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Financial resources and mechanisms for sustainable development: overview of current issues and developments

Report of the Secretary-General

SUMMARY

This report gives an overview of financial resources and mechanisms for the financing of Agenda 21. In part one, the report analyses external financial resources and shows how they have been affected by recent developments in the international policy environment, in particular world economic growth, international trade and terms of trade. The report turns to access to official-source finance and addresses some recent developments with regard to official development assistance (ODA). It discusses various encouraging developments with regard to private-source financing, in particular commercial bank lending, private (non-bank) financing and foreign direct investment and then turns to recent developments with regard to debt and debt relief. In part two, the report focuses on ways and means of mobilizing domestic financial resources through changes in the national policy environment. In this context it addresses a wide range of policy options, and advocates, for example, the increased use of economic instruments in environmental policies, in particular, environmental taxes, policies aimed at reducing incremental resource requirements, and the promotion of secure property rights over natural resources. The report also considers other traditional government policies that may enhance the financing of sustainable development and focuses on shifts in public expenditures and measures aimed at encouraging private sector financing for sustainable development. While the

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discussion of these traditional policies already includes some of the innovative financial mechanisms mentioned in Agenda 21, the report undertakes a more extensive discussion of these mechanisms in part three and concentrates on debt-related mechanisms, market-based mechanisms and international tax mechanisms. The report concludes by outlining briefly major issues in the financing of the sectoral clusters under review. A more detailed discussion of these issues is contained in the background papers before the Working Group.

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PART ONE. INTERNATIONAL FINANCE FOR SUSTAINABLE DEVELOPMENT

INTRODUCTION

1. At its first session, in June 1993, the Commission on Sustainable Development expressed concern that the general response to the recommendations and commitments of the United Nations Conference on Environment and Development (UNCED) regarding funding fell significantly short of expectations and requirements. The Commission further emphasized that the inadequacy of financial resources remained a major constraint for effective implementation of Agenda 21 1/ and the phasing-in of sustainable development.

2. In recognition of its mandate to review the adequacy of financial resources available for the implementation of Agenda 21, the Commission decided to establish an intersessional ad hoc working group composed of Governments, which would nominate experts in order to assist the Commission in the following tasks:

(a) To monitor and review the requirements, availability and adequacy of financial resources for the implementation of different clusters of Agenda 21, taking into account the multi-year thematic programme of work, as well as projects, programmes, activities and sustainable development strategies prepared by Governments, in order to provide a suitable and common basis for action on the part of all Governments, bilateral funding agencies, and States members of the governing bodies of the agencies and programmes of the United Nations system, as well as multilateral, regional and subregional development banks and funds dealing with the issue of environment and development;

(b) To monitor and analyse various factors that influence the flow of financial and economic resources such as debt relief, terms of trade, commodity prices, market access and private foreign investment, as well as to review mechanisms for innovative financing in the context of paragraph 33.16 of Agenda 21, taking into account activities at the national level;

(c) To develop on the basis of the above, a policy framework for the mobilization of financial resources towards a balanced implementation of all aspects of Agenda 21 that would, *inter alia*, assist Governments, where appropriate, to implement their sustainable development strategies (E/1993/25/Add.1, para. 61).

3. The Governments of Malaysia and Japan provided generous financial and logistical support for convening an Expert Meeting on the Financing of Agenda 21 in Kuala Lumpur (2-4 February 1994). The meeting succeeded in clarifying numerous complex issues and policies related to the financing of sustainable development and provided various substantive inputs in the form of papers prepared by agencies and individual experts.

4. The present overview report benefited greatly from inputs provided by the International Monetary Fund, the World Bank, the Organisation for Economic Cooperation and Development, the United Nations Conference on Trade and Development and the Department of Economic and Social Information and Policy Analysis of the Secretariat.

5. The preparation of background papers on the financing of the sectoral clusters under review relied heavily on inputs provided by agencies, namely the World Health Organization (financing of health), the United Nations Centre for Human Settlements (Habitat) (financing of human settlements), the World Bank and the United Nations Development Programme (financing of freshwater) and the United Nations Environment Programme (financing of toxic chemicals and hazardous wastes). Inputs were also provided by the International Programme on Chemical Safety and the secretariat of the Basel Convention.

I. AGENDA 21 AND THE FINANCING OF SUSTAINABLE DEVELOPMENT

6. Agenda 21, in particular chapter 33, and other outcomes of UNCED provide an important, agreed political framework for the financing of sustainable development. Matters related to the implementation of financial commitments contained in Agenda 21, including those related to the increase of official development assistance (ODA) flows, as well as to such issues as terms of trade, commodity prices, market access, debt relief and other measures that promote a supportive international economic environment, are essential for the successful implementation of Agenda 21. Resolution of these issues must continue to be an urgent priority of international dialogue and decision-making processes that take place in the Commission on Sustainable Development and other relevant intergovernmental forums.

7. The general response to the recommendations and commitments of UNCED regarding financing falls significantly short of expectations and requirements. Moreover, at the international level, prospects for achieving adequate, predictable, new and additional financial flows to developing countries for sustainable development are fraught with many challenges. Therefore, the goal of mobilizing financial resources for sustainable development makes it necessary to act on all possible fronts, including innovative approaches.

II. ACCESS TO INTERNATIONAL FINANCE

A. World economic growth

8. Economic growth in the industrial countries weakened in 1993, following an already modest performance in 1992. This disappointing performance hides a more complicated disaggregate picture, with output declining in 1993 in continental Europe and in Japan, and with the recoveries in North America and the United Kingdom of Great Britain and Northern Ireland gaining strength during the course of the year. The continental European countries are thought to have reached the trough in the pace of economic activity but indications of a turnaround are still somewhat tentative. During 1994, recovery is expected gradually to become more firmly established in most industrial countries, but the strength and timing of the pickup in growth remain uncertain.

B. Trade

9. Agenda 21 has identified a number of factors which may reduce the ability of developing countries to mobilize, through international trade, the resources needed to finance investment for sustainable development. These include tariff and non-tariff barriers in developed countries. Trade liberalization provides opportunities to address these problems in order to achieve sustainable development. One important aspect of trade liberalization is increased access to OECD markets, in particular for exports from developing countries.

10. In this regard, the recently concluded Uruguay Round of multilateral trade negotiations is an important landmark. Though it will be some time before a conclusive assessment of the outcome of the Round, in particular in areas of interest to developing countries, can be made, there is a basic consensus that further liberalization will strengthen the expansion of world trade to the benefit of all countries. However, many countries have expressed concern that the balance between the likely benefits and shortcomings of the outcome of the Round would be inadequate from the standpoint of their respective national interests.

