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Introductory Report of the Executive Director

Addendum

ENVIRONMENT AND ECONOMICS

Summary

Because of the need for brevity, it was impossible to present an adequate treatment of the important issue of "Environment and Economics" in the body of the Executive Director's Introductory Report. The present report is intended to expand upon the few brief paragraphs on the subject in the main report.

Following a general introduction, the report describes new developments, then deals with the subject of additional resources and sources of financing. There follows a brief treatment of transfer of environmentally sound technology, with a final paragraph of conclusions.

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A. ENVIRONMENT AND ECONOMICS

1. There is growing concern in both developed and developing countries about the proper management of environmental quality and natural resources. The focus of attention in developed countries is on environmental pollution problems arising mainly within their boundaries but now increasingly felt on a global scale - among these the depletion of the ozone layer, the long-range transfer of pollutants, climatic change, water pollution, the movement of toxic chemicals in international trade and disposal of hazardous wastes. In developing countries problems affecting survival itself have arisen from the depletion and degradation of natural resources, involving tropical deforestation, soil erosion, spreading deserts, the depletion of water supplies, the near-extinction of species and genetic stocks, and energy and food shortages. These problems are aggravated by - and are themselves aggravating - poverty and debt. They are not new, but their scope and the scale of their impact are. Rapidly increasing population, the drive for economic growth, development strategies that do not take into account the natural resource base, the use of inappropriate and potentially dangerous technologies have all contributed to the emergence of a new and awesome agenda of environmental problems that are central to the life-supporting systems of the biosphere. Innovative development strategies are required if the dangerous slide to environmental and resource degradation is to be halted. Environmental and resource challenges must be met through a broad spectrum of policy analyses and actions that are politically acceptable and economically efficient.

B. NEW DEVELOPMENTS

The environment in economic decision making

2. The major new development in defining the relationship between economics and the environment has been the realization that these two concerns cannot be integrated simply by choosing the right policies and appropriate methodologies. If we are simultaneously to achieve economic development and environmental protection rather than choose one of these at the expense of the other, we must look for a greater rationality in economic decision-making to ensure the more efficient allocation of scarce resources. Greater rationality calls for adequate social and environmental cost-benefit analyses before decisions to use or retain natural resources are made, as well as requiring the resource user to meet the full environmental and social costs of resource use in addition to the costs of extraction and processing. With the world's population expected to double within four decades, the pressure to use resources, and hence their value, can be expected to increase dramatically. This factor must also be considered in calculating the opportunity cost of resource use.

3. There are three significant ways to provide the necessary rationality, given current economic policies and market practices. First, in a legacy from the days of "frontier economics" we still tend to regard natural resources as free gifts of nature. Where royalties are charged for their use, they are regarded as a tax on economic activity rather than as recompense for the value in situ of the resource. Such royalties are set arbitrarily rather than on the basis of any attempt to assign an intrinsic value to the resource, and they probably amount to only a small fraction of its true worth. It is absolutely essential to establish a realistic symmetry between the prices charged for natural resources and the social and environmental costs to the community of their extraction and depletion. Second, no mechanism exists for establishing the cost of waste generation, either in terms of the degradation

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of polluted natural resources, of clean-up costs borne by the community or of ascribing a net value to the finite capacity of the world to absorb particular classes of waste. As a result, individuals, industries and Governments are encouraged to take actions and adopt policies that increase, rather than decrease, waste generation and pollution. Rationality in economic decision-making demands the adoption of economic policies and mechanisms that ensure that the costs of waste generation are borne in full by the beneficiary of the action that generates the waste, not by the wider community or future generations. Third, there is an obvious need to review trade and pricing policies to obtain more realistic commodity prices and to avoid environmentally based non-tariff barriers that are not necessarily correct.

Risk management

4. When dealing with natural resources and environmental functions, one must also keep in mind the risks and uncertainties involved in intervening in natural systems. The impacts and consequences of such interventions are never fully known at the outset; some of them may well be irreversible, others may interact synergistically. There is thus an "ecological dimension" to the allocation of resources that is unlikely to correspond to purely financial considerations. For this reason, further attention needs to be paid to risk and uncertainty in development activities. Risk management is based upon an assessment that combines the probability of the occurrence of an injurious event with the gravity of its consequences, and uses the resulting parameters to optimize the use of resources in reducing the risk of damage to people, natural resources and environmental quality. To date it has been used mainly in relation to specific projects and sites. Its potential for use in policy decisions relating to resource use and new technologies needs to be developed.

Resource accounting

5. Although this type of accounting was developed some time ago, progress in its application has been very slow. Apparently, there are two reasons for the slow progress: (i) the absence of universally accepted procedures; and (ii) the concern of a number of Governments regarding the efficacy of applying such accounting while more Governments do not apply it. This is an area where UNEP should exert pressure with the United Nations and the World Bank to achieve credence for the principle and its applications. The Executive Director also proposes that UNEP conduct natural resources accounting exercises in a small number of countries, using publicly available data and subsequently discuss the findings with the countries concerned.

