and had a turnover of approximately 10 million US $ in 1995. Currently, 9 new businesses are in the pipeline, with the majority involved in developing applications packages / software. CITS has already carried out hundreds of training

courses, seminars and events attended by thousands of people. Through activities in the SOFTWARE 2000 Programme, more than 50 small and medium sised software businesses have been helped in the commercialisation (marketing and sales) of its products abroad.

The Software Park in Curitiba is therefore the result of 10 years hard work in creating a critical mass in the area of computing.

An informal strategic plan has now been developed to transform Curitiba into a centre of excellence in the development of software for national and international markets. The strategy is to:-

establish the base for the first regional centre for the software 2000 programme.

establish a Software Council for Curitiba.

be the headquarters of the sub-committee of the Brazilian Association of Technical Standards for Software (ABNT).

evolve CITS

organise a physical base for the establishment of businesses connected with the development of software.

The Software Park is therefore a strategic catalyst providing the physical embodiment of the idea, and it is intended there will be further institutions involved in research, development, production, and commercialisation of software.

From its inception in 1992, to quote ASSESSPRO-PR, the Software Park "is the light showing the way, as well as being an interface for communication for the busyness community and society in general, whether in the production of new knowledge, in the search for new financial resources, in the promotion of research or the relation of new busyness". The Park's role is to:-

consolidate Curitiba's position as a technological centre, in particular in the area of software development.

construct an innovative perspective as an alternative source for the generation of new investment and the incorporation into the job

market of qualified personnel.

encourage the growth of excellence in software, which will allow current busyness to form associations or reach agreements for the exchange of technology and to obtain competitive prices to serve society and to compete in foreign market sectors.

physically bring together the Park's busyness, which will generate gains in productivity through the permanent exchange of information and professional know-how, including the creation of strategic busyness alliances targeted at the development of complex projects.

This strategy is not only due to the need to attract non polluting industries with products and services of a high aggregate value, but also due to the necessity to modernise the existing industrial base in the region, to encourage the horizontalisation of research and software production, and to enhance the commercialisation of products bearing in mind global competition.

The Park includes:

A services complex (1575 square metres); a building constructed with town council resources. This will shelter the support and services infrastructure (banks, telephone, fax, auditorium restaurant, post office etc.) and the CITS (administration and laboratory area).

A office block of 8100 square metres, to be built through co-operation of different entitics which will shelter very small businesses linked with the area of software including the products of a "greenhouse" type process.

A "greenhouse" for software businesses at the project stage.

A CITS building for the future expansion of laboratories.

Units intended for busyness which for the most part will be able to create their headquarters or centres for development according to their needs. The lots vary from 2700 square metres to 5600 metres.

For the first stage of the project, the introduction of 156 businesses is planned - 16 large ones established in separate plots and 140 small

businesses in the Office Building.

Overall Summary and Conclusions

It is very difficult to compare countries and economies at different stages of development, and obtain genuinely comparative statistics.

We have tried to demonstrate, however, that whereas in the UK Science Parks have developed independently of government policy (they are not even mentioned in the White Paper) in Brazil, or at least in Curitiba, they seem to have become part of a general strategic move to the creation of a more knowledge based society.

It is also interesting to see the emphasis on the development of incubators in Brazil as compared to the UK as part of the Science Park movement. It is likely that in the next decade, following the Enterprise Panel Report, there will be a realisation of the importance of such economic catalysts in the UK, and the UK will see growth in the number of genuine incubators.

In the two economic regions examined in detail, Cambridge and Curitiba, there are similarities and differences:-

Software busyness growth has been an important part of initial economic development in Curitiba and Cambridge although the busyness base in Cambridge has now been widened to include a significant number of bio science and telecommunications companies.

Although the growth of technology based businesses in Cambridge started about 15 years earlier than in Curitiba both are due to the existence of an academic / teaching infrastructure based on the University and research institutes. The Computer Laboratory of Cambridge University and CAD Centre have played an important role in simulating software development as have similar institutions in Curitiba.

Because the Cambridge development older this has led to a sophisticated formal infrastructure which is still in the process of being developed in Curitiba. It may be that Curitiba can learn specific lessons from Cambridge in the development of such an infrastructure.