11. A feature of recent trade developments has been moves towards regional integration. In Europe, while intra-EC barriers are being eliminated, there is some concern regarding the use of EC-wide measures that could increase external restrictions. Other important developments have been the conclusion of the North American Free Trade Agreement (NAFTA) and discussions undertaken in the context of Asia-Pacific Economic Cooperation (APEC). The European Free Trade Association (EFTA) and the EC have entered into association agreements with some East European countries providing, inter alia, for eventual establishment of a free trade area with these countries, though "sensitive" sectors such as agriculture and steel are subject to special provisions: trade and cooperation agreements are also being established or discussed with the Baltic States and some of the States of the former Soviet Union.

C. Terms of trade

12. Real commodity prices have been declining almost continuously since the early 1980s and continue to show weakness. Since their short-lived recovery in 1984, real non-oil commodity prices have fallen by about 45 per cent, translating into a sharp deterioration in the terms of trade for most commodity-dependent exporters. It is to be expected that the decline in commodity prices will have its largest impact on countries with the least diversified production structure. Primary commodities still account for the bulk of exports in many developing countries, especially in Africa. Moreover, this latter group of countries, which encompasses many of the lowest-income countries in the world, tends to have less flexible economic systems, making substitution away from commodity production more difficult or costly.

13. Not surprisingly, the performance of real export earnings for many developing countries during the 1980s and 1990s has been closely linked to the countries' success in diversifying their export base, as well as their ability to expand their primary commodity export volumes. The Asian experience is

characterized by a marked shift towards the export of manufactures and strong increases in real export earnings. But it is noteworthy that the groups of countries in Asia and Latin America that have achieved the largest increase in export diversification have been able to do so without reducing the production of their traditional commodity exports; these countries, in fact, are also among those that have increased the value of commodity exports the most.

14. Analyses of commodity market developments have usually focused on macroeconomic conditions in industrial countries as the principal factor affecting commodity prices. To understand commodity price developments in the last decade, however, it is necessary to consider the impact of the expansion in commodity supplies, and of economic developments in economies in transition. The expansion in the supply of commodities played a relatively more fundamental role in causing the recent weakness in real commodity prices; macroeconomic conditions in industrial countries are estimated to have contributed only in a limited way to that development. In addition, while output changes in Eastern Europe and the former Soviet Union traditionally played a relatively minor role in price developments, they acquired an increasingly important role in the post-1988 period.

15. Studies suggest that much of the recent decline in real non-oil commodity prices is of a permanent nature and the weakness may well persist - at least on average - over the medium to longer term. This implies continuously worsening terms of trade for many commodity-dependent countries, and further that efforts to stabilize the incomes of producers for an extended period of time may not be financially sustainable. While a more diversified export structure is not necessarily an economic objective in and of itself, export diversification is an important way of reducing the vulnerability to volatility and sustained declines in commodity prices.

D. Access to official-source financing

16. The unprecedented changes in recent years in the world economic system have led to radical shifts in the size and pattern of external flows to developing country, and greater sensitivity to creditworthiness on the part of investors. The major determinant of resource flows to developing countries is their own economic performance. Over the past decade, the pattern of those flows has changed dramatically, with a growing share of official flows in some regions, and a strong shift from debt to equity flows, both foreign direct investment and portfolio equity flows, and from bank to non-bank sources. In part this reflects the aftermath of the debt crisis, and, in part, the market-oriented structural reforms that have attracted investment to the domestic private sector.

1. Official development assistance

General trends

17. Aggregate ODA from members of the Development Assistance Committee (DAC) of OECD increased in 1992 by 5.8 per cent in nominal terms to $59.9 billion, a slight decrease in real terms - making an allowance for changes in prices and exchange rates *vis-à-vis* the United States dollar of 0.3 per cent. DAC countries' contributions to multilateral agencies, rose by 19 per cent to $19.5 billion, mainly owing to higher contributions to the International Development Association (IDA) and the regional development banks. Bilateral ODA from DAC countries, by contrast, declined by 6 per cent in real terms in 1992. In particular, bilateral grants dropped by 12 per cent, owing mainly to a fall in United States bilateral disbursements.

18. The group of nine countries whose ODA to GNP ratio was below the DAC average of 0.33 per cent in 1992 includes the United States of America, Japan, Italy and the United Kingdom. Between them, these countries provide almost 50 per cent of DAC ODA and therefore weigh very heavily in the calculation of the DAC average. The United States (0.20 per cent), Japan (0.30 per cent) and the United Kingdom (0.31 per cent) all reported declines in their ODA to GNP ratios. Italy (0.31 per cent) recorded a small recovery in aid volume and its ODA to GNP ratio. Spain (0.28 per cent) reported significant growth on both accounts. Ireland reported the lowest ODA to GNP ratio of any DAC member in 1992 (0.16 per cent), but has announced measures to secure an increase in its volume in future years. The DAC's newest member, Luxembourg, which joined in December 1992, recorded an ODA to GNP ratio of 0.26 per cent, owing to a temporary fall in aid volume. In absolute terms, the United States, at $11.7 billion (including the concessional assistance represented by forgiveness of military debt), and Japan, at $11.1 billion, remained the largest DAC donors in absolute terms in 1992, followed by France ($8.3 billion) and Germany ($7.6 billion).

Sectoral allocation of aid

19. Combined for all donors - or in other words, for all recipients - sectoral allocation data have much to say about the purposes for which aid dollars are spent, and exhibit a number of fundamental features which do not change greatly over time. The figures discussed below are orders of magnitude rather than specific measurements. This is one of the more difficult areas of statistical reporting, as many activities lend themselves to multiple classification. Aid to build a road from a market town to a port is, on the face of it, economic infrastructure. If the deeper purpose, however, is to facilitate the export of agricultural produce, a reporter may choose to classify it under agriculture, or even under trade. There are reporting guidelines, but they are open to alternative interpretations at the margin.

20. About 45 to 50 per cent of all aid commitments consist of contributions to build up social and economic infrastructure in developing countries; in the case of multilateral donors, this is as much as 60 to 65 per cent. Emphasis is placed almost equally on social (e.g., education, health, water supply, and public administration) and economic (e.g., energy, transport, and

communications) infrastructure. Specific allocations differ, as might be expected, among recipient-country income groups. Social infrastructure represents one quarter of the aid commitments to the least developed countries, but only 4 per cent of commitments to developing countries in the high-income bracket. The bulk of commitments for economic infrastructure is in the energy field (12 per cent of total commitments, 15 per cent of World Bank commitments, and well under 10 per cent of bilateral commitments), followed closely by transport and communications (10 per cent). The concentration of economic infrastructure spending on low-income countries is less marked than for social infrastructure, but there is an interesting difference in sourcing: energy accounts for 4.9 per cent of bilateral commitments, but 14.6 per cent of commitments by the World Bank.

21. The lion's share of aid for production (10 to 15 per cent of total commitments) is directed to agriculture (80 per cent of all aid for production). There is little differentiation in this latter share comparing income groups of recipients, although there are marked variations, as would be expected, at individual recipient level.