C. ADDITIONAL RESOURCES

6. The emergence of global problems such as the depletion of the ozone layer, the threat of climate change, the disposal of hazardous wastes, and the loss of biodiversity have placed environmental issues on a rising curve of public interest and concern. However, there is so far no evidence that the financial needs for the proper management of the biosphere are receiving adequate attention. There is, in fact, a serious lack of funding.

7. The first requirement is for traditional development assistance. The link between poverty and environmental degradation has long been established. Such assistance mainly takes the form of voluntary contributions. There are signs that the flow is faltering. For one thing, overseas development assistance as a percentage of the GNP of the donor countries has been stagnating at approximately 0.35%, about half the target of 0.7%. For

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another, there is now a reverse flow reflecting debt repayments and other transfers that has been increasing substantially year by year (from \$10.2 billion in 1984 to \$38.8 billion in 1987). Nor does a reversal of these trends seem likely in the near future, either through increased taxation (not an attractive proposition in donor countries) or through fund-raising in the capital markets by multilateral financing institutions. Consequently, the options have narrowed dramatically for countries locked in a cycle of debt, poverty, natural resource exploitation and environmental destruction.

8. The second need is for finance to allow developing countries to undertake sustainable development programmes at the national level, or to cover what may be called their unmet conservation needs. According to the UNDP and World Resources Institute International Conservation Financing Project Report, these needs amount to roughly \$20 - \$50 billion per year for the next decade. The Worldwatch Institute estimates total additional expenditures rising from \$46 billion in 1990 to \$149 billion in the year 2000, on the basis of six categories of expenditure: protecting topsoil and crop land, re-foresting the Earth, population control, energy efficiency, renewable energy development and retiring Third World debts.

9. Thirdly, there is the financing needed to meet the emerging global problems. No accurate (or even approximate) estimate of the financial requirements to meet the different scenarios of abatement or containment have emerged so far. The most advanced estimates are for the incremental costs needed by developing countries if they are to accept the discipline of the Montreal Protocol. These estimates range from \$3 to \$6 billion spread over the period 1990 - 2008.

10. These figures are clearly high. But a serious drawback is a missing element, namely that in all these calculations, as well as in those related to climate change, no comparisons are made with the costs of inaction. Hence, we have no estimate of the real cost - the net cost - of dealing with environmental problems. This is another area in which UNEP, through consultations with leading environmental economists, resource economists and energy analysts, is forging ahead.

11. Recent efforts have focussed upon estimating the costs and benefits of limiting greenhouse gas emissions from fossil fuels. An informal consultation meeting in London brought together a group of economic and energy experts from diverse backgrounds representing a wide range of viewpoints. The group successfully established key areas of agreement and identified underlying reasons for differences in cost estimates. The discussions also highlighted the important areas where much further work is required both in assessing abatement costs and in assessing the costs of inaction. Further consultations will be held to consider these areas. UNEP also intends to support a series of country-specific studies of the costs and benefits of limiting greenhouse gas emissions.

12. Although multi/bi-lateral flows could meet some of these requirements, they call for new and innovative financial mechanisms. The developing countries have expressed the following basic desiderata for a new financing mechanism to address the global environmental problems with equity and efficiency:

Additionality of the funds in terms of levels, sources and uses (that is, they should be not diverted from current programmes and projects in pursuit of actions that benefit primarily the global environment);
Concessionality, i.e. assistance in the form of grants or highly

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concessional loans, not on commercial terms and not subject to conditioning or leveraging of structural adjustments, etc.;

Incremental costs involved in accepting the discipline of international conventions to protect the global environment should be funded by developed countries and cover all additional expenditures;

Fair compensation for industry for its research and development expenditure in establishing environmentally benign technologies and for development opportunities foregone (e.g. for the protection of biological resources). The problem here is how to define what is fair;

Recognition by recipient countries that the activities supported by the financial transfers are consistent with their own development objectives and not imposed on them from outside;

Assessment of global benefits of the financial transfers on the basis of the best available scientific and technological information.

C. SOURCES OF FINANCING

13. Although some Governments are already investing considerable sums in environmental and conservation projects and donor agencies are taking up such projects and programmes in increasing numbers, these flows are inadequate and unlikely to increase in the near future. Furthermore, programmes to deal with unmet conservation needs or global problems must depend, because of their nature and long gestation periods, on high levels of concessional funding. It is necessary to move away from the prescriptions of capital finance to the principles of public finance in dealing with these problems.

