

WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT

FIFTH MEETING

Ottawa, 28-30 May, 1986

WCED/86/5

MEMORANDUM

TO: All Members of the World Commission on Environment and Development

FROM: Jim MacNeill, Secretary General

DATE: 13 May, 1986

RE: Draft Chapter XI (Chapter XII in Revised Outline) on International Economic Relations, Environment and Development of the Final Report (Official)

A draft of Chapter XI of the Final Report (Official) is attached for consideration by the Commission.

The draft has benefited from the comments made and the discussion that took place at the meeting of the Ad Hoc Working Group of Commissioners on International Economic Relations, Environment and Development. The group met in Geneva on 2-3 May 1986 to consider an earlier version of this Chapter.

Chapter XI is closely linked with and flows from the preceding chapters, in particular chapters (I-IV) of the report. It does not repeat the discussion and recommendations made earlier.

The institutional aspects of International Cooperation are being dealt with elsewhere in the report, mainly in Chapter IV on the need for International Cooperation and the final chapter on Institutional Change. The chapter on International Economic Relations focusses attention on issues relating to Development Finance, Trade, Science and Technology and Transnational Corporations.

Action Required: For discussion and direction.

May 13, 1986

INTERNATIONAL ECONOMIC RELATIONS
ENVIRONMENT AND DEVELOPMENT

A. INTRODUCTION

1. Economic and ecological interdependence between nations is a central element in all major environmental and developmental issues. One type of interdependence arises from the spill-overs across political boundaries of pollution, of the direct effects of development on "shared" resources such as rivers, or even on "unshared" resources such as land, through erosion or encroaching deserts. The more pervasive interdependencies, however, are those that operate through international trade and finance.
2. The international economic system makes it possible for countries to reach beyond their borders in the quest for materials and products. Thus, the international economy performs the essential function of complementing and expanding the natural endowments and "carrying capacity" of countries and enabling their economies to grow by meeting their diversifying demands for raw materials and products. International trade makes it possible for countries like Japan, the Netherlands and South Korea to sustain a larger population and a higher standard of living than is possible with indigenous resources. But this depends crucially on the long-term sustainability of the ecosystems in their partner countries.

* In the Revised Outline of the Final Report which is to be discussed at Ottawa Chapter XI will be renumbered Chapter XII.

3. The international repercussions of pollution and of pressures on resources arising from rapid growth was the starting point of the global dialogue on environment in the sixties. The range of issues widened with the recognition that international trade and investment flows could also involve transnational environmental linkages. During the seventies there was a growing appreciation of the links between environmental issues and the pattern of social and economic development. The globalization of life-styles and consumption patterns and inequalities in the command over natural resources were seen to lie at the root of many environmental problems. The seventies also saw the beginning of global concern for certain national level environmental problems which acquired international significance because they occurred in a large number of countries. In recent times the notion of linkage has become wider and the environmental problems arising from economic stagnation and the lack of development are at the centre of the debate.
4. Economic and ecological interdependence has grown in a situation where there are vast inequalities in the levels of development and economic strength of nations. A general and widespread improvement in living standards has taken place only in the developed and a few developing countries and the bulk of the world's population lives in countries where poverty, rural deprivation and urban squalor are widespread. This imbalance is compounded by an asymmetry in international economic relations, with developing nations being influenced by but not being able to influence, the international economic environment. This has contributed greatly to the deterioration of the resource base in the Third World. The modalities of international trade and financial flows have often reinforced, and sometimes even preyed upon, the policy failures, weak management and institutions and fragile social and political structures manifest in many developing countries.

5. A major class of environmental and developmental issues arises from the fact that natural resources remain a very large factor in the economies of developing countries, and especially in those of the least developed ones. Agriculture, forestry, energy and minerals generate at least half the GNP in many developing countries and account for even larger shares of livelihoods and employment. Careful management of these sectors on a basis that is both economically and ecologically sustainable is essential, if developing countries are to enjoy a future of sustained growth and expanding diversification. Yet, in most developing countries today, domestic policies and international economic pressures operate in such a way that the natural resource base is not being managed for sustained production. On the contrary, it has and continues to suffer a massive deterioration and depletion, steadily reducing their potential for development.
6. One example is provided by tropical deforestation whose causative factors, include, among others, the trade in tropical timber. As documented in earlier chapters, such deforestation is claiming an area the size of Denmark annually, resulting not just in the depletion of the resource that underpins world trade in timber, but also in the loss of forest - based livelihoods, in soil erosion and downstream flooding, and in the disappearance of species and genetic materials that would deprive development of some resources vital to its future sustainability. Deforestation can also contribute to regional and global climate change, resulting in significant shifts of principal agricultural zones. Indeed, its effects ripple through the economy, touching sector after sector, disrupting water supplies and adversely affecting the lives of millions of people. International trade patterns are

also one, but not the only factor underlying unsustainable development policies and practices that have steadily eroded the crop and rangeland base in arid and semi-arid regions of Asia and Africa. Moderate to severe desertification affects 60 per cent of the productive lands in these regions and the phenomena is accelerating. There are many countries where erosion has reduced agricultural potential by 50 per cent or more. In many countries, the pressure on agricultural resources, the processes of desertification and deforestation and other environmental stresses arise in large part from mass poverty and the lack of development.