22. As noted, the figures cited above are orders of magnitude. The need for cautious interpretation is confirmed by the fact that multisectoral commitments account for 6 per cent of total commitments.

23. It is also important to note that not all aid is directed to specific economic or social sectors. Setting aside such obvious exceptions as food aid and emergency and distress relief, there still remains some 15 to 20 per cent of commitments that finance programme assistance, which includes, among other things, budget support, debt reorganization, and above all, general import financing. The support in this instance is to the economy at large. Programme assistance varies considerably as share of total from year to year.

2. Flows from multilateral institutions

24. Net flows from multilateral institutions, both concessional and non-concessional, have been the largest source of lending to the developing countries and their share in total net flows has increased over the past decade. The medium-term outlook is for increasing net flows in support of structural reforms and the development process in a growing number of countries, including the new borrowing member countries in Eastern Europe and Central Asia. Funding for these emerging demands has been made possible through recent general capital increases.

3. Officially guaranteed export credits

25. In the context of sustainable development, officially guaranteed export credits may be particularly relevant in the case of flows directed to private investment and the transfer of technology. They are likely to emerge as an important source of development financing in the coming years. First, many export credit agencies (ECAs) have been moving to a system of risk-based fees, so that export credit cover is now available, albeit at higher cost, to

countries perceived as risky. Second, ECAs are likely to provide a larger share of guarantees for loans to private sector borrowers but without debtor country government guarantee. Third, official bilateral creditors have pursued a strategy of subordination of old debt to new by maintaining cutoff dates in Paris Club debt reschedulings. This has allowed creditors to extend new credits to countries that have yet to emerge from the rescheduling process but that pursue strong adjustment programmes.

4. Global Environment Facility

26. Participants of the Global Environment Facility (GEF) met in December 1993 in Cartagena, Colombia, and it may be useful to briefly outline the accomplishments of this meeting, and the developments since then based on the remarks made by the GEF Administrator to Working Group II at the ninth session of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change at Geneva on 7 February 1994.

27. The Cartagena meeting ended without final agreement but significant progress was made on both new institutional arrangements and funding for the Facility. On funding, the donors expressed strong support for a fully funded Core Fund of $2 billion. Several of them expressed their willingness to consider making contributions over and above their agreed burden-share. The structural arrangements for GEF II were further developed and broad agreement emerged on the roles and responsibilities of the "universal" Assembly and the smaller, constituency-based Council. In response to the recommendations of the independent evaluation, participants incorporated into the draft instrument for establishing the new GEF provisions for a strengthened secretariat and for a permanent mechanism for monitoring and evaluation. In addition, a special working group met and made significant progress in resolving legal issues related to the text of the instrument and its annexes.

28. Despite these efforts it proved impossible to resolve in the time available a hard core of four issues. These are: the chairmanship of the governing Council, the number and distribution of constituencies on the Council; the qualified majority required if there is a vote; and the frequency of meetings of the Participants Assembly.

29. There was certainly disappointment that Participants could not overcome their differences in order to complete the process of restructuring and replenishment in Cartagena. But with the benefit of hindsight, it may ultimately prove to have been an important way-station in strengthening the political resolve that must be manifested by all sides if the obstacles that remain are to be removed. The intense consultations that have taken place over the intervening weeks attest to the determination of Governments to sink their differences and come to an agreement satisfactory to all sides.

30. At a special meeting called by France in Paris on 7 January, OECD country Participants confirmed their support for a $2 billion replenishment. They also reviewed the outstanding issues involved in restructuring the Facility. It has been proposed that the Participants reconvene in the week of 14 March 1994 to continue and conclude renegotiations.

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E. Access to private-source financing

31. Private-source financing for developing countries may be subdivided into commercial bank and non-bank financing. While bank lending to developing countries has remained subdued, non-bank financing, through securities markets (i.e., bonds and equities) has continued to increase in the last few years.

1. Commercial bank lending and private (non-bank) financing

32. As concerns bank loans, commitments to developing countries have fluctuated around a declining trend. In the 1990s they have averaged about $21 billion annually, with a sharp drop in 1992 being followed by some recovery in 1993. In their operations banks have continued to give emphasis to improved profitability and containing risk, including international exposure. Access to syndicated bank credit continues to be severely restricted for developing countries that have experienced or are experiencing, debt-servicing difficulties, and their access has been limited mainly to short-term credit, project finance, or loans structured to using a variety of risk-mitigating techniques. For developing country borrowers, lending terms have generally hardened, reflecting both the increasing average interest rate margins for new commitments and shortening average maturities.

33. In contrast to bank financing, private (non-bank) market financing flows to developing countries have continued to increase, although the experience is highly uneven across market segments and across countries. These flows have taken the form of bond financing and equity capital. In the recent past, the structure of such flows has shifted markedly towards increased reliance on bond financing and reduced activity in the equity markets. Developing country borrowers increased their share in global primary activity in international bond issues from 4.2 per cent in 1991 to 7.1 per cent in 1992, and to 8.5 per cent in the first half of 1993. International equity issues by companies from developing countries totalled $5.4 billion in 1991, $9.4 billion in 1992, and $4.2 billion in the first half of 1993. For an increasing number of developing countries, cross-border equity flows have also occurred through direct purchases on local exchanges (estimated at about $14 billion in 1992).

2. Foreign direct investment

34. During the 1980s, and now into the 1990s, foreign direct investment (FDI) has become an increasingly important form of investment. The bulk of this investment comes from multinational corporations, in the form of equity, not debt. FDI flows to developing countries have been rising rapidly over the last decade, totalling $56 billion in 1993. FDI to East Asia exceeded $15 billion in 1992, up 15 per cent over year, and China was the largest recipient. In Latin America, after a slight rise in 1990, FDI jumped almost 70 per cent in 1991, to $12 billion, and a further 25 per cent in 1992, to nearly $15 billion - Latin American countries effectively converted a significant percentage of their debt into equity stakes. The trend has also been impressive in the Middle East and

North Africa region in the 1990s, from $1 to $4 billion, while in sub-Saharan Africa, however, investments have stayed at 1986 levels, at $2 billion.

3. International non-governmental organizations

35. A special category of private source flows is the non-governmental organizations that provide significant technical assistance. In certain cases, these organizations are a channel for official funds, particularly for innovative projects. In 1992 private flows and grants by non-governmental organizations increased by $4.8 billion to $16.6 billion.

F. Debt and debt relief

36. In the light of the improving economic situation of the developing countries as a whole, the growth of their exports and changes in the structure and concessionality of debt-creating flows, recent trends concerning debt stocks are less worrisome than in the past. Perhaps more than anything else, developing country debt is being put on a sounder footing. It is better provisioned by creditors and is being put to more productive use by borrowers, thereby creating a more genuine debt-servicing capacity.

