

**FINANCING ENVIRONMENTAL MEASURES
IN DEVELOPING COUNTRIES:
THE PRINCIPLE OF ADDITIONALITY**

SCOTT MACLEOD



International Union
for Conservation of Nature and Natural Resources
Morges, Switzerland
1974

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FOREWORD

The reaction of the developing countries to the environment issue has been mixed. Concern for the environment has been treated by some as a luxury which only the rich nations can afford; others have viewed it as central to the development process itself. Some countries have considered it irrelevant and extraneous, but elsewhere it has been heralded as lending new focus and impetus to traditional development issues. It has been regarded alternatively as too costly for the developing countries to undertake in the short term and as too costly for them to ignore in the long term.

Central to the complex and varied reaction of the developing countries is the concept of "additionality". Surfacing during the early stage of the preparatory process for the United Nations Conference on the Human Environment (UNCHE), held in Stockholm, June 1972, the concept of additionality first referred to funds for environmental purposes additional to the existing flow of resources to the developing world. Since then, however, it has been increasingly misinterpreted and misused. Originally referring to the principle that incremental costs arising from the incorporation of environmental measures in development projects should be met by additional funding, additionality has since been used more loosely and vaguely. It has begun to be taken as a panacea for many of the Third World's needs, and now often refers to resource flows from the developed countries, additional to current commitments, designed to address the environment development priorities of the developing countries. It is used in both a micro and macro context. It has come to relate not only to the applications but also to the sources of funds.

The present paper reviews the development of the concept of additionality in an attempt to document and clarify some of the conflicting interpretations and misunderstandings that now exist. It also explores whether the principle has any operational significance. The major questions to be considered include: Should and can the principle of additionality be applied? Is the principle to be given a narrow or broad application, i.e. is it to refer only to individual development projects or to the overall flow of development assistance? Should it apply to all environmental actions to be taken up by a developing country? If restrictions do exist, on what criteria are they to be based? In defining criteria, what distinction should be made between the environmental problems

emerging from development and those resulting from the lack of development? What sources are available for additional financing and for which measures would each be applied?

Origins of the Study

The present publication has its origins with a small Task Force established under the aegis of the IUCN Commission on Environmental Policy, Law and Administration (CEPLA) to consider several issues arising out of the Stockholm Conference which warrant further investigation.

The Task Force is an informal international group brought together on an ad hoc basis through questions and concerns shared in common. Its members serve voluntarily in their private capacities, and need to work largely by correspondence. The Task Force has operated under the Chairmanship of Christian de Laet and has as members: Peter Ellyard, Robert Gruszka, Scott MacLeod, Robert Munro (Co-ordinator), and Shadia Schneider-Sawiris. They are working closely with the following members of CEPLA: Wolfgang E. Burhenne, Lynton K. Caldwell, and Richard Gardner, and with senior members of the IUCN Secretariat: Gerardo Budowski, Raymond F. Dasmann, and Frank G. Nicholls.

Prominent amongst the concerns of the Task Force have been the concept of additionality and the closely linked concept of "compensation". As a result of the exchanges between members of the Task Force on these subjects, several papers have been prepared for publication in this series, amongst them the present paper. It is complementary to another study on the same theme included in the present series: No. 4, "The Concept of Compensation in the Field of Trade and Environment", by Shadia Schneider-Sawiris. Basic documentation of specific interest is given in a further paper in the series: No. 5, "Source Book: Emergence of Proposals for Recompensing Developing Countries for Maintaining Environmental Quality", compiled by Yvonne I. Nicholls.

This group of papers is presented as a contribution towards defining the issues and alternatives with reference to relevant precedents and the difficult choices, largely political, which must be made. They do not attempt to elaborate action proposals. The solutions envisaged for such important problems as financing, procedures, and organizational frameworks are part of an attempt to clarify the concerns involved and to provide a background to the debates that will arise in various international gatherings. Although the papers are based

on discussions and suggestions within the Task Force, the credit and responsibility belong essentially to the authors who have carried out the research and creative work.

BIOGRAPHICAL NOTE

Scott MacLeod is currently working on rural development at the World Bank in Washington, D.C. Previously, he served for two years as a research and programme officer within the Environment Secretariat of the United Nations. He studied at the American University of Beirut and l'University de Paris, and has a bachelor's degree from Yale University and a master's degree from Columbia University.

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CHAPTER 1

EMERGENCE AND DEVELOPMENT OF THE PRINCIPLE OF ADDITIONALITY

The environment has emerged in recent years as an issue of major concern for most industrialized countries. As population has increased exponentially, as technologies poorly adapted to environmental needs have proliferated dramatically, and as per caput income levels have continued to rise rapidly, problems of the environment have surfaced with increasing frequency and intensity. Prompted by the growing severity of these environmental problems, an increasing public awareness and concern have gradually emerged, precipitating a wide range of responses throughout much of the industrialized world.