Cambridge developments are very much "bottom up" in the sense that there has been no direct Government intervention, and that all the initiatives have to be self funding or they do not exist. On the other hand in Cambridge there is no overall development plan which takes into account social, economic and environmental factors which are just as important as they are in Curitiba. Indeed the lack of such a plan is currently inhibiting growth in the Cambridge area.

It is a mistake to think that experiences on one continent are directly transferable to another. However it may well be that the "informal" busyness development techniques developed in the UK, and which are exemplified in Cambridge, may well be of direct benefit to Curitiba and other regions of Brazil. In particular "the virtual Science Park" approach and techniques adopted by Barclays Bank in the Cambridge area might be transferable to the Brazilian context to further stimulate the development of knowledge based businesses.

It is certainly true that the UK could benefit from better integration of Science Parks into an overall 'knowledge' development strategy. The UK, and Cambridge in particular, would also benefit from more formal overall planning which takes into account both environmental and busyness needs. Curitiba is very much a model from which Cambridge in particular, and the UK in general, could benefit.

It would seem that perhaps neither the UK or Brazilian governments are yet fully aware of the changes that are taking place and the consequences that may arise from not fully exploiting their country's knowledge base either in terms of increasing educational standards or maximising (and protecting) the commercialisation of expertise. It is appreciated that in recent years considerable attempts have been made in both countries to improve the situation, but as we have tried to outline in this paper both countries can learn from the experience of the other if they are to maximise the potential of their knowledge base.

St Johns Innovation Centre Ltd January Report

Period 7

A) Business Performance

B) Staff Training and Development

C) Technology Transfer

D) Consultancy (External Profit Generation)

E) Internal Profit Centre Reports

i) Conference and Catering

ii) Support Services

iii) Buildings

F) Overall Review

Appendix

1. January 1996 Profit Centre Analysis

2. Conference Catering Analysis

3. CBI "Tech Stars" Report

4. Enterprise Conference Programme

5. Euro Opportunity proposal

A) Business Performance

The profit in January amounted to £6,149 but this included a profit on the sale of the Managing Director's car of £4,500. The MD prudently replaced the vehicle with a similar model, but with a diesel engine which should retain its value, and cost less to operate. A good deal was struck on the part exchange, hence the profit. The other profit centres performed very much as expected, the profit of £3199.00 on the Innovation Centre reflected the fact that staff were taking holidays to "catch up" before the end of the holiday year and therefore rechargeable time remained in 'Central' and was not recharged to the Innovation Centre itself.

It is believed that February will be a good month for consultancy income and perhaps there will be a profit of around £5,000. Major consultancy contracts however finish at the end of the month and as yet we have no firm contracts to replace them. Nevertheless we expect end of year profits now to be around £40,000.

B) Staff Training and Development

Dave Allan left us in January and we have recruited Andrew Owen as replacement.

Amanda Bowman returns from her maternity leave at the end of February and will be rejoining us on a part time basis. She will stand in for Miranda Bishop when Miranda is on holiday, but she will also help with project management e.g. on the STEP programme and in organising the Enterprise Conference which is planned for September. It is also hoped that Mandy will assist in putting together the final IIP pack where we are seeking accreditation in October or November.

Our current staff structure therefore is:-

Our updated Training and Development Programme is:-

WJH Update technically by membership of BIC Ltd and UKSPA, Enterprise Panel and CBI Council for SMEs (elected in September). Membership Management Dynamics MD's Club.

AB To return to Innovation Centre in March. Three month trial. Will help with Project Management e.g. IIP, Enterprise Conference, STEP. Will deputise for MB.

MB Suitable PA courses as available.

AW Obtaining AAT qualifications. Day release started in September. On job training with GD.

EG Management skills course being arranged.

JM Has mastered telephone system. Has decided not to continue with basic French. Interpersonal skills course being arranged.

MR No requirement

MH French advanced course continuing. Assertiveness Course to be arranged.

TCR NVQ 4 achieved. This qualifies as first part of DMS which started in October and will finish June (1997).

NS Intermediate Food & Hygiene Certificate Course. First Aid Course arranged 10th - 13th February 1997.

AW Supervisory Skills Course. Customer care course being arranged.

RV We are attempting to arrange an Intermediate Food & Hygiene Certificate Course. Customer Care course being arranged.

DF Customer Care course being arranged

DS Customer Care course being arranged

AG Customer Care course being arranged. Passed her basic food hygiene course.