37. Despite these very positive developments, a number of trends give cause for concern. These concerns are particularly evident in the poorest countries, as the situation in sub-Saharan Africa illustrates. Progress with economic reform has often been slow, and the economic outlook is discouraging. Expanded overall resource flows and the improved debt situation have largely bypassed them. For many, debt obligations are still well beyond their ability to meet service payments, resulting in the build-up of arrears. Even for those that have been able to keep up with obligations, many struggle to do so, leaving little foreign exchange earnings for other purposes. Some recent initiatives reflect concern with this situation. For example, the United States is considering the cancellation of an important part of its claims on the poorest African countries through existing Paris Club arrangements (the enhanced "Toronto Terms"). Others continue to press for the application of greater debt forgiveness along the lines of the proposed "Trinidad Terms".

38. The successful conclusion of a number of major debt-restructuring operations and the renewed access of the countries concerned to international capital market must, therefore, be set beside the fact that for a very large number of developing countries the external debt situation remains critical. In some cases, the heart of the problem is an insufficient commitment to pursue necessary policy reforms. In others, there is still a clear mismatch between the terms of restructuring operations and the country's ability to put its debt on a sustainable basis and to exit from the cycle of repeated reschedulings. Future debt reorganizations clearly need to be based on sound adjustment strategies, but more definitive reorganization, with substantial forgiveness, could strengthen the prospects for countries to put their debt on a sustainable basis and help provide the foundation for an early resumption of growth.

PART TWO. NATIONAL POLICY ENVIRONMENT AND THE FINANCING OF SUSTAINABLE DEVELOPMENT

INTRODUCTION

39. The last two decades have witnessed the introduction, in both developed and developing countries, of environmental policies designed to work in tandem with economic policies. In practice, however, environmental policies have largely been viewed as policy appendages, in which remedial actions are taken once economic priorities are implemented and environmental degradation has taken place. By contrast, sustainable development requires the integration of environment and development at the outset of the decision-making process, so as to align core and macroeconomic policies with environmental goals.

I. ACHIEVING A BETTER MIX BETWEEN ECONOMIC INSTRUMENTS AND "COMMAND AND CONTROL MEASURES"

A. Moving towards increased use of economic instruments

40. Command and control regulations, such as end-of-the-pipe effluent standards, end-of-the-smoke-stack emission standards and mandated pollution control technologies, have been the standard approach to environmental protection in developed and developing countries alike. Poor performance and high compliance and enforcement costs have encouraged many developed and some developing countries to explore the use of economic instruments either in support or replacement of command and control regulations. First, economic instruments such as environmental taxes, effluent charges and tradeable emission permits are known to be more cost-effective than effluent and emission standards or mandated technology in attaining a given level of environmental quality. Second, while regulations generate no revenues and require large budgets and bureaucracies to manage and enforce them, economic instruments, if properly designed, could both save in enforcement costs and generate substantial revenues for environmental investments. Third, economic instruments impose significantly lower compliance costs on industry because they allow polluters the freedom to choose their response as to minimize their cost of compliance: they can pay the charges, reduce or treat their waste, change their input combination, reduce their output, change their production technology or move to a different location. For example, while with regulations every firm must meet the same standard or reduce its emissions by the same amount as every other firm regardless of cost, with tradeable emission permits high cost pollution abaters are allowed to undercomply and in exchange pay low-cost pollution abaters to overcomply on their behalf as to achieve the same overall ambient quality level. The savings could be substantial for both the industry and the Government. Examples of such measures include effluent charges on water pollution in the Netherlands and Germany; emissions charges on sulphur dioxide in Japan; charges on fuels, automobiles, pesticides and fertilizers, and deposit-refund systems for beverage containers and car batteries in Northern Europe; and emissions trading for air pollutants in the United States.

41. Policies that use economic incentives will be effective only to the extent that polluters and resource users respond to them. Responsiveness depends on

three factors: ownership, competition, and differences among users. Often State-owned enterprises can be insensitive to policies that use economic incentives because they generally do not care much about costs. Lack of domestic and foreign competition dampens the pressures even on private businesses to minimize costs.

42. Another obstacle to the effective use of economic instruments in environmental policies is that businesses and individuals may be unable to invest in new technologies or pay for cleaner products. Examples include declining heavy industries in Eastern Europe and poor people who use kerosene as their principal cooking fuel. Sometimes Governments have subsidized the changes, by directly financing pollution control equipment or by using environmental protection funds to finance investments. Subsidizing environmental cleanup or resource use has an obvious problem: it sends the wrong signals to resource users and conflicts with the common interpretation of the polluter-pays principle. Subsidies may thus encourage a long-term increase in environmental damage, and their use should be well targeted, explicitly time-bound and carefully monitored - as, for instance, when they are provided only for the initial installation of pollution control equipment.

43. In general, regulatory policies, which are used extensively in both industrial and developing countries, are best suited to situations that involve a few public enterprises and non-competitive private firms. This is particularly true when the technologies for controlling pollution or resource use are relatively uniform and can easily be specified by regulators. Another area in which regulation may be appropriate is land use. Governments may use zoning regulations to attempt to create a land-use pattern that differs from the one that market allocations would produce. The aim of zoning laws in rural areas is typically to slow conversion of agricultural land or to preserve ecologically sensitive habitats. Urban zoning seeks to separate land uses so as to reduce adverse effects from, for example, industrial air pollution.

44. A move towards increased use of economic instruments for environmental management in either support or replacement of command and control regulations could be regarded as an indirect mechanism for financing Agenda 21 since environmental protection is advanced in a cost-effective manner, and budgetary resources are saved and new sources of revenues mobilized for investing in sustainable development. While immediate replacement of rigid regulations by economic instruments is unlikely, it would mark substantial progress towards the objectives of Agenda 21 if economic instruments were introduced as a source of financing. The experience of Malaysia with effluent charges, of Singapore with congestion fees, of Poland with a pilot tradeable permit scheme, and of Turkey with industrial relocation incentives offer grounds for optimism.

B. Enhancing the role of environmental taxation

45. Conventional taxation systems throughout the world tax work, income, savings, and value added and leave untaxed (or even subsidized) leisure and consumption, resource depletion, and pollution. The implied reduced incentives for work, savings, investment, and conservation and increased incentives for leisure, consumption, resource depletion, and environmental degradation result

in more environmental degradation than would have been the case had incentives been the reverse.

46. A reform of the fiscal system that would reduce conventional taxes and replace them with environmental taxes - so as to leave the total tax burden unchanged - would bring the economy closer to sustainable development by stimulating economic growth and resource conservation and discouraging resource depletion and environmental pollution. A revenue-neutral fiscal reform would save government expenditures on environmental regulation and pollution abatement and it would indirectly advance the objectives of Agenda 21.