7. Misguided development and aid policies have also played an unfortunate, if unintended role. Many developing countries, encouraged by the development banks and assistance agencies, embarked on excessively capital-intensive development plans. In the rush, mega projects, including large dams, forest access roads, irrigation and industrialization schemes, were approved without regard for their environmental foundations. Many proved non-sustainable and, at great economic and social cost, ended up reducing rather than enhancing the development potential of the communities and regions concerned.
8. Economic policies pursued by both developed and developing countries have also played an important role. Ecologically blind pricing and lease policies for agricultural and forest products have actively induced non-sustainable development. The international trading system, particularly for primary commodities is highly oligopolistic. This fact and the high degree of variability in commodity prices reinforce destructive practices.

9. During the eighties economic growth rates declined sharply or turned negative in many developing countries particularly in Africa and Latin America. Deteriorating terms of trade, stagnating flows of concessional finance and growing protectionism in the developed market economies led to severe payment problems and heavy borrowings from commercial banks by many developing countries. As the cost of servicing the foreign debt rose, with the increase in interest rates and the dollar exchange rate, a debt crisis developed. The conditions laid down by the International Monetary Fund as a prerequisite for extending credit for short-term balance of payments adjustments led in some cases to policies that induced environmentally destructive practices. In particular, austerity programmes aggravated the crisis in many developing countries. In the process, many social objectives fell by the wayside, including those having to do with employment, health, education, environment, and human settlements. Concern and sensitivity for both pollution and resource-related aspects of the problematique diminished. In some countries the nascent environmental institutions, already weak were further marginalized.
10. Certain other factors have also contributed to a general undermining of the basis for development.
 - a growing subjection of international obligations to short-term domestic policy compulsions;
 - a relative decline in the commitment to multilateralism in trade and other matters in some developed countries;
 - disillusionment in some countries with the working of multilateral institutions;
 - the strains in the world financial system which is the bedrock on which international trade and finance depends.

11. Looking ahead into the next century, it is clear that economic and ecological interdependence will continue to grow but it will perhaps take some different directions. Many developed countries have been undergoing a significant restructuring with a shift towards new and emerging technologies in virtually all sectors, including agriculture, transportation, housing and urban development. In industry, there has been a move toward certain high technology products, processes and plants, and a greater focus on services.
12. These trends have led to a measurable "dematerialization of the economy" in the sense that the energy, resource and environmental content of growth has been falling. The incremental energy content of growth, for example, fell in many industrialized countries, in some from 1.2 to 0.5 units, resulting in substantial gains in overall economic efficiency and competitiveness and in substantial reductions in the costs of environmental damage. While the momentum that was recently producing gains in energy efficiency of up to 2 per cent year is now threatened by the third energy shock, over the medium and longer term these trends, and similar trends in other areas, are likely to continue.
13. At the same time, many developing countries have been actively diversifying their economies through various policies. Some have experienced a rapid development of certain basic and traditional industries and, with the growth in global sourcing of parts and materials, even some high tech industries. As diversification continues, their requirements for materials and energy will go up. With the availability of more resource-efficient technologies, however, and higher levels of management skills these increases can and should be significantly moderated.

14. The Commission is convinced that, in the aggregate, constraints on the growth process can be managed. As discussed in earlier chapters, future patterns of agricultural and forestry development, energy use, industrialization and human settlements can be far less material intensive, and hence both more economically and environmentally efficient. Cost effective methods of conservation development, resource efficient technologies, environmentally softer products, processes and plants, are now available in all sectors and are being steadily improved. Moreover, some trends suggest moves to other, newer kinds of growth, involving higher levels of personal development, physically, intellectually and spiritually. Where the potential for growth in the traditional sense may be limited, there are no limits to this kind of growth.
15. At the moment, most economic, trade, finance, aid and science policies, as well as agricultural, energy and other sectoral policies, do not reinforce these trends. On the contrary, many induce practices that are material and energy consumptive and destructive of the resource base for development. Science and technology policies seldom give priority to these areas, especially under the unique conditions prevailing in developing countries. Nor does the development of management skills and institutions often take these factors into account.
16. Looking toward the next century, the real task is to modify these policies and practices and ensure that the required changes take place in the content of growth, in the efficiency of material and energy use, and in management and institutions in both developed and developing countries. It is also vital that a much broader range of options and opportunities for sustainable forms of development be made available to developing countries.

B. TOWARD THE YEAR 2000

17. The major objective of international economic policy for the remaining years of this century must be to reorient trade and investment flows so that they contribute to the restructuring of the global growth process and promote sustainable development in all parts of the world. This objective cannot be achieved by unilateral action. It requires a multilateral effort and concerted action by all concerned countries at both the regional and global level. The growth of, and structural change in, international trade and finance, the internationalization of technology and investment and the rapidly expanding international flow of information will inexorably strengthen the economic and cultural basis of interdependence. Economic trade and financial relations must reflect this and reinforce it to every nation's advantage.
18. This objective also depends crucially on the revival of sustainable development processes in the Third World. Significant changes are needed along with new measures that address both the pre-existing problems of poverty, lack of development and widespread resource deterioration and depletion, and the newer problems of - and opportunities for - environmentally sound diversification and growth. Such economic growth and diversification, along with the development of technological competence, will help developing countries to mitigate the strains on the rural environment, raise productivity and consumption standards and reduce their dependence on one or two primary products for their export earnings.