PN Customer Care course being arranged

EH NVQ in Business Studies commenced January 8th. Passed Food Hygiene Course in February. Customer Care course to be arranged.

AO On job training. Familiarising with Innovation Centre.

Members of the management team are also watching and discussing the BBC 2 programme the "Learning Zone". It is hoped that we can all improve our general skills by this means.

C) **Technology Transfer (Non Chargeable work)**

We continue to work on:-

Enterprise Panel, to establish a national Business Incubator Centre

CBI. The "Tech Stars" report was launched in the middle of February. Please see appendix 3 for final draft.

Enterprise Conference to be held in September 1997. Please see appendix 4 for current state of programme.

Central and South Cambridgeshire Economic Development Partnership. This is now being moved forward in a positive way.

SQW Auto Evaluation of Cambridge Science Park and St John's Innovation Centre. Discussions are now underway with "stake holders" with

a view to producing a first report towards the middle of March.

RAP and WJH are having discussions with Mike Gregory of the University Engineering Department as so whether, on a paid for basis, the Innovation Centre can work with the Gatsby Institute for Manufacturing and Industry. We would focus on providing SME contacts on a regional basis and help in providing regional policy and strategy. A further meeting will take place on the 25th February at which it is hoped that this initiative can be moved forward.

WJH has also been invited to be a member of the Management Panel of CUILIL (Cambridge University in Local Industry Links).

WJH's membership of the SME Council of the CBI means that we operate at a National Level, regional issues are being taken care of through the South Cambridgeshire Partnership, and local issues through CUILIL. The work that we do directly with tenants and businesses in the Cambridge area is also substantial evidence of our local involvement.

D) Consultancy

	Current Programmes (conclude end Feb) £	Confirmed £	Proposals £	£
Financial Support Network	11,000			11,000
Tech Discretionary Fund				
Thailand		8,000		8,000
Italy		10,000		10,000
Romania		3,000		3,000
FPS			20,000?	20,000
EuroOpportunity			20,000?	20,000
Gatsby			20,000?	20,000
Entrepreneurs Network			5,000?	5,000
	11,000	21,000	65,000	97,000

Our contracts with CambsTEC / Business Link (FSN / TDS) finish at the end of February. We have been included in an application under the Financial Packaging Service and within the month we should know whether we will get this work. If we do not we will not be doing any work for CambsTEC / Business Link apart from the STEP programme where they are acting as sponsors.

We do however have firm work in Thailand, Italy and Romania. The Thai work is due to take place in January and February next year, we still await details of the Italian contract, but the Romanian work is scheduled for April.

The EuroOpportunity proposal has just been submitted to the Dti. This proposal has involved RAP in an enormous amount of work. Please see Appendix 5 for details of the proposal.

E) Internal Profit Centre Report

i) Conference and Catering (NS)

The profit in January was £647 Room hire did particularly well in February. Catering revenue was up to budget but unfortunately margins remained at 41%. We are looking in to the situation here to see what we can do to improve matters.

Room hire for February and March looks promising and it is believed that the Restaurant will trade profitably for the rest of the financial year.

Staff

Clarence Braysher is making a good contribution.

Training

Have completed our training and development review as outlined in section A.

Communication

The weekly meetings, training sessions are continuing and are proving useful.

ii) Support Services (TCR)

We performed £1,000 better than budget. In detail:-

Photocopying was down this month to a breakdown in the recording equipment. We managed to salvage 60% of the information and we were able to negotiate a refund from Ultimate for the paper suppliers that we have used. We have subsequently asked for a quote to upgrade our recording equipment and this will be progressed as soon as possible.

Telephone call costs have been assessed as BT have billed us for December and January rather than just January. We will be able to comment more sensibly once this figure has been received.

Overall, up to period 7 we are £20,000 ahead of budget.

iii) Buildings

Innovation Centre

We were £3,000 over budget due to not charging staff whose costs remain in Central due to holidays.

Electricity is marginally lower in this period compared to the same period last year (£1848 compared to £2372.23); gas costs are marginally higher (£735 compared to £613.56) although period 7 did see a period of colder weather. Air-conditioning costs were incurred as we had to replace a faulty unit in Scientia (see Maintenance Meeting Minutes 3.2.97). Service Team, who provide us with refuse collections have not billed us for the months of December or January and this is reflected in the high accrued figure in this figure in this period.