47. While an overnight shift from "taxes on value" to "taxes on vice" is unlikely and potentially disruptive, a gradual shift towards environmental taxes would be a move in the right direction.

48. Over 70 years ago, A. C. Pigou suggested that Governments should impose taxes on activities that involve external social costs. In the case of gasoline, for example, where the social cost is the contribution, albeit slight, of its combustion to air pollution, the Pigouvian tax would equal that part of the marginal social cost which is not included in the production price - the external marginal cost. The advantages are twofold: reduction in pollution is achieved automatically at least cost; and the revenue collected can be added to general revenue and used to make overall reductions in tax rates or to purchase public goods. The concept of a Pigouvian tax is simple, but in practice it may be difficult to implement due to imperfect information and monitoring costs.

49. One alternative to a pure Pigouvian tax is to levy excise taxes on outputs and inputs closely associated with the pollution-causing activity. Governments may already have in place an indirect tax system on goods and services, and taxable outputs and inputs usually are readily monitored as part of raising public revenue. This policy would be as good as taxing the pollution-causing activity if the latter occurs in fixed proportions with the taxable output or input. This might, however, be too blunt an instrument. For example, taxing gasoline consumption with the objective of reducing pollution provides no incentive to purchase catalytic converters, which may be the least-cost way of abating the pollution.

50. In between excise taxes on inputs and outputs and taxes or charges on the polluting effluent or emissions themselves are "content" taxes, which are levied on the amount of a particular component in a commodity. The best known example is the "carbon tax" levied by Finland and some other Scandinavian countries, which tax the carbon contained in some fossil fuels. Other examples are taxes on the sulphur content of fuel, or on their thermal content (the "BTU tax"). The advantage of a content tax is that it avoids the difficulty of monitoring the actual emission, while at the same time provide an incentive for switching to less polluting technology (e.g., by changing from coal to gas).

C. Reducing incremental resource requirements

51. Governments have become increasingly aware that obviating the need for additional financial resources is a cost-effective way of financing sustainable

development. For example, meeting growing energy demand by improving energy efficiency and conservation (through full-cost pricing of energy, for instance) rather than by expanding supply obviates the need for new power plants and hence the need for funds to finance scrubbers to reduce SO_2 or to plant trees to offset the additional CO_2 emissions. The savings in financial resources could be enormous, while the economy is guided closer to sustainable development.

52. Similarly, water pricing that improves use efficiency and conservation obviates the need for construction of additional reservoirs, water treatment and waste water disposal plants to meet growing demand; financial resources necessary for mitigation of environmental impacts of dam construction are also saved. Of course, eventually some supply expansion becomes necessary but its postponement and smaller scale conserves financial and environmental resources. While it is true that full-cost pricing implies higher prices for the consumers and producers in the short-run, the long-term benefits in terms of sustainable economic growth outweigh these costs, although some cushioning of the impact on low-income groups might be necessary.

D. Issuing tradeable permits

53. Governments have encouraged the use of tradeable permits in order to ensure that resources are used by those who value them most. Even if the overall quantity of pollution or resource use is fixed, the market can still be allowed to allocate the quantity through the use of tradeable permits. The most informal policy is simply to let pollution quotas be traded within the firms. In this case a firm can increase the pollution emitted by one of its plants if it makes a compensating reduction in pollution emission by another. Alternatively, the firm may increase emissions in one year if it decreases them in another. An even more market-oriented approach is to allow inter-firm trading. This can range from informal trading among firms to a formally established market in pollution rights like that recently announced by the Chicago Board of Trade for sulphur dioxide emissions.

54. Among incentive-based policies, the choice between charges and tradeable permits depends partly on the capabilities of regulators. Although tradeable permits have been used for control of air and water pollution in the United States and for fisheries in New Zealand and have been suggested for restricting emissions of greenhouse gases, they tend to be more administratively demanding than charges because the latter can typically be implemented through the existing fiscal system.

E. Clarifying property rights

55. Government policies that clarify and enforce property rights tend to encourage private investment in environmental protection, which reduces the financial requirements of government actions. While clarifying rights of ownership and use is no panacea, it has been shown to improve environmental outcomes, especially where those who invest in environmental protection would also benefit the most. In Thailand assigning ownership titles and tenurial rights to land in recent years has made it more profitable for farmers to invest

in soil conservation and land improvement, thus reducing soil erosion. There is sometimes a tendency to believe that public ownership and management is better than private or community control from the point of view of resource management. However, a case can be made for the reverse when the costs of resource degradation are borne largely by the resource "owner".

56. Even for natural resources other than land - minerals, trees and fish - if property rights are clearly defined, the self-interested decisions of owners have an incentive to maintain the quality of the resource, and thereby produce more desirable environmental outcomes than will open access. Private loggers on plantation forests, for instance, will weigh the returns from cutting trees today (including the accrued interest from investing these revenues) against future revenues, looking at price trends and the expected growth of timber yields.

57. The assignment of property rights is not always a good instrument to accomplish environmental policy objective, however. The assignment of property rights could create a monopoly, or it may be impossible for a private owner to monitor the use of the resource by others and therefore charge the appropriate price. Also, many environmental assets have a "public good" quality to them so it is not efficient to charge prices for enjoying the asset in some of its uses. An example is a watershed that serves a large and difficult to identify downstream population. Finally, in some cases, effective common ownership of resources exists, such as in the forests of Japan, or in the pastures of the Swiss Alps. In these cases, actions that undermine the system by which common owners allocate the exploitation of the resource need to be avoided.

II. SHIFTING PUBLIC EXPENDITURES

Environmental cost-benefit considerations

58. Failure to consider environmental costs and benefits leads Governments to undertake projects with adverse impacts or to neglect investments that might bring environmental gains. Understanding of the environmental impacts of such projects will call for better analysis of environmental costs and benefits.

59. Environmental benefits would be included in project evaluations, thereby directing investments towards more environmentally sound projects. When it is difficult to value environmental benefits, environmental impact assessments (EIAs) can be useful. Although they are qualitative, they force recognition of the environmental risks of public projects. The need for these assessments is now well recognized, and their use is mandatory in many countries and by large donors.

Removing subsidies

60. Approximately one trillion United States dollars a year, or 5 per cent of the world’s GNP, is spent by developed and developing countries on environmentally damaging subsidies on, among others, fossil fuels, electricity, agriculture, water and pesticides. Global reductions in these subsidies would result in economically and environmentally beneficial changes in favour of

cleaner and more efficient industries and faster and greener growth. It would liberate financial resources in developed countries, which could enhance the possibility of transfers to the developing countries. It would also liberate resources in developing countries, which could be used to meet their sustainable development needs. By improving efficiency and raising productivity, it might expand a country's overall economic output and thereby provide a second source of increased revenue by enlarging the tax base. It would improve the environment not only for providing more resources for environmental protection, but also by reinforcing incentives for environmentally sound practices. Nevertheless, care should be taken to ensure that the changes in subsidies do not adversely affect the access of poor communities to basic amenities.