19. A revival of the growth process in the world economy will widen the options available to developing countries, making it easier for them to shift to environmentally sustainable development paths. If development processes are to be sustainable, however, the Commission believes that several measures need to be pursued as a matter of priority, including measures

- (a) to ensure that the flow of resources to developing countries supports sustainable development;
- (b) to ensure that trade relations support sustainable development;
- (c) to ensure that transnational corporations contribute to sustainable development.
- (d) to improve resource and environmental productivity.

20. These measures, discussed below, depend on a new consensus that international economic relations ought to serve as one of the principal vehicles for the international community to promote the objectives of sustainable development nationally, regionally and on the global scale. International economic relations should support national efforts to meet basic needs of all peoples and their ability to deal with environment/development issues. They should not encourage or lead to policies and practices which endanger essential life-support systems or undermine the sustainability of renewable natural resource ecosystems and biosphere in general. Rather, they should promote the rational and diversified uses of resources, increasing their productivity and ensuring their regeneration and sustainability for the

foreseeable future. They should also promote the conservation, recycling and efficient use of non-renewable resources and help to ensure equity of access between countries and generations.

21. In applying this consensus, full account needs to be taken of the uneven levels of development and economic strength between countries, as well as of their separate and unique roles in the global environment-development situation.
22. The measures also depend on significant improvements in the knowledge base and tools of analyses. The international dialogue on economic, trade, finance, aid and other matters tends to centre around concepts which can be readily quantified (national income, the volume and value of trade, prices, etc.) Indicators of sustainable development, however, are non-existent or incomplete and difficult to inject in the dialogue. New concepts and indicators are needed that reflect not merely current levels of production and exchange, but also the condition of, and changes in, the resource base, and the quality of resource management in its broadest sense.
23. Several attempts have been made to develop new concepts of measurement that would take into account annual changes in the volume and value of resource stocks, in the quantity and quality of species, in the quality of various environments under stress, etc., in order to determine whether GNP and other measures reflect an enhancement or diminution of societal prospects. The centres undertaking this work need to be strengthened and the work given much higher priority.

24. In addition, work needs to be started and pursued continuously on the analysis of international economic, trade, finance and energy and other policies against their actual and potential impact on sustainability. Given future trends, it is vital to know whether and the extent to which policies proposed in these fields may support projects and induce practices which are inherently non-sustainable, and to determine how they can and should be modified.
25. Finally, this information and data needs to be synthesized and presented in ways that elicit an appropriate political response.
26. An essential pre-condition for these measures is effective institutions nationally, regionally and globally, with mandates that make them responsible for ensuring that their policies support sustainable development. In developing countries, institutional weakness is a major constraint. Stronger national and regional institutions with appropriate mandates, are of critical importance to bolster their position and to enable them to respond more effectively to the problems involved. This is dealt with in a later chapter.

Ensuring That the Flow of Resources to Developing Countries
Support Sustainable Development

27. Recent trends in the flow of finance on capital account to developing countries (as defined by the World Bank and DAC) show three significant characteristics: (a) an increase in the share of non-concessional flows from 55 per cent in 1970 to 64 per cent in 1983 (b) a substantial rise in the role of commercial bank lending, much of it short-term, from 15 per cent in

1970 to 36 per cent in 1983 (c) a rising share of floating interest debt which in 1983 accounted for 43 per cent of the public debt of developing countries.

28. During the eighties, ODA levels have stagnated in absolute terms and the majority of donor countries are well short of the internationally accepted ODA target. The stagnation in ODA came at a time when the balance of payments of many developing countries were under strain because of the increase in oil prices in the early eighties, the decline in other commodity prices and the slowdown in the growth of world trade. Many countries resorted to large-scale commercial borrowing and in due course, with rising interest rates and changes in exchange rates, the debt-service burden added to the strains on the balance of payments. In country after country the exigencies of short-term balance of payments management led to a relative neglect of long-term development objectives.
29. The promotion of sustainable development will require major investments in land development, soil conservation, water resource projects, forestry, human settlements, pollution control, etc. In the long run, as development potential is built-up, the resources required can be generated within each country. However in the medium-term there will be a continued need for external finance particularly in the low-income countries. Hence the potential for sustainable and self-reliant growth can be created more easily if the volume and terms of external finance are such that the recipient countries can pursue environmentally sound long-term development objectives with greater vigour.

30. The central issue here is a widening of the options available for balance-of-payments management. Arrangements should be devised to make it possible for a country to manage short-term balance-of-payments strains without departing from its long-term development path. Moreover the availability of external development finance should allow a country to pursue trade policies based on sustainability considerations particularly for primary products. A broadening of options in this sense will require wide-ranging reforms of the international financial system. However in the medium-term context, three issues deserve special attention:
- (a) measures to resolve the debt crisis;
 - (b) changes in the level and pattern of ODA;
 - (c) measures to assess sustainability.

Resolving the debt crisis

31. The debt crisis is essentially a medium-term phenomenon but its resolution is crucial for many developing countries especially in Latin America and Africa. Nor is the problem limited to middle income countries. The external debt of Sub-Saharan Africa is of the order of \$90 billion and the burden of debt-service as a proportion of exports is very high in a large number of low-income countries. As long as the debt problems of these countries remain unresolved, their external finances will remain precarious and in this uncertain situation, they will not be able to reorient their development paths in the direction of long-term sustainability.