Actions at the international level were channelled after 1968 into the preparations for the Stockholm Conference.¹ The preparatory meetings for the Conference provided a forum for concerted attention on such international environmental problems as pollution of the atmosphere by sulphur dioxide, nitrous oxides, and particles; the contamination of the oceans by oil and by such heavy metals as mercury, lead, or cadmium; the disappearance of valuable genetic resources; the proliferation of chlorinated hydrocarbons throughout the globe; and the destruction or depletion of important aquatic resources. These, among others, were problems of paramount concern to the original sponsors of the Stockholm Conference, most of which were industrialized countries.

It soon became apparent, however, that the proposed Conference would not obtain the international consensus required without the active involvement of the developing countries. The United Nations Environment Secretariat, in its most sensitive and important contribution to the preparations for the Conference, moved to engage the interest and participation of the developing countries and particularly to relate the environmental issue to their already compelling priorities. Concurrently, it helped to convince the developed countries that the full participation of the developing world was essential to any international environmental initiative.

Although the industrialized world accounted for virtually all forms of global pollution, it was evident that the developing countries must be included for several reasons: (a) they were needed to make the Conference the truly international affair the new sense of global interdependence demanded; (b) they were as much the recipients of global environmental disruption as were the developed countries; (c) they would experience significant social and economic repercussions as a result of environmental measures taken in the industrialized world; (d) they should be informed and equipped to avoid the type of environmental degradation the industrialized countries were only beginning to remedy; and (e) they should not be excluded from participation in decisions that would directly affect their future interests. Furthermore the complete catalogue of environmental problems included not only industrial pollution but also soil erosion and depletion, inadequate sewage facilities and health centres, shortages of water supplies and housing, and malnutrition and water-borne diseases. So defined, the environmental issue was clearly of direct relevance to the principal economic and social priorities of developing countries.

The developing countries joined in the preparations for the Stockholm Conference, and with their new environmental interest came an insistence on the principle of additionality. In order to better understand its origins and assess its practical applications, it will be useful to review the development of the principle within the context of the Conference and its preparations. At the Second Session of the UNCHE Preparatory Committee, held at Geneva during 8-19 February 1971², the developing countries were allocated a specific subject area in the proposed Conference Agenda. The concept of additionality was implicit in the issues marked for consideration under this agenda item.³

The principle was first introduced and discussed at a meeting of experts convened at Founex, Switzerland, from 4-12 June 1971, by the Secretary-General of UNCHE to examine the relevance of environmental issues to the developing countries.⁴ Among issues assigned particular emphasis was that of the additional costs, and funding alternatives, associated with environmental measures. In its final report the Panel pointed out that:

additional aid funds will be required to subsidize research on environmental problems for the developing countries, to compensate for major dislocations in the exports of the developing countries, to cover major increases in the cost of development

projects owing to higher environmental standards, and to finance restructuring of investment, production or export patterns necessitated by the environmental concern of the developed countries. A suitable mechanism for the channeling of these funds should be devised.⁵

Four regional seminars were subsequently convened during the summer and early fall of 1971⁶ to relate the findings of the Founex Report to the particular problems and concerns of the respective developing regions, and additionality again proved to be a recurrent theme. Each seminar independently examined the environmental issues of its own region, and a summary of the common concerns of the regions was then presented to the Third Session of the UNCHE Preparatory Committee at its meeting in New York from 13-24 September 1971.

The Beirut Seminar concluded that:

international assistance will be needed through bilateral and multilateral machinery for the study and solution of the problems of the environment in the developing countries.⁷

The Bangkok meeting agreed that:

additional funds would be required to subsidize research into the environmental problems of the developing countries, compensate for major dislocations in the proceeds of their exports, cover the major costs of development projects, and restructure investment, production, or export patterns.⁸

The final report of the Addis Ababa seminar contained a similar reference.⁹ The Mexico City meeting concluded that:

in international financial assistance programmes, special attention should be given to the following points: (a) the need to provide new resources on the most favourable terms and conditions possible, to cover the most pressing needs of developing countries in the face of the increasing costs entailed in the necessary restructuring of industry in order to adapt certain sectors to the new environmental control standards, and in the absorption and adaptation of modern techniques imposed by the new methods of environmental control; (b) the harm which might be sustained by developing countries if external aid were reduced even further below its

current level owing to the higher cost of environmental control and conservation systems . . .¹⁰

A meeting of scientists, mostly from developing countries, was also convened in Canberra by SCOPE¹¹, where immediate steps were urged to fund environmental research at all geographic levels.