61. Recognition of the environmental cost of such subsidies will provide a powerful additional reason for removing them. Frequently, the same goals can be met in cheaper ways. It was estimated that in Poland removing energy subsidies would by itself reduce emissions of particulates and sulphur oxides by more than 30 per cent between 1989 and 1995. In Indonesia pesticide subsidies were more than 80 per cent of the retail price in 1985 but had been eliminated entirely by late 1988. This step reduced excessive pesticide use (in favour of a successful integrated pest management programme) and generated budgetary savings of more than $120 million annually. In Brazil discontinuing the fiscal and credit incentives extended to ranching has saved about $300 million annually while easing (although not eliminating) pressures for deforestation.

Reducing military spending

62. The world spends $1,000 billion on the military every year, and many countries expend more on the military than on social sectors. In high-income countries, military spending has been increasing at roughly the same rate as GDP. In developing countries, military expenditure has been declining - from 6-7 per cent of GDP in the late 1970s to about 4-5 per cent in the second half of the 1980s. This is in part accounted for by drastic reductions in military spending in the Middle East and in Latin America.

63. The level of resources identified in Agenda 21 is not large relative to global expenditure by the public sector. As outlined above, a substantial proportion of this public expenditure is allocated to the military. In countries with diminishing security concerns, opportunities to rechannel cutbacks in military expenditures into activities related to sustainable development could potentially generate large sums for Agenda 21 programmes, even if the cutbacks are relatively small in terms of percentage. For this mechanism to succeed, sustainable development concerns must out-compete claims from other sectors.

III. ENCOURAGING PRIVATE SECTOR INVESTMENT IN SUSTAINABLE DEVELOPMENT

64. Private sector investment in environmental infrastructure could be encouraged through the use of build-operate-transfer (BOT) arrangements. This technique holds much promise, especially in meeting the heavy investment requirements in such priority areas as power generation, water treatment and

distribution, and waste disposal, as well as health and education. However, there is a need to assist developing countries to put in place the necessary legal and regulatory frameworks to accommodate the use of such mechanisms, and to assist in the training of human resources to identify, design, negotiate, implement and manage such sustainable development projects. Relevant international institutions, such as UNIDO, UNCTAD, UNDP, the World Bank and the regional development banks, could provide assistance to interested developing countries to enable them to better develop and implement such projects.

65. Mixed public-private partnerships could offer innovative combinations of a number of financing mechanisms. The United States and Mexico are implementing arrangements for joint investments in environment-related projects in their common border region. Measures involving private investment, government guarantees and municipal bonds will be used to fund mutually agreed activities.

66. An instrument that has been suggested (by David Lascelles of the Financial Times, among others) for directing financial markets towards environmentally sustainable investments is an environmental rating scheme. In addition to the failure to include environmental concerns into the regulatory structure already mentioned, financial markets lack a system for including different levels of environmental risk into their analysis. An environmental rating system could be based on ascertainable facts about a company’s environmental performance (audits, permits, record of regulatory compliance, lawsuits, known environmental liabilities etc.) and supplemented by judgements about the quality of management and environmental policy, and the company’s ability to respond to problems. Such a system may be administered by a public rating agency or, preferably, privately, within enabling legislation. The attraction of such a system is that it avoids the wider distortions that a heavily fiscal approach to the environment would entail. Additionally, the development of differential pricing would pave the way for a new type of market in environmental risk management techniques which could be used by investors and lenders who were exposed to companies with environmental liabilities. The hedging instruments that would emerge would help ease the liquidity problems of markets where there is environmental exposure by making people more willing to take on risk. Companies, such as small chemical manufactures, that currently would simply choose to go bankrupt if an accident whose cost exceeded their assets occurred, can internalize the cost of environmental risk, and thus have the incentive to find technologies to reduce it.

PART THREE. INNOVATIVE FINANCING FOR SUSTAINABLE DEVELOPMENT

67. The importance of innovative financing is emphasized in paragraph 33.16 of Agenda 21 and it is mentioned that new ways of generating new public and private resources should be explored. This section of the paper will deal with innovative financing in the form of debt-related mechanisms, market-based mechanisms and international tax mechanisms. Two of the innovative mechanisms mentioned in paragraph 33.16 (economic and fiscal incentives and the reallocation of resources committed to military purposes) have already been dealt with in part two above.

I. DEBT-RELATED MECHANISMS

A. Debt-for-nature swaps

68. Debt-for-nature swaps were developed to transform commercial debt of developing countries into finance for the environment. The transactions have appeal in principle because they can meet two objectives: financing worthwhile environmental activities with substantial leverage for donor funds, while helping to manage developing country debt. In practice, the transactions are complex, and the instances in which both objectives can best be served with a single instrument are few.

69. Since the first debt-for-nature swap was completed (for Bolivia, in 1987), a further 16 swaps in eight countries have retired nearly $100 million in external debt, using original donations of $16 million. Although this represents only a small fraction of the commercial debt of these countries, it paid for significant conservation efforts, in some cases vastly expanding existing expenditures.

70. For non-governmental organizations, swaps demanded a new financial expertise. These organizations have also had to build up relationships with local non-governmental organizations and government agencies. For the recipient Government, the conversion of external to local-currency obligations has several implications for economic and debt management. First, debt-for-nature swaps imply greater domestic spending by the debtor Government. To avoid stimulating inflation, most such swaps have been not for cash but for government bonds, with payments spread out over a number of years. Second, many severely indebted countries have serious budgetary problems that may preclude converting a foreign debt into a domestic obligation.

71. A recurring issue is the amount of local-currency bonds the Government issues in exchange for the external debt. If the new bonds are close to the face value of old debt the financial leverage of the donor is maximized, but so too is the financial obligation of the local Government. In three quarters of the swaps the new "conservation bonds" have a value of about 90 per cent or more of the original debts.

72. Debt-for-nature swaps financed by non-governmental organizations are likely to be small in relation to both the overall needs of environmental funding and to foreign debts. National aid agencies in a number of countries, notably the Netherlands, Sweden and the United States, have made grants available for some outstanding debt. These debt-for-nature swaps have been valuable for some countries, but their effect has been more to reallocate aid than to generate additional resources. Some official debts are now eligible for swaps. Part of eligible Paris Club debts can now be exchanged for local-currency funding of agreed environmental activities. The United States Enterprise for the Americas Initiative provides for local-currency payments on reduced official debt, to be used to fund eligible environmental projects in Latin America and the Caribbean.