32. A continuation of the present situation is contrary to the interests of all, including the lenders. A variety of measures are under discussion including forgiveness of part of the debt, rescheduling, conversion to softer terms, etc. The Commission urges that various debt relief measures be devised and implemented, in particular for the least developed countries and countries with a precarious environmental and resource situation.
33. From the point of view of this Commission it is essential that sustainable development objectives be injected into on-going efforts to deal with the debt problem. Proposals to restructure and reschedule debts and economic policy changes recommended to restore financial balance should be scrutinized to ensure that they do not induce further reductions of a debtors resource and environmental potential for future development. Similarly, "conditionality" imposed by the multilateral development banks, and other lenders and the IMF should seek positively to enhance those institutions and programmes concerned with the management of the resource and environmental base. At the very least, these programmes should be exempt from the budget axe. In order to ensure that the methods used to resolve the debt problem can promote longer term developmental goals and the objectives of sustainable development, the mandate of the fora where the resolution of the debt problem is negotiated should be wider than the usual short-term mandate of financial institutions.

Official Development Assistance

34. The case for official development assistance has rested on a variety of grounds. Strategic and political considerations, perceptions of mutual economic dependence, humanitarian motives and even commercial self-interest have been used to justify the flow of concessional finance from the developed to the developing countries. Ecological interdependence provides yet another ground for official development assistance. Thus, if ODA helps to promote the conservation and better management of tropical forests, environmentally sound agricultural growth, resource-efficient energy development and similar policies in developing countries, it will generate global benefits. Similarly ODA can be thought of as a type of compensatory arrangement to correct externalities which are not adequately reflected in international prices.
35. The primary task is to raise the level of bilateral and multilateral development assistance, particularly the part that is available on soft terms through agencies like IDA and IFAD. Further, the targeting of ODA by sector and country should reflect the requirements of sustainable development. Donor countries will also need to re-examine the content of their aid programmes, particularly with regard to commodity assistance, which have often served to reduce rather than enhance the possibilities for sustainable development. The programmes most directly related to the objectives of sustainable development may well involve a high content of local costs, a different ratio of recurrent to capital costs and a greater use of local technology and expertise. This will require changes in donor country

policies on the financing of such costs, on tied purchase of equipment, and on provision of technical assistance.

36. Corresponding changes may be needed in the policies of recipient countries. Indeed, as discussed in earlier chapters of this report, there is a long list of policy changes that could move countries, developed and developing, toward development that is simultaneously economically more attractive and environmentally sustainable.

Assessing Sustainability

37. As this report has demonstrated, investment can destroy as well as enhance the basis for future development. Given future trends, unless society is prepared to accept a drop in living standards - and no nation is prepared to contemplate that, although it could happen in many areas - it is essential that all new investment be designed to enhance positive and reduce negative feed-backs from the ecosystems on whose sustainability it depends.
38. Traditional forms of environmental assessment are not sufficient for this purpose. They need to be broadened to embrace "sustainability assessment". The intent would be to determine whether and how an investment can be made both economically and ecologically sustainable taking into account the positive and negative relationships between the two. Such assessments need to be extended to all ODA supported investments that have a major impact on neighbouring countries and on the global commons.

39. Moreover, these assessments have to be undertaken at the earliest possible stage to avoid long and costly delays, which usually end up frustrating unnecessarily the purpose of the assessment. They, therefore, have to be required of the economic agencies initiating the investment, and not of some after-the-fact, add-on environment agency or group.
40. Within the context of ODA, the multilateral development banks, development assistance and export credit agencies should introduce or sharply upgrade their capacity to assess their policies and projects in co-operation with recipient countries. At the same time, they should introduce new programmes aimed at significantly upgrading the capacity of recipient countries to manage their environment and resources.
41. Official development assistance necessarily rests on voluntary contributions made by donors. Even when donor governments are strongly committed to providing more assistance, the exigencies of domestic budget management and other pressures can lead to substantial shortfalls relative to targets and, more important, to genuine requirements. In this situation a measure of automatic financing of international action on environmental and developmental matters would help greatly. The various possibilities which need to be considered are dealt with at greater length in the Chapter on the Need for International Co-operation.

Ensuring That The International Trade Regime Supports Sustainable Development

42. The multiple linkages between trade and sustainable development are most obvious in the case of primary commodities. Here, the major issues relate to the

long-term sustainability of commodity production and exports. With regard to manufactures the principal issues relate mainly to pollution and industrial hazards. These two areas are dealt with below.

International Commodity Trade

43. Primary commodities other than petroleum continue to account for more than one-third of the export earnings of the developing countries. The dependence on primary commodity exports is particularly high in Latin America (52 per cent) and Africa (62 per cent). The countries recognised as least-developed for the U.N. special programme depend on primary commodities for 73 per cent of their export earnings and, what is as important, their dependence on this source has not decreased.
44. Commodity prices fell during the early eighties, not merely in real but also in nominal terms. By early 1985, the UNCTAD commodity price index was 30 per cent below the 1980 average. According to UNCTAD estimates, the cumulative loss in export earnings of developing countries from primary commodities amounted to as much as \$33 billion between 1980 and 1983. The loss was particularly heavy for African countries where it amounted to nearly three-quarters of the value of Africa's commodity exports in 1980.
45. The dependence on commodity exports has led in some cases to unsustainable pressures on the natural resource base. In a number of instances, if current practices continue, the implication is that by the turn of the century, or sooner, the development potential of natural resources in many areas, will be greatly reduced.