Discussions at the Third Session of the UNCHE Preparatory Committee underscored the dilemma confronting most developing countries:

In view of the limited resources at their disposal and in view of the goals for development set by the International Development Strategy for the Second United Nations Development Decade, developing countries were reluctant to divert their goals and resources to an area of lesser priority for them . . . The need was emphasized for augmenting the resources available to developing countries by extending technical cooperation and financial assistance for the purpose of coping with their environmental problems. Such assistance could also help in maintaining the order of priorities in their national development plans.¹²

Discussions at the Second Ministerial Meeting of the Developing Countries, known as the Group of 77, at Lima on 7 November 1971, emphasized the need for additional resources.¹³

On 20 December 1971, during its twenty-sixth Session, the UN General Assembly adopted Resolution 2849 (XXVI) on development and environment which, for the first time, gave official recognition to the principle of additionality. It indicated the need for developed countries:

to provide additional technical assistance and financing, beyond the targets indicated in the International Development Strategy for the Second United Nations Development Decade and without affecting adversely their programmes of assistance in other spheres, to enable developing countries to enforce those new and additional measures that might be envisaged as a means of protecting and enhancing the environment.¹⁴

The Resolution also strongly argued for an acceleration of the flow of resources to the developing countries. It was carried with 85 votes in favour, 34 abstentions, and only the United States and the United Kingdom voting against it.

The Resolution also called for the preparation of a Secretariat Note on additionality, to be presented to the Stockholm Conference itself. The Note, which was based on further comments and views from governments, explained both the narrow and broad interpretation of the concept. It interpreted the views on both the application and source of additional funds. It defined additionality as:

the additional financing which developing countries require and may request to cover the extra costs of taking environmental factors into account without suffering a curtailment of the scope of their development which can be financed from available development funds.¹⁵

The subject of additionality was again considered during the debates of the Fourth Session of the UNCHE Preparatory Committee, held in New York from 6-10 March 1972. In discussing the establishment of a voluntary fund, many delegates argued that future budgetary policies should include the principle of additionality. Others insisted that:

beyond a possible fund to finance new programmes of the United Nations system in the domain of the environment, additional resources would be needed for direct assistance to cover environmental expenses incurred in development projects of developing countries.¹⁶

Both the narrower and broader requirements of additional funding were thus recognized. Moreover, they were again acknowledged in a special report¹⁷ to the Third Session of the United Nations Conference on Trade and Development (Santiago, 13 April - 21 May 1972) and in the discussion at that Conference.¹⁸

The Stockholm Conference began two weeks after the UNCTAD Conference. The official documentation submitted to the Stockholm Conference stated that:

One of the principal questions that arises from the increased concern with the human environment is what the cost to achieve various higher levels of environmental quality will be . . . and how the costs should be distributed among the nations of the world.¹⁹

Statements and debate on the issue arose frequently during the Stockholm Conference. Canada and the United Kingdom, for example, expressed the intention to increase their annual aid allocation to accommodate the additional

costs of environmental measures. It should be noted, however, that whether or not such funds would be truly additional could not be verified with certainty.

Concern for additionality was formally reflected in Recommendation 107, which demanded a study of appropriate mechanisms for financing international environmental action taking into account UN General Assembly Resolution 2849 (XXVI). It was also expressed in Recommendation 109, which stipulated that:

environmental problems should not affect the flow of assistance to developing countries, and that this flow should be adequate to meet the additional environmental requirements of such countries.²⁰

Additionality was again taken up in the twenty-seventh Session of the UN General Assembly. Maurice Strong, the Secretary-General of the Stockholm Conference, made the following reference to additionality in his opening statement to the Second Committee of the General Assembly:

The creation of the Fund would respond to the important principle of additionality, as it would be in addition to the funds available for development financing . . . There will, undoubtedly, be opportunities for the mobilization of additional funds from the world community to deal with particular environmental concerns - as, for example, the demonstrable and urgent needs in the field of human settlements.

The UN General Assembly passed Resolution 3002 (XXVII), which recommended in operative paragraph No. 4:

respect for the principle that resources for environmental programmes, both within and outside the United Nations system, be additional to the present level and projected growth of resources contemplated in the International Development Strategy, to be made available for the programmes directly related to development assistance.²¹

The vote on this paragraph was 74 for, 3 against, and 26 abstentions. Again, a number of developed countries cited efforts already underway to implement the principle of additionality. Australia, for example, pointed out that it had pledged a total of \$2.5 million for the United Nations Environment Programme (UNEP) during a year when its commitment to the United Nations Development Programme (UNDP) would increase by 20 per cent.²²

Six months after the General Assembly had approved the creation of UNEP, the UNEP Governing Council met for its first session at Geneva (12-22 June 1973). The need to provide additional financial resources to developing countries to help them deal with and avoid environmental problems was approved as one of the priority tasks. The Governing Council requested the Executive Director of UNEP:

to take steps, in collaboration with other appropriate agencies, to encourage developed countries to make increased capital assistance available to developing countries so that extra costs of introducing environmentally-sound technologies by them are covered.²³

CHAPTER 2

MEANING OF ADDITIONALITY

An historical review of the principle of additionality, and of its evolution within the framework of the Stockholm Conference, reveals the variety of interpretations it was given.