B. Other debt-for-sustainable-development swaps

73. UNICEF pioneered a debt-for-child-development swap programme in 1989. This programme ensures funding which supplements UNICEF ongoing contributions as UNICEF general resources are not used for debt conversions. As of June of 1993, UNICEF had completed 12 operations in five countries: Bolivia, Jamaica, Madagascar, the Philippines and the Sudan, and in December 1993, a further transaction was completed in Senegal. External debt stock for these countries has been reduced by over $100 million, while the swap programmes have generated about $28 million. Local funds resulting from these conversions supplement primary education, women in development, disadvantaged children, primary health care and water supply and sanitation programmes.

74. Debt for health swaps have also become an attractive mechanism through which financial resources can be generated for sustainable development programmes. Programmes have been initiated for the prevention and treatment of river blindness. In 1993, the River Blindness Foundation bought $1 million of Nigerian commercial debt at a 40 per cent discount. The Nigerian Central Bank will redeem this debt at about 50 per cent of its face value generating local currency funds for the mass distribution of Ivermectin a drug used to combat onchocerciasis.

75. With the alarming rise of the HIV/AIDS infections, the Debt for Development Coalition operating from Washington has initiated a programme, Swaps against Aids, for AIDS control and prevention.

76. The macroeconomic impact of AIDS treatment costs depends on how they are financed. To the extent that these costs are financed by reducing other government or private consumption, they will have no impact on the future growth of GDP. However, if the cost of treating AIDS patients is financed from saving, and this reduction in savings is not offset by increased foreign saving, investment will have to be reduced and future growth will suffer.

77. Finally, a debt-for-education swap programme was brought to the forefront by Harvard University when in 1990 it bought $5 million of Ecuadorian debt at a discount of 84 per cent. Fifteen per cent of the proceeds were invested in an Ecuadorian money market fund to finance travelling expenses and stipends for 50 Harvard students and faculty for 10 years to perform research. Another portion was invested in a United States money market fund to finance 20 Ecuadorian students at Harvard for 10 years. Harvard then implemented a similar swap in Mexico in 1991.

II. MARKET-BASED MECHANISMS

A. Environmental investment funds

78. If properly designed and operated, national environmental funds can play a catalytic role in improving environmental management, biodiversity conservation, and sustainable and equitable use of natural resources. Though experience is limited, those funds that have been most successful have been set up as autonomous entities with broad participation in governance.

79. National environmental funds can be set up as foundations, trusts, endowments, or grant-making facilities. They can be capitalized through a variety of mechanisms such as debt-for-nature swaps, debt-forgiveness schemes, in-country fees on tourism and direct contributions from donor agencies.

80. Environmental funds are a potential mechanism for nurturing environmental care at the grass-roots level. This is achieved by "caring for the earth" in manageable bits that fit the local context, are sensitive to local cultures and knowledge, susceptible to immediate feed-back, and open to a variety of actors and options. If pursued systematically, national environmental funds could be a global mechanism for empowering grass-roots action - a means of merging top-down and bottom-up approaches to management.

81. When designed with care, national environmental funds (NEF) have a series of attributes that make them attractive for funding environmental management: they encourage the participation of interested parties (government agencies, the independent and business sectors, and relevant interest groups) in all aspects of environmental projects and become democratic and accountable nodes of empowerment capable of moving beyond narrow sectoral interests. Furthermore, they encourage the representation of diverse interests in common activities that require cooperation and shared control, and promote value systems that feature democratic principles, cooperation and accountability of the funds.

82. Most of the work to date on national environmental funds has been catalysed by international non-governmental conservation organizations (especially the World Wide Fund for Nature, the Nature Conservancy and Conservation International), bilateral programmes for technical cooperation, and international programmes such as the Global Environment Facility. These lead agencies have worked in close cooperation with each other, development banks, a variety of bilateral donors, national Governments, non-governmental organizations, and financial institutions. They have demonstrated the remarkable potential of this mechanism for democratizing, stabilizing, and making environmental management more efficient.

83. The collective result of this work over the past five years is impressive. To date environmental funds have been initiated in 20 countries, or groups of countries. Together these funds have received funding commitments of almost $300 million, and have had over $50 million actually transferred to them. Funds in Bolivia, Jamaica and the Philippines have developed to the point of making grants to field projects (a total of almost 90 to date).

84. Impressive as the record of action is, much more can be done to accelerate and improve the process. There is no central clearing-house for accurate and up-to-date information. Analysis of results to identify what approaches have worked best has been sketchy and subject to institutional biases. Fund organizers and donors alike are sometimes suspicious of the motives of the international non-governmental organization intermediaries. Donors are wary about the capacity, representativeness and accountability of nascent funds.

85. Much remains to be done to promote and encourage the further development of national environmental funds. There is a need for exchange of information between practitioners so that ideas and insights can be shared. Guidelines for

the development and management of environmental funds, based on experience to date, are urgently needed. These might some day provide the basis for the definition of standards of "good practice" and certification of individual funds by an independent and trusted "honest broker" as a means of building the confidence of both donors and recipients.

86. There is a growing need to broaden the sources of fund capital, especially in-country sources. Additional investment and technical assistance are essential to broaden the fund start-up process, which can be long and costly. Once a fund is established, technical assistance is frequently required over a number of years to improve governance, enhance the involvement of local interests, and improve fund management, accountability and grant-making capacity.

B. Joint implementation and internationally tradeable permits

87. The United Nations Framework Convention on Climate Change recognizes that the implementation of the Convention could include "joint implementation" of commitments, which implies that a country would be allowed the flexibility to invest in another country in order to achieve some pre-determined reduction level. This would increase efficiency and cost-effectiveness by allowing countries to fund abatement in places where it might be cheaper than in their own countries. However, the modalities for undertaking joint implementation are still to be defined. Pilot schemes could provide useful experience.

88. Joint implementation can be seen as a first step towards a more balanced, comprehensive, multilateral system of commitments (such as tradeable permits) to deal with the problem of CO_2 emissions. Care should be taken to ensure that the modalities and guidelines for the development of joint implementation projects are designed to respond to a number of concerns, including the need to ensure that weaker countries obtain a fair share of the benefits of the programmes; that programmes promote emission reductions at the source, as well as increase carbon sequestration; that joint implementation investments are clearly additional and are not made at the expense of ODA; and that the focus of such investment in developing countries does not divert attention from the need for CO_2 emission reductions in industrial countries. However, joint implementation involves investment mainly by the private sector.

89. Tradeable permits for CO_2 emissions abatement fulfil the condition established under principle 3 of article 3 of the United Nations Framework Convention on Climate Change, which states that "measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost" (A/AC.237/18 (Part II)/Add.1). The development and implementation of an international tradeable permits scheme for CO_2 emissions abatement must progress in stages. In this regard, the use of the joint implementation mechanism, under appropriate modalities and guidelines, provides valuable practical experience and helps to lay the basis for a multilateral tradeable permit arrangement.