46. Unstable revenues from commodity exports and secularly declining terms of trade have contributed to this situation. Moreover, the prices of commodity exports have not reflected the environmental costs of sustainable use of these resources. In a sense, developing countries subsidize importers of their products, incurring important short-term and especially longer term costs to themselves and their environment.
47. In recent years, developing countries have sought to increase their gains from commodity exports by undertaking the first stage processing of raw materials domestically. This first stage often involves subsidised energy inputs, other concessions and substantial pollution costs. But developing countries often find that they do not gain much from this capital and energy intensive first-stage processing, as the price spread shifts in favour of down stream products which continue to be manufactured mainly in the developed countries. The tariff policies of the developed market economies tend to reinforce this tendency.
48. The principal international response to commodity problems has been in the negotiation and implementation of international commodity agreements, which aim to stabilize and maximize the earnings of developing countries from primary products exports. In practice, progress has been very limited. Moreover, sustainability considerations have not played any part in commodity agreements, with the notable exception of the recently concluded International Tropical Timber Agreement.

49. The Commission is aware that commodity agreements have not proven easy to negotiate, and that regulation of commodity trade has been a notoriously difficult issue in international trade. In a highly competitive international economic environment, producers will not find it easy to press for changes that take sustainability criteria into account. Yet it is vital that they do so. By co-ordinating their policies and actions, they can make it possible both to change domestic resource policies and to obtain greater control over the use of their natural resource base.
50. In scheduling the negotiation of commodity agreements, priority should be given to those commodities whose production has high environmental impact and those that are close to limits of sustainability. Moreover, these agreements should contain explicit provisions for the management of the resources and ecosystems in question, including R&D efforts to improve their use. Funding arrangements should be extended to cover these objectives, and in particular the second window of the Common Fund should be used for promoting resource regeneration and conservation.
51. In the context of both international investment and trade, where the technology, plant, or process involves the development and use of renewable resources like forests and fisheries governments should re-examine and, if necessary, negotiate modifications in lease terms to ensure (a) that the rate of exploitation stays within the limits of sustainable yield; and (b) that finances are available for resource regeneration and for dealing with all linked environmental effects.

52. In respect of non-renewable resources, they should re-examine and, if necessary, negotiate modifications in lease terms to ensure (a) that the leaseholder undertakes an adequate degree of exploration effort aimed at adding to proven reserves at least the amounts extracted; (b) that the production to proven reserve ratio is kept below a pre-specified limit; (c) that the funds generated by royalties are employed so as to be able to compensate for the declining income when the resource deposit is exhausted; and (d) that the leaseholder is responsible for land restoration and other environmental control measures in the area affected by mining activity;
53. In order to facilitate this, governments should also request relevant international organizations such as UNCTAD, UNIDO UNEP, UNDP and the UN Regional Commissions, to develop model contracts and guidelines incorporating these principles.

International Trade in Manufactures.

54. Trade in manufacturers has proven to be a somewhat more hospitable ground for international action than has been the case with the trade in commodities.
55. Action so far, however, has been concentrated mainly between industrialized countries who managed to develop and harmonize trade relations to some degree to their mutual advantage through regional organizations like the OECD and CMEA. As a result, the industrialized countries have been able increasingly to internalise the damage costs of environmental pollution and to reflect the cost of the related control measures in the

price of products they sell. In the case of export products, these costs are paid by consumers in the importing countries, including those in developing countries. Developing countries on the other hand, have by and large not been able to harmonize trade relations to their mutual advantage, nor to adopt policies to internalise the costs of environmental damage. These costs, therefore, continue to be borne entirely within their borders largely in the form of damage costs to human health, property and ecosystems, even for the products that they export.

56. The possibility of developing countries reflecting these costs in the price of their exports, especially commodities which account for a large part of their export earnings, depends on their future ability to get together in various ways, establish harmonized guidelines for competition in different commodities, and agree jointly to implement economic efficiency policies such as the polluter pays principle. Their ability to do this is limited by several factors. First, in respect of many, if not all international commodity markets, developing countries are mainly "price takers" rather than "price makers". Second, and perhaps more important, is the lack of effective regional organizations, with strong secretariats, within which developing countries could construct the intellectual and political foundations for appropriate arrangements and marshal the market strength to negotiate them.
57. It is important that developing countries find ways to get together in various appropriate groups so that more of the environmental and resource costs associated with production can be internalised. The price at which their output is supplied to the major importing nations

is currently significantly below that which would prevail if they were able to internalise the environmental and resource damage costs associated with its production. According to a study conducted for the Commission, in one year, 1980, the industries of developing countries exporting to OECD countries would have incurred direct pollution control costs of US \$5.5 billion, if they had been required to meet the environmental standards prevailing in the US. These costs would have been incurred hypothetically by the industry producing the final product. If the pollution control costs associated with the inputs that went into the final product were also included, the costs would rise to US \$ 14.2 billion. The evidence also suggests that OECD imports from developing countries involve products which, on average, impose higher environmental and resource damage costs than does the overall structure of OECD imports.