A. Additional Costs to Development

In its narrower and original sense, additionality meant that additional financing should be made available to developing countries to cover the costs taken specifically or primarily to protect or enhance the environment. It reflected the concern that new environmental measures should not constitute an additional burden on the already limited resources of the countries of the Third World. It particularly focused on the incremental costs anticipated for specific development projects or programmes.

The negative side-effects often accompanying development in the industrialized world were readily recognized by the developing countries. The creation of large productive capacities in industry and agriculture, the growth of complex systems of transport and communication, and the evolution of massive urban conglomerations were all acknowledged to induce environmental disruption when improperly planned and managed. But the developing countries also realized that preventing the negative side-effects of such developments usually entails the outlay of additional capital. The developing countries, for their part, demanded additional funding from the international community to provide such capital. They argued that action to mitigate adverse environmental repercussions, although justified by long-term benefits, would in the short-term impose an unbearable strain on existing resources.

Additionality, interpreted in this fashion, gave expression to very pragmatic concerns. Internal resources were limited and directed to the projects and programmes fitting the most immediate development priorities. If environmental considerations and the additional costs involved were to be included, then additional funding from the international community would be required to help meet those costs. Unless such funds were provided, other

needed development activities would simply be curtailed or postponed entirely due to inadequate funds. The developing countries found it impossible to justify any major reallocation of funds in the near future, either from traditional development activities to new environmental measures or from items of immediate high priority to items of high but long-term priority.

B. Additional Funds for Development

Additionality also gave expression to a much broader concept that extended well beyond the environmental issue. It related to overall development objectives and to the contribution the developed countries made to such objectives. It bore on the relationship of the developed to the developing, and to the growing gap between the two. Within this context, additionality came to mean increased support for the development process. It was argued that concern for the environment should provide an additional source of funds for many of the traditional concerns of the developing countries and, as was emphasized throughout the Stockholm Conference preparations, that such concerns fell within the ambit of the environment defined in its broadest sense.

(a) Failings of international development efforts

The concern of the Third World to obtain new forms of additional funding was not without a sound basis. The emotions behind such concern - the frustration, despair, and anger arising from their earlier attempts to secure increases in the grossly inadequate levels of international assistance - were readily understandable. Their efforts to direct environmental funds to their long standing priorities should not be considered surprising. The inequities within the global community had continued to grow, and the minimum needs of an increasing number of the world's poor remained unmet. The response of the rich and privileged was becoming increasingly unsatisfactory. The facts are known but bear repetition. They provide the essential context within which the argument for additional funding - through the environment or any other concern - would appear well justified. During the preparation for the Stockholm Conference - as now - there were certain realities that demanded attention.

Developing countries represent two thirds of the world's population, and their proportion of it will be rising.²⁴ Although their living conditions have generally improved over the last twenty years, the increase in average per caput income has been less than one dollar a year. It is estimated that approximately one half of

their numbers are hungry or malnourished. Roughly one out of every five in the labour force is underemployed or unemployed. Infant and child mortality is four times greater than that found in the industrialized world, and life expectancy is 40 per cent less. There are about 100 million more adults illiterate than there were two decades ago.

Comparison with the wealthy countries of the world serves to accentuate the needs of the poor and the parsimoniousness of the rich. Of the total annual increase in world Gross National Product (GNP) of \$1000 billion experienced during the First Development Decade (1960 - 1970), 80 per cent went to that one quarter of the world's population which already has an average annual per caput income of over \$1000. Only 6 per cent went to the 60 per cent of the global population whose annual per caput incomes average \$200 or less. Almost one third of the under-developed countries have average per caput incomes of less than \$100. And the present gap between the \$2400 average annual income in the industrialized countries and the \$200 average annual income in the less developed is expected to increase over the next decade to \$3600 and \$300 respectively.

Efforts to redress this imbalance are equally discouraging. In its strategy to improve the standard of living for the masses of the poor, the United Nations has set as the target for the Second Development Decade an average annual rate of growth in GNP for the developing countries of at least 6 per cent. To meet these objectives, the developed countries are called upon to increase their concessionary aid - known as Official Development Assistance (ODA) - to 0.7 per cent of GNP by 1975. However there seems little likelihood that ODA will exceed 0.37 per cent of GNP during the first half of the Second Development Decade (1970 - 1980).²⁵ Such inadequate participation of the developed countries virtually excludes the possibility of attaining the 6 per cent growth target. Standards of living will remain desperately low. Per caput income can be expected to rise by no more than \$2 a year. Moreover, the burden of servicing public debt obligations will become insupportable. The annual debt service is currently at \$7 billion and increasing rapidly. In sum, without additional resources from the international community, the developing countries can only look ahead to perpetual poverty, increasing bankruptcy, and widening disparities. The argument for additional funding is thus a strong one.