14. The financial mechanisms sought to manage the financial transfers could be a new fund or facility, a "window" in an existing institution (e.g. the World Bank), co-operative arrangements based on comparative advantage among a number of international organizations (e.g. UNEP, World Bank, FAO, UNDP and others) or a combination of all three. A number of the developing countries support the idea of a series of special funds each established under the authority of the Contracting Parties of a given treaty. Others support a general fund established with a financial and technical secretariat under the overall supervision and control of the world community as the most appropriate arrangement to reflect global responsibility. Some donor countries hold that financial mechanisms involving existing channels of multilateral and bilateral assistance could be adequate.

15. However, the transfer of financial resources for international purposes is only one aspect of the matter. The other is the raising of the funds internally. Increasing attention is being paid to the use of economic instruments, both as tools to realize rationality in environmental economics and as practical fees or charges to raise revenue. They include such instruments as emission charges, non-compliance charges based on pollution control standards, permits, deposits and return systems. Possible applications cover such diverse fields as CO₂ emissions, use of fertilizers, pesticides and herbicides, disposal of solid wastes, use of beverage containers and plastic polymers, as well as aircraft noise and intensive animal farming. When applied in the industrialized countries, such measures have proved to be successful disincentives to pollution generation and have been conducive to relative prices in favour of environmentally acceptable products, processes and chemicals. There is a growing perception that user's fees (or similar instruments) should be integrated into the totality of the

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tax system so as to internalize the environmental and social costs of resource use and waste generation while allowing a compensatory reduction in other taxes and overcoming the short-term burden on specific sectors.

D. TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGY

16. Sustainable development must be based on the effective and efficient use of scarce natural resources. The key to success lies in the development of appropriate and environmentally sound technology and its use. If the basic human needs of the global population - expected to reach 10 billion in a few decades - are to be met, production processes must:

- (i) use natural resources more efficiently;
- (ii) be guided by the principle of energy efficiency; and
- (iii) involve a serious attempt at the recycling of wastes.

17. Research and development have produced many technologies that are far less harmful to the environment than those of 20 or even 10 years ago. The selection of an appropriate technology from among those available, however, is not an easy task. The developing countries face in their agricultural and food production different endowments in terms of natural resources, customary and traditional agro-economic practices, patterns of cropping, institutional settings, credit systems, expertise levels, and social attitudes that should be taken into account in considering a technology that would be environmentally sound. A rational development strategy will depend upon the extent to which their conflicting claims have been reconciled. On the one hand, technology must be adapted to the conditions of the country and on the other, organizational and institutional arrangements must be modified to use new and emerging technologies with the greatest efficiency possible in the improvement of the standard of living of the poor.

18. In recent years, another dimension to the transfer of technology has arisen. Transfer of technology is seen to play a pivotal role in the containment of global environmental problems. An effective response to the threat to delicate planetary balances must be clearly based on the acceptance of global interdependence and a shared sense of responsibility. That requires developing countries to accept responsibility for, and make legally binding commitments to, the solution of problems that are generally not of their own making. It is clearly necessary for them to receive in return equally binding commitments from the industrialized countries that the necessary technology, often expensive and not easily obtainable, will be available to them as well as the financial resources to meet the incremental costs involved. Technology transfer is thus a critical item on the international environmental agenda.

19. Complications arise from the fact that the advanced technologies, particularly the new and emerging technologies, are in the custody of industry rather than Governments. Industrial conglomerates have spent considerable amounts of money in developing them. Their natural desire is to protect their investments and to obtain the maximum possible return on them. Hence, the complexities and rigidities that arise from patents, royalty payments, proprietary rights, etc. In this context, it is necessary to make it clear that industry is not being asked to forego hard-won competitive advantages from expensive research into new products and technologies. Technology transfer must involve fair compensation to industry. It is in the definition of fairness that the problem arises. This will be the main issue the Executive Director intends to raise during the Second World Industry Conference on Environmental Management.

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E. CONCLUSIONS

20. Rationality in economic decision-making should make development possible without damage to the environment. To achieve this, we must carry over from the present to the future a portfolio of assets that is no less than the stock inherited from the past. This portfolio must include not only man-made and natural capital (e.g. quality and quantity of water, clean air, fertility of soils, forest cover, etc.) but also the critical biogeochemical cycles, the resilience of ecosystems and other natural balances without which the quality of life cannot be sustained. Achieving all elements of this portfolio calls for major policy changes. To this end, a number of policy options are open. One set of policy options concerns the totality of resources to be set aside for environmental maintenance; another set to the appropriate mix of regulations, incentives and safeguards necessary for particular environmental concerns; a third to ensuring the widespread availability of the most appropriate environmentally sound technologies; and a fourth is the global application of natural resources accounting. Under the terms of our leasehold tenure of planet Earth, we are required to repair the damage we have caused. That means that policy decisions implicit in these three sets of options must be made without delay. It is too late to continue with crisis management.