58. The hypothetical pollution control costs indicated above probably understate significantly the real economic costs of environmental and resource damage in the exporting countries. Contrary to popular view, the available evidence suggests that the assimilative capacity for most pollutants in the major industrial centres of developing countries has been greatly exceeded. In many Third World cities, in fact, environmental conditions are much worse than those that prevailed in the cities of the industrialized world in the sixties and seventies. The public health costs of air and water pollution alone, in Mexico City, for example, are staggering not to mention damage to public and private property through corrosion.

59. Furthermore, the costs given above relate only to environmental pollution and not to the economic damage costs associated with resource extraction and depletion. The transfers hidden in these costs have not been estimated but could be substantial since OECD imports from developing countries are biased towards resource intensive commodities.
60. The responsibility to initiate changes in this situation will necessarily have to come from the developing countries themselves through national action and effective co-ordination of their policies at the regional and global level. In this context the Commission would recommend that developing countries consider working through appropriate organizations to undertake a review of various means through which they could seek to internalize more of the environmental and resource damage costs of production and reflect them in prices. Measures could range from appropriate variations of the "polluter pays principle", to levying surcharges to cover the costs of sustainable management (eg replanting forests), to forms of direct compensation for setting aside genetic banks, or nature preserves.

Export/Import of Banned or Severely Restricted Chemicals

61. An important class of what could be called "product pollution" problems arises in the export of chemicals and hazardous products and wastes. About 70 to 80 thousand chemicals are now on the market and, hence, in the environment. About 10 per cent of these are thought to be hazardous to man and to the environment, but that figure is based on a sampling of only about per cent, the percentage that has, in fact, been

tested. The rest are on the market and in the environment without benefit of adequate testing.

62. Up to two thousand new chemicals come on the market every year, mostly without benefit of prior testing, although that is now beginning to change. Thanks to the efforts mainly of regional organizations like OECD, the world is moving gradually from a system of post-market testing, to a system of pre-market testing of all new chemicals.
63. To date, over 500 hundred chemicals and chemical products have been banned altogether or had their uses restricted in the country of origin.* In addition, an unknown number of chemicals are withdrawn from clearance processes every year in the light of control agency concerns, or they are never submitted to their national control agencies for clearance. Many of the chemicals, however, are produced for export.
64. While most industrialized countries are now tightening their control systems, most developing countries have no effective control systems. Many are simply unable to establish such systems because of a combination of institutional and financial limitations and a shortage of professional staff. There are very few restrictions on the export of these chemicals and chemical products to other countries. And there are virtually no restrictions on imports by developing countries.

* See "UN Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments".

(N.B. This section will be completed following the Commission's discussion in Ottawa of the corresponding issues dealt within the Industry Panel's Report.)

Environment-Development Issues in Multilateral Trade
Fora.

65. Although a number of research projects had been carried out in UNCTAD over the years on the links between trade and environment, these issues have not been taken up systematically at the intergovernmental level. Nor have environment-related issues been considered adequately in the work of GATT. Clearly the mandates of these organizations should include sustainable development. The environmental implications of trading patterns (e.g. loss of tropical forests and genetic resources, energy-induced climate change, etc.) and the need for more effective instruments to integrate the protection and enhancement of the environment and the resource base of development into international trading arrangements should form a major part of their ongoing activities. The Commission would recommend that the promotion of sustainable development be added as a priority item on the agenda for all future multilateral trade negotiations.
66. The reorientation of international organizations dealing with trade will be easier to secure if each nation designates a lead agency with a broad mandate to assess the effects of international trade on sustaining the environmental and resource base of economic growth and assigns to this agency the responsibility to raise environment and resource sustainability issues in the work of UNCTAD, GATT, OECD, CMEA and other relevant international and regional organizations.

Ensuring that Transnational Corporations Contribute to Sustainable Development.

67. The post-war period has seen a growing internationalisation of investment activity in the market economies. According to data compiled by the U.N. Centre for Transnational Corporations, foreign affiliates accounted for 40 per cent of sales, 33 per cent of net assets and 56 per cent of net earnings for 380 of the largest industrial corporations in the market economies. A substantial proportion of transnational investment is within the group of developed market economies and reflects the growing integration of their economies. However, the role of transnational corporations in developing countries has also been increasing. Between 1965 and 1983, developing countries received \$106 billion of direct foreign investment, more than half of this being in Latin America. Transnational corporations play an important role as owners, partners in joint ventures and suppliers of technology in the mining and manufacturing sector in many developing countries, especially so in certain environmentally sensitive areas like petroleum, chemicals, metals, paper and automobiles. They also dominate world trade in a large number of primary commodities.

THE IMPORTANCE OF TRANSNATIONAL CORPORATIONS

- * Precise and conclusive figures and data on worldwide deployment of polluting and environmentally hazardous industries are not readily available.
- * Some of the available data indicate that in 1983 chemicals accounted for roughly one fourth of the stock of foreign direct investment in manufacturing in the Third World by companies from four leading countries, i.e. USA (23%), UK (27%), Japan (23%) and FRG (14%).
- * Agriculture, mining and other extractive industries accounted for roughly 38% of the stock of US investment in developing countries in 1983. 29% of the stock of Japanese investment in 1983, 21% of total FRG investment in 1981-83, and 9% of the stock of UK investment in 1978.
- * The percentage of global commodity trade controlled by 3-6 largest transnationals is 80-90 per cent for tea, coffee, cocoa, cotton, forest products, tobacco, jute, copper, iron ore and bauxite.