Dirac House

Overall we are £9,000 high than budget as we are now able to monitor and allocate costs more effectively. In period 7, electricity costs were marginally higher than in the same period last year: the whole system and associated heat pumps etc. are working now which they were not in 1996. High consumption may also be due to the period of colder weather during this time. Again Service Team, who provide us with refuse collections have not billed us for the months of December or January and this is reflected

in the high accrued figure in this period.

Jeffreys Building

overall we are £3,000 over budget on costs, because of redecoration and the need to improve systems. Electricity and Gas increased costs reflect the colder spell of weather in this month. Glass repairs have not been completed at the front of the building and the insurance claim has since been settled in period 8. Increased costs under security system maintenance reflect the installation of a red care system to the fire alarm system and now brings this area up to the standard of Innovation Centre and Dirac House.

F) Overall Review

The Centre remains 99.5% full. DCS left in January and the space that they occupied is to be taken over by C3. The space that C3 occupied is being taken over by a number of new companies. Currently demand for space exceeds supply.

Financing problems continue to exist for a number of current tenants but we are hopeful that all will survive:-

CDA - Sperry interested in a joint venture. Banks said to be sympathetic about doing a bridging Small Firms Loan Guarantee. Progress is slow because the Managing Director is arguing for the best deal. He could still blow the situation by trying a too obtain a too good a deal for himself.

Asymptote - Midland Enterprise Limited have made an offer. Again the directors are arguing about the detail.

Knowledge Associates Limited - Managed to clear half the debt in January. We expect the remainder to be cleared over a 6 month period.

Ecoprogress Ltd - The German distributer has had problems. We understand that a Small Firms Loan has been agreed by Ecoprogess' bank, and money should be to hand within the next 4 weeks to substantially reduce the debt.

However we shall continue to watch the situation closely. We are still awaiting a proposal for clearing the monies owed by DCS. We are not

sympathetic and we believe that the College should take a hard line to recover the monies due.

The Bio Science Innovation Centre continues to be worked on, we understand that the current intention is to go to AIM late February or early March. WJH has sold his shares back to the company for what he paid for them.

Brazil and the United Kingdom at the End of the Millenium: A few preliminary notes

Brazil and the United Kingdom at the End of the Millenium: A few preliminary notes

Samuel Pinheiro Guimarães[*]

Divergences and Convergences

Things should be seen as they are and not as we would like them to be. The United Kingdom was the most powerful country in the world during the eighteenth and nineteenth centuries. Britain had defeated Napoleon and was the master of European politics and the Queen of the Seas. The sun never set on the British Empire where white men carried the burden of civilisation. Britain started and led the industrial technological revolution that radically transformed human society. The military might of the British Armies and Navy turned into reality the will of the British sovereign, and British economic and political interests were powerfully promoted and defended all over the world. The ideology of modern liberal democracy and free market economy, that some nowadays call "market democracies", was born in Britain.

At that time, Brazil was a demographically small country, with an agricultural, slave-driven economy, a formally democratic constitutional Empire of landowners. It was subjected to the pressures of the European powers and fell especially under British influence. The first "unequal treaty" was celebrated between Brazil and Great Britain. By the standards of the time, Brazil was a powerless, peripheral country.

From that time on, there has been a large reversal of fortune. As a result of the emerging and aggressive power of new and expanding industrial nations like the United States, Germany and Japan, two World Wars were

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fought, a Cold War was won, and the relative position of the United Kingdom in the concert of nations suffered an important change.

Britain is no longer the greatest economic, political and military power in the world. The British Empire has become a multitude of independent nations, the United States has proclaimed itself to be the leader of the Free World. After the disintegration of the USSR, the conversion of Russia to capitalism (and democracy?) and the disappearance of State Socialism as an alternative way of organising human affairs, the United States became the leader of the short-lived New World Order.

It is true that to a large extent the United States is the economic, political and ideological heir of the British Empire. It has raised to new heights the technological prowess of England, it has occupied the military and political spaces left vacant by the shrinking empires in the far-off colonial lands and has become the defender of ideas originally British. In recent times, the neo-liberal economic philosophy and policies emerged in Britain and were quickly adopted in America. The activist military and political diplomacy in relation to the Soviet Union and certain areas of the world periphery had strong advocates in Britain and echoed British ideas of the immediate post-War period.