The traditional channels for improving their lot, for righting the growing imbalances dividing the international

community, and for accelerating the flow of resources from the rich countries, appear to have failed. The UNCTAD III conference, for example, gave them very little. Only the Scandinavian countries are expected to reach the ODA target by 1975; the link between the Special Drawing Rights and development was denied; and no new access by developing countries to the markets of the rich countries was granted.

With persistence and hope, and a backlog of frustrations, the developing countries looked to the environment as a possible source of new funding to meet their urgent priorities. Citing the principle of additionality, they used the environment to argue for the increased transfer of resources to the traditional concerns of the developing countries. The developing countries were - and are - overcome by the problems of poverty. Their resources are inadequate to address even the most compelling of these problems. If some of these problems come to be called environmental as well as developmental²⁶, and as such are subject to new sources of international funds, then an opportunity has emerged which the developing countries would be foolish to ignore.

The nature of the environment, in fact, would justify the demands of the developing countries. The notion of global interdependence and the supposed harmony of development and environment both support the demands for increased attention to the environmental problems of the developing world, and for the increased flow of resources this requires.

(b) Argument of global interdependence

The Stockholm Conference inaugurated a new awareness of global interdependence, a world in which all humanity would have to unite with the common problems of accumulating wastes and disappearing resources. Its sponsors contended that the context of the "spaceship earth" demanded new priorities and responsibilities. A new recognition of physical interdependence would require new economic and social relationships. Old structures would have to be adapted or abandoned, old values reassessed, and old relations reviewed. The environmental advocates claimed this had to be a time of change. The recent and accelerating "energy crisis" dramatically substantiates these claims.

The new appreciation of the global ecosystem supports the contention that the benefits accruing from the world's limited supply of resources must be distributed more equitably. It provides a basis upon which

additionality can be argued. If, indeed, the earth is a finite system, and this finiteness is beginning to induce serious operational consequences, then as important as the size and duration of the supply of resources is who should have access to them and who should consume what. Environmental realities therefore argue that many of the social and economic imbalances be redressed. The difficulty lies, of course, in identifying and implementing a mechanism through which a more equitable allocation of existing resources can be achieved. The resources are already in place and, in general, cannot themselves be redistributed. However, the benefits to be derived from such resources can be allocated on a more equitable basis. This would require a significant acceleration in the flow of transfer payments from the privileged to the underprivileged peoples of the world.

This redistribution could eventually be expected to be carried out partially within the context of the international market place. For example, the United States, with 6 per cent of the world's population, cannot continue to consume one third of the world's non-renewable resources without paying a price reflecting their increasing scarcity and the striking imbalances in their allocation. Prices have to reflect more realistically the diminishing supply of essential raw materials over the long term. Likewise, prices might be geared to the ability to pay of the consuming country and to the per caput quantity of resources it already consumes. Such measures would be designed to benefit the developing countries.

Where raw materials were held by developing countries, the inflow of financial resources would increase in exchange for the natural resources required by the developed countries. Where the principal reserves of a non-renewable resource were found within the developing world, the realities of a finite system could also be exploited to demand higher prices. The recent successes of the OPEC countries concerning petroleum would suggest possible price realignments for other natural resources held primarily by the developing countries, and for which there are no ready short-term substitutes. For example, virtually all of the world's tin reserves belong to the developing countries. Likewise, a majority of the global reserves of nickel, bauxite, and cobalt lie in the developing world, together with substantial quantities of copper and manganese. In addition, full recognition of an interdependent world would require the fair allocation of the benefits derived from all resources shared in common, such as the oceans, their seabeds, and their produce. This recognition might even argue that the developing countries be compensated to preserve the relative cleanliness of

their environmental resources - air and water - which interact within the global system. Thus, the realities of a finite and interdependent world will eventually contribute to substantially increased flows of resources to the developing countries.

For the moment, however, many claim that the new understanding of the world's physical interdependence argues for additional funding to the Third World. As well as an instrument of humanitarianism or foreign policy, international assistance can now act as an instrument of enlightened self-interest, serving to maintain, throughout all parts of the world, the health and stability of the global environment and of those who share it. Such assistance might be characterized as an obligation of the developed to the developing countries. For were not their high levels of economic welfare achieved at the expense of the global environment? If the developing countries were to be deprived of the rights to unbridled resource exploitation, to the availability of low-cost environmentally disruptive industrial processes, and to the use of the commons to dilute and assimilate waste - all elements by which development of the industrialized world was advanced - then additional funds equivalent to these benefits foregone should be forthcoming.