68. The limited evidence that is available suggests that the dominant considerations which influence the international deployment of TNCs are markets, manpower and resources. However the global structures and strategies of TNCs place them in a favourable position to benefit from jurisdictional ambiguities, and the diversity of environmental policies, responses and institutions between countries, especially between developed and developing ones.
69. The Commission notes the potential of the transnational corporations to contribute to the management and resolution of a number of problems related to sustainable development. It has noted the willingness of some corporations to share their managerial skills and technological know-how with their host countries. It has also noted the efforts at self-regulation by transnational corporations. This is an indication of both a feeling of responsibility for the evolving situation and of an apparent willingness to contribute towards sustainable development. This willingness and openness of some transnational corporations should be strongly encouraged and drawn upon, and their collective efforts promoted.
70. The Commission is therefore of the view that transnational corporations, because of their strategic role in the environment-development sphere, merit close attention and action by governments and the international community and need to be placed in an appropriate framework of well-defined relationships and expectations. Such a framework should allow for the use of their positive potential of contributing to

resolution and management of a number of problems emerging from society-environment interactions, and for the management of less desirable features such as their contribution to environmental and resource degradation, and their role in the shifting of environmental costs.

71. Developing countries have been ambivalent and often weak in their relations with transnational corporations, especially concerning the introduction of new technologies, the development of natural resources and the use of the natural environment. The reasons for this vary between countries. In some countries it is simply the consequence of the lack of information, technical unpreparedness and political and institutional weakness. In other cases, it is related to the absence of domestic policies and the lenient attitude taken towards national companies, both private and parastatal. Elsewhere, it is the wish to use one's own "comparative environmental advantage" in order to attract foreign investment or it is a consequence of a weak bargaining position vis-a-vis a transnational.
72. This represents a major inadequacy in any efforts to mount an international strategy on transnational corporations, environment and development. The Commission feels therefore that strengthening the bargaining posture and response of developing countries vis-a-vis transnational corporations is a critical factor in the evolving situation. To this end appropriate national institutions need to be established, legislation passed and norms and standards adopted. Regional or sub-regional institutions should assist the countries concerned in developing joint positions when negotiating agreements with transnational corporations. They could elaborate model agreements with transnational corporations for

different situations such as lease agreements for the exploitation of a mineral resource. They could also field technical assistance and advisory teams when a country engages in negotiations with a transnational, etc.

73. The Commission has also observed that there have been few effective responses by the home countries to these issues. In view of the impact that the activities of transnationals can have on the environment and resources of other countries, and on the global commons, home countries need to assume an important degree of responsibility in this sphere. Hence, the Commission recommends that the limited policies now in effect in some industrialized countries under which major investments are subject to prior environmental assessment need to be extended to investments made in other countries and broadened to include sustainability criteria; the information and recommendations thus arrived at should be shared with the host countries, who of course would have the final responsibility for decision;
74. Information on policies and standards applied to and followed by corporations when investing in home country, especially concerning hazardous technologies, should also be provided to host countries.
75. International measures regarding transnational corporations have been generally lacking and extremely difficult to negotiate. Yet such measures are of critical importance in piecing together a viable global strategy and regime on transnational corporations,

environment and development. The codes of conduct for transnational corporations formulated by the OECD and under discussion in the UN should deal explicitly with environmental matters and the objectives of sustainable development. In parallel more detailed and specific instruments such as treaties, protocols and international agreements should be negotiated dealing with special problems, such as safety of working environment in chemical industry, or practices in agricultural and forestry activities.

76. When introducing a new technology, plant, product or process, or setting up a joint venture in a developing country, the parties involved and TNCs in particular, must also recognize and accept certain special responsibilities. TNCs should adopt the highest safety and health protection standards practicable and acceptable to the host country, and assume responsibility for safe process design, staff training, etc. National and local authorities should be fully informed about the properties and potential effects of the technology, process or product being transferred, including all emissions and wastes generated, and any potential risks to the community and the measures needed for the effective monitoring, regulation and management of the effects, wastes and risks. Technical assistance should be extended to local authorities and institutions. Host country governments, in turn, and the competent authorities nationally and locally, should adopt and enforce the appropriate legal and other measures and ensure that adequate provisions are written into the terms of the contract with industries concerning each party's responsibility.

Improving Resource Productivity and S&T capabilities

77. Achieving large and sustained increases in productivity from the existing resource base, and making more efficient use of energy and other resources (especially imported resources), and of the environment, can make a significant difference to development potential and overall economic performance. The potential gains are significant. At industry level, leading companies in virtually all sectors have in the last decade discovered the commercial virtue of energy efficiency, resource recovery and recycling. In the field of energy large savings are possible. In the developing countries, fuels account for about 15 per cent of imports and a large proportion of external financing has gone into hydro and other energy projects. Yet, as Chapter VII has demonstrated, the potential for sharp improvements in energy efficiency in developing countries is enormous and, along with greater emphasis on indigenous sources of renewables, it represents a large part of the least-cost approach to balancing future energy supply and demand. The examples of China and India demonstrate how improvements in agricultural productivity can improve trade balances. Development assistance agencies need to take into account this objective of raising resource productivity in the selection and design of projects and in their programmes for technical assistance.
78. The institutional and policy changes required to promote resource productivity are, to a large extent, in the realm of domestic economic policy. However the international economy impinges on the possibilities for productivity improvement in several ways. The critical area of interaction is in the transfer of technology

from one country to another. The environmental aspect of technology transfer as it operates through the activities of transnational corporations and development assistance agencies has been dealt with in the earlier sections. This section deals with certain aspects of technology transfer which are not directly linked to the flows of finance.