However, the United Kingdom is still a great power in large measure due not only to its permanent seat in the Security Council of the United Nations, and of its military and nuclear capabilities, but also to its will to act in distant affairs, its links with the Commonwealth countries and its ability to influence political and economic thinking. But, its economic fate is now closely linked to the European Union and its foreign economic and political policies will have to be developed in the context of an emerging monetary union and common European foreign and defence policies. The capacity of the United Kingdom to influence those policies should never be underestimated.

Since the Second World War Brazil, on the other side of the world, has been going through a rapid and accelerating process of change, development and modernisation. The different parts of its until recently largely unexplored territory have been connected by physical and telecommunications networks and its population has multiplied to become

150 million people. Seventy per cent of its population has become urbanised, constituting one of the largest consumer markets in the world, even after discounting the extreme disparities of income. Brazil has become one of the ten largest industrial nations in the world. Its industrial sector is largely integrated, from capital goods to sophisticated consumer goods industries. A large proportion of its agricultural sector is highly modern and internationally competitive. Brazil has been able to organise a scientific and technological sector of reasonable capacity, mainly to solve critical problems such as the need to expand agricultural and oil production and to face public health challenges.

Short-term economic and political difficulties in stabilising and transforming the Brazilian economic system tend to obscure the potential of Brazilian society. Brazil's economic and political long term prospects are highly positive if the Brazilian political and social leaders, in or out of power, are able to imagine and develop strategies to overcome the historical disparities of economic and political power among regions and social groups, in the face of growing international instabilities. Successful consolidation of democracy and sustainable economic development depend, in the long run, on overcoming those disparities and reducing external vulnerability.

This is far from being an easy task. Those disparities are ingrained in the economic system and there is a strong risk that neo-liberal economic policies would tend to aggravate them. The economic disparities are reflected in the political system and in the media network. Each policy proposal that attempts to reduce disparities is strongly resisted.

How can we increase the domestic savings rate and expand productive capacity? How can we avoid the exploitation of the market by new national and international private oligopolies? How can we incorporate productively in the short and medium run the large contingents of the population that enter the labour market every year? How can we generate new technologies to reduce costs and to create new products which are necessary to expand exports? How can we pay foreign commitments without the need to keep high interest rates that inhibit productive investments?

Recent events in Mexico, Venezuela, Argentina and Thailand clearly show that deregulation, privatisation and the downsizing of the State may

not be sufficient in themselves to create increasingly stable, prosperous and just economic and political systems. There can be no long-term political stability in the face of increasing unemployment and marginalisation no matter how much individual companies become efficient and "productive". Micro-economic efficiency is useless and dangerous if it corresponds to increasing macro-economic, social, inefficiency in the use of its resources.

Just as the United Kingdom's fate will be increasingly intertwined with European fortunes, Brazil is pulled by the parallel processes of South American integration and of the American impulse to create a Western Hemisphere Free Trade Area. Besides having momentous consequences for Brazilian society, this eventual WHFTA will profoundly affect European interests. How will European trade and investment interests in Brazil be affected by those processes, especially by the latter one? How will European and British companies in Brazil and other Latin American countries face the competition of privileged American and Canadian companies in the new free trade area?

Cooperation

Since the United Kingdom is a mature economy and a declining political power and Brazil a developing economy aspiring to a more powerful world political status, this situation would apparently point to irreconcilable and competing positions and policies.

However, one can identify significant and strategic opportunities for cooperation between these two countries, which will respectively remain and become important regional and global players for a long time.

Both countries should have an interest in promoting a multi-polar international political system in order to increase their possibility of successfully developing policies to protect and promote their national interests, no matter how much this expression may appear outmoded today. In this context Britain has an understandable resistance to the enlargement of the United Nations Security Council, to the extent that this is perceived as a possible reduction of her influence. However, Brazilian participation in the UN Security Council should be perceived by Britain as a legitimate

postulation. Without the inclusion in the Security Council of important Third World countries, the Organisation will progressively lose its representativeness and influence and, therefore, the role of Britain in international affairs will be considerably weakened.

On the Brazilian side a permanent seat in the Security Council of the United Nations is essential to defend its legitimate national interests. If Brazil succeeds in building an advanced capitalist society its trade and investment interest in all parts of the world would become increasingly important, as is the case with the United Kingdom and other countries. Important and diversified economic interests bring with them political links and concerns. Therefore, Brazilian interest in political and economic stability all over the world will make it important for Brazil to be present in the decision making process of the Security Council. On the other hand, the continuing expansion of United Nations Security Council's responsibilities to include topics as the environment, political regimes and trade rules make increasingly strategic the Brazilian presence in its deliberations.