(c) Argument of the unity of development and environment

The environment also served to focus new attention on some of the long-standing concerns of the developing countries. The pressing environmental priorities of the developing world constituted a very different set of environmental problems from those encountered by the developed countries. These were the problems of meagre water supplies, poor sanitation and nutrition, insufficient housing and transport, debilitating disease, eroded soils, and inadequate irrigation. These were not new problems, but rather the scars of poverty that have long beset the development process. These were different from the environmental costs often associated with industrialization. They were problems for which development itself provided the best cure. Before such problems, development and environment melted into one, and the concerns became indistinguishable.

Such problems constituted the principal environmental issues for the developing countries. They had also long been among their important development concerns. If the international community were to undertake co-operative action to deal with common environmental problems, then these were the problems on which the developing countries wanted to focus. If the environmental concerns of the

world community were to be eligible for new funding, then these were the problems for which additional funds should be provided. To ignore such problems would be to ignore the environmental priorities of the Third World. Developing countries thus argued that new funds be directed to their environmental concerns and that they be additional to current ODA commitments. They hoped that a new appreciation of environmental quality would rekindle interest in the needs of the developing world. Where arguments for development had failed, a new emphasis on the environment might succeed.

The environment could give these problems new emphasis and cast them in new light, as it spoke for human welfare and called for improvement in the quality of life. It emphasized those basic needs too often neglected by the traditional concerns of economic development. It was a reminder that it was man, the ultimate beneficiary of development, and human needs that had to remain at the forefront of development thinking.

But fresh funds were needed to meet this new emphasis; and the principle of additionality was thus invoked.

CHAPTER 3

APPLICATION OF THE PRINCIPLE OF ADDITIONALITY AT THE PROJECT LEVEL

The origins of the concept of additionality and the history of its development are essential to an understanding of its practical implications and its operational significance. Can and should it be applied, under what circumstances, and according to which criteria?

Additionality in the micro context - the narrower definition of the term and the case of the individual project - first calls for analysis. But before situations potentially eligible for additional funding can be reviewed, the nature of the costs involved must be assessed.

A. Costs of Incorporating Environmental Considerations into Development Projects

Available data on the costs of environmental control are scanty, general, and preliminary. Differing methods of measurements mean that any type of comparison, particularly among countries, is extremely difficult. However, pending future study, such data at least suggest an order of magnitude. A few aggregate figures, gathered from studies within some of the industrialized countries, prove instructive.²⁷

For example, it is estimated that investments of \$22.8 billion by American business would be required to bring all existing facilities up to the air and water pollution standards in effect as of 1 January 1972. American industries are expected to invest 5.3 per cent of capital spending on pollution control expenditures by 1975, with percentage investments in some sectors estimated as high as 14.5 for paper, 12.7 for iron and steel, and 10.7 for chemicals. Cumulative cash expenditure for the period 1971 - 1980 for American industry is projected at \$287.1 billion, or 2.2 per cent of GNP. In Japan, total capital investment in pollution control for the period 1970 - 1975 of manufacturing, mining and public utility enterprises is estimated at 8 per cent; private and public pollution control investment during the same period is expected to be 2.1 - 2.2 per cent of GNP. In

the Federal Republic of Germany, implementation of a new environmental policy programme will require an additional DM 36 billion during 1971 - 1975 which, when combined with the DM 34.5 billion in existing programmes, will represent 2.1 per cent of the GNP in 1975.

The impact of such costs on the economy have been best documented in a recent study of the impact of present air and water pollution control abatement requirements on fourteen industries in the United States.²⁸ It is estimated that the GNP will decrease 0.3 per cent over the 1972 - 1976 interval and 0.1 per cent over the decade, due to higher product prices and new industrial demands for investments in pollution-control facilities, totalling \$26 billion (calculated at 1971 dollar values) over the 1972 - 1980 period. The effect of rising prices, tending to slow the growth of demand in the economy, would outweigh the stimulating impact of investment in pollution control facilities. Moreover, other impacts of the pollution abatement requirements include a reduction in employment of 0.1 - 0.2 per cent, a deterioration of \$700 million per year in the balance of payments and the closing down of some 200 - 300 plants.

Such cost estimates represent a staggering vision to developing countries. With basic priorities as yet unmet, such significant costs are considered intolerable. But a closer examination of relative costs should provide a more realistic perspective.

First, virtually all of the costs cited above relate to the control of industrial-type pollution; and the accumulation of waste, with several notable exceptions, is as yet less of a concern to the developing countries, where the carrying capacities of most natural systems are still generally able to dilute or assimilate waste. The exceptions, however, are rapidly increasing; for example, the air has become seriously polluted by coal combustion in Ankara and Seoul and by motor vehicles in Mexico City and Santiago. Although mounting attention is paid to the growing number of examples of pollution in the developing world²⁹, the number of situations demanding remedial action are still only a fraction of those found in the industrialized world.