79. The promotion of sustainable development in all nations, and more particularly in the developing countries, will require a reorientation of national and international efforts at technology development and diffusion. At the international level the principal areas which need to be examined are the following:

- (a) the applicability of patents or the proprietary rights in certain areas of technology;
- (b) international assistance for building up technological capabilities in developing countries;
- (c) the promotion of multi-country co-operative efforts at technologies for sustainable development.

Patents and Proprietary Rights

80. Patents and proprietary rights are a key element in the commercial development of technology. However their application in certain areas may hamper the diffusion of environmentally sound technologies and lead to a measure of inequity. An important case relates to the patenting of new seed varieties. At present 55 per cent of plant genetic resources are controlled by institutions in developed countries, 31 per cent by institutions in developing countries and 14 per cent by International Agricultural Research Centres. This genetic material is drawn to a large extent from the developing countries. Commercial interests involved in plant breeding seek proprietary protection for improved

seeds without recognising the rights of countries from which the original seeds were obtained. In this situation the application of purely commercial principles may lead to a decline in the exchange of genetic material and reduce the options available for seed development both in developed and developing countries. Moreover the gap in genetic research capabilities is so wide that agriculture in developing countries may become excessively dependent on private gene banks and seed companies in the developed countries.

81. The rigid application of patent protection and commercial principles may also stand in the way of technology development and diffusion in certain other areas which are critical for the promotion of sustainable development like renewable energy technologies and pollution control methods. Patents and proprietary rights can sometimes stand in the way of full disclosure of information on hazardous products entering trade.
82. In view of these considerations the Commission would recommend that the technologies required by small producers for the pursuit of sustainable development be treated as international public goods. In these areas the applicability of patents and proprietary rights should be limited and the incentives for research and development be provided essentially through public funding. In critical areas like seed varieties international co-operation is vital and the approach should be to negotiate comprehensive agreements specifying the division of responsibilities and the sharing of gains.

Building-up S&T Capabilities in Developing Countries

83. At present there is a large difference in research capabilities between the developed and developing countries. The number of scientists, engineers and technicians engaged in R&D per 10000 inhabitants is around 28 in the developed market economies, 50 in the socialist countries of Eastern Europe and only 2.5 in the developing countries. The share of these three groups of countries in the world total of patents granted in 1980 was 65 per cent, 29 per cent and 6 per cent respectively. Moreover the bulk of the patents granted in developing countries were to non-residents. In terms of the cost of technology imports, developing countries paid about \$2 billion by way of royalties and fees and the developed countries showed a corresponding surplus of their technology trade account. The gap in S&T capabilities is particularly pronounced in a number of areas of direct relevance to the objectives of sustainable development. Bio-technology and genetic engineering are outstanding examples, as are new energy sources, new materials and substitutes, low-waste and non-polluting technologies, etc.
84. Developing countries are making an effort to build-up their technological capabilities and in many areas the gap is narrowing. These efforts are supported by international assistance through the United Nations system and through the activities of other multilateral and bilateral agencies. The Commission would recommend that the international assistance provided by these agencies for scientific and technical education, scientific research and technical extension must be stepped up significantly in environmentally critical sectors like agriculture, forestry and animal husbandry, water resource development, development of renewable energy sources, pollution control, etc.

Co-operative Ventures for Technology Development

85. At present the greater part of global R&D effort is devoted towards military purposes or the commercial objectives of large corporations. The orientation of R&D activities in the developed countries is largely towards their own needs. Hence a major effort will need to be mounted by the developing countries, individually and jointly, to develop various technological solutions appropriate to their needs and related to the potential and constraints of their own environment, as well as to filter and adapt technologies transferred from the industrial countries.
86. One possibility of economising on effort is the establishment of co-operative mission-oriented research projects by groups of countries. There are precedents for such projects. For instance the activities of the International Agricultural Research Centres have some of the characteristics of such an approach. Another example is the idea being considered by the government of Japan to fund a \$5 billion dollar international programme of basic research which would seek fundamental solutions to such problems as pollution, diminishing resources and overpopulation, and aim at the creation of a new paradigm for science and technology which is in harmony with man and nature. This initiative transcends the traditional frame of reference in international economic relations. If it is properly embedded in the framework of multilateral development co-operation, in addition to yielding an S&T foundation to deal with these problems, this programme could provide the necessary impetus for a

qualitatively different phase of international co-operation. It would also create a large scientific community committed to the needs of human kind.

87. Mission-oriented co-operative research ventures could be developed in critical areas like dryland agriculture, tropical forestry, pollution control in small enterprises, low-cost housing, etc. Specific responsibilities would be assigned to institutions and corporations in the participating countries and the agreement could provide for the equitable sharing and widespread diffusion of the technologies developed in such ventures. The funding could come from the participating countries with support from the U.N. system and multilateral and bilateral development assistant agencies. As a first step towards such ventures an organisation like the United Nations University should take the lead in identifying specific proposals for such co-operative missions oriented research programmes.