Brazil has, and Britain should have, an interest in promoting multicultural diversity. In a globalizing world, the consciousness of cultural identity will be an important factor in the preservation of national cohesion. With the growing importance of services and entertainment industries in world trade, cultural identity will be a requirement to participation in the global market with specific, different "goods". Multicultural influences are the stimulus to build a dynamic national culture to the extent that the intellectual and artistic vanguards are able to "anthropophagically" absorb, compare and process diversified cultural manifestations into new national cultural forms. From the economic point of view, a dynamic cultural identity (and industry) actually lies behind the possibility to diversify imports and exports of all types. Politically, the way of life (in all its meanings) spread all over the world by the media and the distribution channels for audio-visual products has an enormous influence on the success or failure of the foreign policy of any country.

Today, the historical importance of British-Brazilian links and of common economic interests does not correspond to a significant cultural British presence in Brazil. British cultural products in all fields are

remarkably scarce in the Brazilian market and in the minds of people, even amongst the most sophisticated and educated groups of the population. This public perception is all the more interesting to notice when one thinks about the large number of Brazilian participants in scientific exchange programmes with Britain. One should not be surprised when one thinks about common British perceptions, not always laudatory and many times unjustly critical, of different aspects of Brazilian society, in spite of all the efforts of the foreign services of both countries.

The United Kingdom is a creditor country and an exporter of capital, while Brazil is a debtor country and importer of capital and, naturally, the interests of creditors and debtors tend to be opposed by the very nature of their relationship. Investors want the highest degree of freedom to apply their capital, while recipient countries have the desire and the need to place conditions on their activities. Highly dynamic and mature industrial exporting countries defend the highest degree of free trade, while the limitations and needs of developing, indebted countries may demand some degrees of protection, even when their Governments are ideologically committed to principles of free trade and investment.

Returns on capital invested abroad is an important item of the British balance of payments. Long-standing British investments in Brazil, and the growth prospects of the Brazilian market make Brazil an important country for British investors. However, the capacity of the Brazilian economy to generate financial flows to conveniently remunerate foreign investments depends on the growth of its economy and its ability to obtain foreign exchange, especially from its exports. For this reason, a new and more active role for British companies in Brazil should be envisaged in the field of research and development of new products and in the effort to increase and diversify their exports. A stable and expanding external sector of the Brazilian economy is essential to guarantee the remittance of profits of British investments and of interest from British financial operations.

(In)conclusion

Preliminary notes cannot be conclusive. It may, however, be safely said that to identify and implement concrete cooperation programmes and

political initiatives that pull together the efforts of, and are mutually beneficial to, both countries in different moments and directions of their historical trajectory and in a period of radical international changes and growing instability is a rather complex task for the two Governments and for their diplomats, but it is certainly a worthwhile challenge to face.

Program of Seminar

Brazil -United Kingdom Seminar

Le Meridien Copacabana, Rio de Janeiro,
September 18th and 19th, 1997

Opening Statement

Tony Lloyd
Minister of State, Foreign and Commonwealth Affairs of the United Kingdom

First Panel

"Brazil and the United Kingdom in the International Political Scenery"

Baena Soares
Ambassador, President of the Alexandre de Gusmão Foundation

Elisa Reis
Professor, Federal University of Rio de Janeiro

Fraser Cameron
Doctor, Foreign Policy Advisor, European Commission

Luiz Fernando Ligiéro
Minister, Chief of Social Communication Staff of Itamaraty

Miguel Angelo Davena
Rear-Admiral, Navy General Staff

Mônica Herz
Professor, Institute of International Relations, PUC-RJ

Paul Taylor
Professor, London School of Economics & Political Science

Paulo Wrobel

Professor, The Royal Institute of International Affairs - Chatham House

Rubens Antonio Barbosa

Ambassador, Embassy of Brazil in London

Samuel Pinheiro Guimarães

Ambassador, Director of the International Relations Research Institute

Synésio Scofano Fernandes

General, Chief of Studies and Special Activities Staff of EMFA

Thomaz Guedes da Costa

Professor, Advisor to the President of CNPq

Timothy Garden

Sir, Director, The Royal Institute of International Affairs - Chatham House

Second Panel

"Bilateral Economical Relations: Brazil and United Kingdom"