90. In moving towards a fully fledged international tradeable permits system for CO_2 emissions abatement, it may be useful to explore the practical benefits

that could be derived from the implementation of a limited tradeable permits arrangement among those countries listed in annex I to the United Nations Framework Convention on Climate Change, while making adequate provision for the full incorporation of developing countries and economies in transition at a later stage.

91. A substantial amount of research pertaining to the design of an international tradeable permits scheme, as well as on joint implementation, has been undertaken, especially by the UNCTAD secretariat. The UNCTAD secretariat could make available its experience and ongoing research in the fields of joint implementation and tradeable permits to all countries, especially developing countries, through seminars, workshops and other relevant activities.

92. Eligible investments include contributions in cash or in kind in the form of equity, loans made or guaranteed by equity holders, and certain forms of non-equity direct investment. The Multilateral Investment Guarantee Agency of the World Bank (MIGA) can insure a loan to a project made by a financial institution if the loan is related to an investment covered - or to be covered - by the Agency. MIGA’s standard policy covers investments for 15 years, although coverage for a project may be extended to 20 years in exceptional cases. MIGA actively seeks to cooperate with other investment insurers in coinsuring or reinsuring eligible investments.

C. Venture capital fund for greenhouse gas mitigation

93. The World Bank has recently proposed to establish a venture capital fund to catalyse private-sector investment in greenhouse gas mitigation in developing countries. The development objectives of the funds would be to accelerate the transfer of environmentally sound technologies to the energy sector; increase capital flows for energy sector development; and complement efforts to support private sector development and public-private partnerships for sustainable development.

94. The fund would be managed by the International Finance Corporation (IFC). It would mobilize both public and private capital to leverage largely foreign private investment in projects which cost-effectively reduce greenhouse gas emissions, consistent with national sustainable development plans and programmes in the energy sector, and possibly other sectors (e.g., industry, agriculture, forestry). The fund’s resources would be channelled into what are seen as "win-win" investments, in that they would provide investment partners with acceptable returns on investment and developing countries with the know-how associated with new technologies. The first steps towards the establishment of the Bank’s venture capital fund are still uncertain and need to be clarified. It might well be that some sizeable initial contributions from official sources might be required in order to trigger significant private initiatives.

III. INTERNATIONAL TAX MECHANISMS

95. International emission taxes provide an effective alternative instrument for pollution control and reduction. There are two basic approaches to setting a tax. In the case of a tax on fossil fuel, Governments may determine the level of abatement desired and then set a tax with the aim of bringing about the desired reduction in greenhouse gas emissions. Alternatively, Governments could determine the acceptable tax burden that the international community would accept and allow it to produce the concomitant emission reductions. Either way, the potential revenue flows could be enormous. Some have argued that the very size of such revenues would hamper efforts to obtain agreement on international emission taxes as a funding mechanism. Others have suggested as an alternative the adoption of a "tax-benefit" policy, where a small proportion of total tax revenues would be redistributed according to some allocation criteria.

96. Proposals have also been made for the imposition of international charges and levies on air travel and on international trade. It is argued, for example, that air transportation is a major consumer of fossil energy and emitter of greenhouse gases. High altitude flights also contribute to the degradation of the ozone layer. Most projections carried out at the beginning of the 1990s point to a doubling of air passenger traffic by the end of the century, with direct and predictable effects on the level of atmospheric pollution. It has been estimated that a 1 per cent charge on all air passenger tickets issued in 1989 would have generated about $1 billion. Seventy-five per cent of this sum would have been contributed by airlines from the seven major industrialized countries. The revenues generated could be made available to an international fund for the promotion of sustainable development.

PART FOUR. OVERVIEW OF FINANCING ISSUES RELATED TO THE SECTORAL CLUSTERS UNDER REVIEW

97. There is a need to develop financing mechanisms for the sectoral clusters under review, namely health, human settlements, freshwater, toxic chemicals and hazardous wastes.

98. Human health is a principal objective of sustainable development and is vital to its achievement. Cost recovery, cost containment (by emphasizing preventive care over curative services) and other domestic sources must be major sources of the necessary funds, with ODA serving as an essential catalyst. Cost recovery, however, faces the difficulties that populations’ willingness-to-pay is usually higher for curative services than preventive services, and that ability-to-pay is severely limited for the disabled and the poor, who account for a high proportion of those requiring health services. Higher income groups may need to bear more of the burden of public health care funding.

99. Health care requires predictable funding. In turn, financial resources on a sustained basis require a reorientation from costing disease (budgeting for treatment of particular disease) to marketing health (emphasizing prevention and allocating resources to health care in line with the productive services it provides). Investments under Agenda 21 not directly related to health care programmes, for example investments that promote income growth, poverty

reduction and pollution reduction, can provide some of the most cost-effective means of achieving health care benefits.

100. In Africa, for example, while the willingness-to-pay for water is high, the majority of the population do not have access to safe and reliable supplies. The development of new water supply systems and the rehabilitation of existing ones, together with relevant institutional strengthening measures, would contribute to reducing the incidence of water-borne diseases. It would also improve the financial performance of water suppliers and, indirectly, the public health sector.

101. Internalization of external costs provides a principle to follow in financing investments related to human settlements, freshwater, and toxic chemicals and hazardous wastes. For example, transportation-related fees (e.g., road pricing) can be used both to encourage the use of transportation methods that generate less pollution and congestion and to generate the funds necessary for investments in systems more consistent with sustainable development.

102. Similarly, effluent charges, which have been used with success in several developing countries, can be used to discourage additional pollution of freshwater resources and to generate funds for the clean-up of existing pollution problems. Revolving funds were used successfully to finance the National Sanitation Plan in Brazil. More complete cost recovery in water supply systems would promote water conservation and raise funds for system expansions and improvements. However, measures must be taken to ensure that changes in the structure of water rates do not impose additional burdens on the poor or make it too expensive for them to afford clean water.

103. In the case of toxic chemicals and hazardous wastes, steps must be taken to ensure better compliance with international conventions. Moreover, the prices of toxic chemicals and compounds that generate hazardous wastes typically do not reflect the full environmental costs related to their use and disposal. Under the "polluter pays principle", producers should be responsible for the safe disposal of their waste products. Deposit legislation, under which the users of such inputs pay a deposit which is refundable only when they account for the safe disposal of the chemicals and waste, provide one possible mechanism for making the user financially responsible for safe use and disposal. The international community should consider ways of assisting developing countries to obtain effective technology for addressing problems related to toxic chemicals and hazardous wastes.

104. A detailed discussion of these and other issues related to the financing of health, human settlements, freshwater, and toxic chemicals and hazardous wastes is undertaken in the background papers referred to in paragraph 5 above.

Notes

1/ Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, vol. I, Resolutions Adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.