Second, most of the above costs anticipated by the industrialized countries are for remedial actions. They represent environmental measures to improve upon existing environmental degradation. In particular, they require the conversion of old equipment and plants rather than the installation of new. In contrast, most of the anti-pollution action to be undertaken by the developing

countries would be preventive, involving considerably smaller costs. The costs of incorporating environmental measures into new plants are usually significantly less than those now assumed by the industrialized countries in converting old plants. In addition, numerous opportunities exist to introduce either recycling or non-polluting technologies. Both serve to reduce pollution and conserve valuable natural resources. Immediate economic benefits can often be derived, as in the case of Dow Chemical Company, where the recuperation of raw materials was expected to yield profits of \$12.3 million in 1971. However, the existing stock of capital investment in the industrialized world generally precludes such alternatives, at least in the short term. The installation of anti-pollution devices, rather than the investment in new systems of production, is frequently the only economic course still available to their industries.

Third, typical of the high conversion costs cited above are many environmental measures that would demand relatively few resources of the developing countries. For example, separation of storm and sanitary sewers - amounting to as much as 40 per cent of projected environmental expenditures in the United States, Sweden, and some other developed countries during the next five years - would represent only a fraction of such costs to developing countries, as such sewers have often yet to be constructed.

Finally, it must be noted that the burden upon the developing country's economy will depend on who has to assume the incremental costs. For example, where environment standards have been introduced and where major capital investments will be undertaken by multinational corporations, these corporations should be expected to bear the entire cost burden at no expense to the host country.

B. Environmental Costs within a Broader Perspective

Whatever the immediate costs to developing countries, and whatever their relation to those of the developed countries, environmental measures must be viewed in relation to attendant benefits. Costs and benefits, both short- and long-term, must be compared. The costs to the environment of not acting must be compared with the immediate expenses that such action requires. All costs and benefits - impacts on other resources and their use, adverse repercussions on the aims of the project itself, conflicts with other social or economic objectives - must be incorporated. The basis upon which decisions must be made will be incomplete until such information is provided.

The difficulties of cost/benefit analysis are many and complex, and have been well-documented elsewhere.³⁰ A few of the most significant deserve reference here. The problems of measurement are often formidable, involving such complications as which factors to include in the calculation and evaluation, and what value to assign factors which frequently do not lend themselves to quantification or comparison. The proper measurement and valuation, and the dimensions of time and space are critical. The ecosystem possibly provides a framework appropriate to encompass the variables to be examined by cost/benefit analysis and can thereby define the spatial dimension. But the value of time is not easily resolved. Present methods of calculating future values are clearly inadequate. First, environmental costs do not come into play until the intermediate or long term, at which point their value has been discounted to almost zero. Second, any such method assumes the resource is still fully marketable at any time in the future - whether it be an eroded hillside, a depleted mineral deposit, or a ravaged forest - which is too frequently simply not the case. Special discount rates for future environmental costs or benefits might provide a partial solution here. Finally, the very premises of cost/benefit analysis can be cast into doubt, for its basis is the "pareto criterion"³¹, and its guide is market prices - both of which reflect private rather than social values. Possible solutions may lie in the formulation of social indicators to complement existing data.

Whatever the methodological problems of measurement and valuation might be, however, an attempt must be made to examine all costs and benefits associated with any action. A complete accounting of all costs and benefits, both present and future, leads to a very different conclusion regarding the applicability of the additionality principle. When considering only the immediate cash requirements of environmental action, a strong case can be made for additionality. Adequate resources are simply not available for such concerns, without a major reallocation of development priorities, and the international community must therefore provide the needed increment. But when including intangible benefits as well as tangible costs, the future as well as the present, a very different optic is provided. It is one of optimum allocation and use of scarce resources. It requires that the effects upon the natural system as a whole be taken into account - that the costs, for example, to downstream fisheries or to potable water supplies be properly integrated into the accounting of an upstream industrial project. It demands nothing special or unfair of the developing countries. It requires only that they use their natural resources efficiently over the long term. It calls upon them, for

example, not to discharge toxic wastes into receiving waters if aquatic life is thereby to be killed; not to release noxious emissions into the air if respiratory ailments are thereby to be increased; or not to exploit forests if they cannot be regenerated. Such principles of natural resource efficiency serve traditional development concerns as readily as new environment interests. For example, human health is served as much by measures to regulate the discharge of excreta into adjacent waters as by the installation of a clinic to treat water-borne disease, or timber needs are served as much by regulation of forest exploitation as by reforestation efforts. Preventive actions can respond to the same concerns as remedial actions; the environment can serve the same priorities as development. All contribute to optimum resource use. It might thus be argued that the environmental actions of developing countries, although involving additional costs, should not generally qualify for additional funding from the international community, any more or less than does any other measure to optimize resource use, such as action to protect an inland fish stock against disease or an agricultural crop against pest infestation. Under these circumstances the developing countries would be called on to re-examine priorities in allocating available funds, giving weight to previously neglected environmental factors.