Andrew Hurrell

Professor, Nuffield College - Oxford

Antônio Carlos Manfredini

Professor, School of Business Administration, FGV/ SP

Armando Castelar Pinheiro

Professor, Chief of the Department of Economics, BNDES

Barry Adams

President, British Gas International in Brazil

Celso Marcos Vieira de Souza

Ambassador, Dir.-General of the Department of Trade Promotion, Itamaraty

David Thomas

President, Lloyds Bank in Brazil

Jorge Raimundo

President, Glaxo Wellcome

Lia Valls Pereira

Professor, Getúlio Vargas Foundation of Rio de Janeiro

Luiz Fortes

Engineer, Vice-President of Operations of Shell Brazil

Octávio de Barros

Professor, University of São Paulo

Peter West

Director, West Merchant Bank

Phillip Krinker

Director, AON Group

Ricardo Markwald

Professor, Director of FUNCEX

Ronaldo Veirano

Vice-President, British Chamber of Commerce and Industry in Brazil

Rubens Antonio Barbosa

Ambassador, Embassy of Brazil in London

Samuel Pinheiro Guimarães

Ambassador, Director of the International Relations Research Institute

Third Panel

"Brazil and the United Kingdom in the Global Economy"

Aspásia Camargo

Professor, Executive Secretary of Environmental Ministry

Dália Maimom
Professor, Federal University of Rio de Janeiro

Emir Sader
Professor, Sociology at the Faculty of Philosophy, Letters and Human Sciences

Gelson Fonseca Jr.
Ambassador, Chief of Special Staff of the President

Ghillean Prance
Sir, Director, Royal Botanical Gardens

Gilberto Giusti
Doctor, Pinheiro Neto Advogados

Grahame Thompson
Professor, Department of Social Sciences, Open University

José Tavares de Araújo
Professor, Commercial Unit of OAS

Reinaldo Gonçalves
Professor, International Economics, UFRJ

Rubem Medina
Member of Parliament, President of Industrial and Market Commission

Samuel Pinheiro Guimarães
Ambassador, Director of the International Relations Research Institute

Sheila Page
Research Fellow, Overseas Development Institute

Theotônio dos Santos
Co-ordinator, Master Degree in Economics, UFF

Winston Fritsch
Professor, COPPEAD - UFRJ

Fourth Panel

"Science and Technology: Brazil and United Kingdom"

Anne-Marie Maculan
Professor, Federal University of Rio de Janeiro

Antonio Paes de Carvalho
Professor, President of Bio-Rio Foundation

Antônio Sérgio Fragomeni
Gen. Manager for Research at Petrobras and Development Centre - CENPES

Benjamin Miflin
Director, Institute of Arable Crops Research

Carlos Alberto de Azevedo Pimentel
Ambassador, Depart. Scientific, Technical and Technological Co-operation

Carlos Roberto de Faria e Souza
Professor, Head of the International Co-operation Staff at CNPq

Chris Wheddon
Director, Systems Engineering, British Telecom

Donald McLean
Depart. of Aeronautics and Astronautics Engineering, Southampton University

Gylvan Meira
President, Brazilian Spatial Agency

Isaías Raw
President, Butantã Foundation

Jorge Maluly Neto
Member of Parliament, President of the Science and Technology Commission

José Monserrat
Professor, Director of the newspaper "Ciência Hoje"

Luis Carlos Affonso
Director, Chief-Engineer of Embraer

Luiz Pinguelli Rosa
Professor, Director of COPPE, Federal University of Rio de Janeiro

Maria Celeste Emerick
Sociologist, Foundation Oswaldo Cruz

Maria Elisa Tourinho Jaguaribe Gomes de Matos
Division of International Business Unit of Finep

Mário Jorge Ferreira Braga
Admiral, Secretary of Science and Technology of the Navy

Mário Ripper
Doctor, Electronic Engineering

Mauro Arruda
Doctor, Executive Director of IEDI

Michael Grubb
Director, Environment Department - Chatham House

Roberto Santos
Member of Parliament

Sylvio Rosa Jr.
Professor, President of SEBRAE/ SP

Walter Bartels
President, Aerospatial Industry Association of Brazil

Walter Herriot
Managing Director, St John's Innovation Centre, Cambridge