There are, on the other hand, important qualitative differences between the environment and other concerns of the developing countries. The consequences of environmental action will usually be more indirect and long-term. For most of the developing world, environmental action still relates to the future. The developing countries generally feel it will be some time before the exploitation of resources and the accumulation of wastes begin to exceed the carrying capacity of their natural systems. And it is difficult to talk to a poor man about the future, because the immediate and the tangible demand priority. The future is understandably relegated to tomorrow - although today's environmental actions often serve tomorrow's developmental, as well as environmental needs, and although the cost to guarantee such needs is usually less today than tomorrow.

In addition, the environment requires actions, that although representing optimum resource use, run counter to human nature, in the developed and developing countries alike. It calls upon preventive rather than remedial measures. It requires that actions - including all of the related causes and effects - be viewed in aggregate rather than individually. It demands that the collective be considered before the individual, that decisions be taken in relation to the whole rather than in relation to any

one of the parts. It requires that the future be given an importance along with the present, that future opportunity costs be considered with immediate expenses, that actions not to destroy be accorded equal priority with actions to build. Such requirements are difficult and abstract notions for any individual or country to accommodate - particularly a poor one. It is partly because of these differences of perspective that the developing countries have been reluctant to undertake what they view as the additional burden of environmental measures. Thus, although environmental action can be regarded as optimum resource use - weighing future benefits against present costs - it goes much further. But is it sufficiently unique to demand additional financing, and if so, under what circumstances?

C. Measures Eligible for Additional Funding

It is the contention of this paper that every effort must be made to increase the overall flow of international resources to meet the environmental needs - both short-term and long-term - of the developing countries. These resources should relate to both technical and financial assistance - to capital investment, research, training, and advice. They should be applied with a new understanding of the environment's fragility and interdependence, whereby planning, accounting, and evaluation techniques integrate the full range of costs and benefits associated with a project or problem. They should be applied to both old and new environmental problems, e.g. to soil erosion and air pollution, to water-borne disease and to pesticide contamination. However, the author concludes that separate funds should not generally be provided to meet the specific incremental costs to development projects possibly arising from environmental measures included within such projects. Although the flow of resources from the international community should be greatly increased to finance the overall costs of such projects, there is generally no justification, when actions are viewed within the broader framework of optimum resource management, to give special treatment to the environmental components of these development projects.

The possible application of the principle of additivity to a variety of situations must now be reviewed for those actions which are undertaken to remedy or avoid the adverse environmental effects of individual development projects. Each situation requires specific examination. Each applies to measures to control the environmental disruption sometimes precipitated by development. Each relates to the potential problems of misdirected development - not to the environmental problems arising from the

absence of development. Generally all situations will involve additional costs, initially requiring an additional outlay of funds, and a series of additional benefits. But in which situations, if any, should these additional costs be subject to additional financing from the international community as distinct from an overall increase in funds to help developing countries meet their many environmental/developmental problems? Because they impose different responsibilities upon the international community, it is important to distinguish between national and international actions.

(a) Actions undertaken at the national level

Actions at the national level divide into the following three categories: (i) internal corrective actions, (ii) internal control actions, and (iii) external preventive actions.

(i) Internal corrective actions: These are actions specifically and entirely designed to remedy environmental problems that have arisen out of misdirected development. In such instances, the project is additional to the budgetary commitment for that development excluding environmental considerations. The bulk of these actions will be remedial, rather than preventive, and will deal with waste accumulation. These have recently become an important preoccupation of the industrialized countries; but they are also increasing in the developing countries. For example, the costs of a water pollution project planned for Sao Paulo and involving new interceptor sewers, pumping stations and treatment plants, will involve about \$80 million, all of which are additional to budgetary commitments where water quality ignored. However, although such projects require substantial capital expenditures, it is considered that they should not be deemed eligible for additionality funding. Rather they should be regarded as projects designed to make optimum use of the country's limited resources, to yield the highest benefits on the capital invested and to address specific development priorities. That the means to attain such objectives are environmental should in no way be used to justify funding of a new kind from the international community. Such projects have their own justification, consistent with development priorities. The economic rate of return, for example, on the pollution abatement project for São Paulo is calculated to be about 30 per cent.³²

(ii) Internal control actions: These are actions taken to eliminate environmental problems that would otherwise jeopardize the success of a development project and that could emanate from the project itself or from other

sources. Examples are many. A modern urban sewage collection and treatment system has been included within a tourism project for Dubrovnik to eliminate pollution threats to a major tourism complex.³³ Steps were taken to eliminate land-use practices and settlement patterns that would cause erosion and siltation in such proportions as to affect materially the success of the Kamburn Hydro-electric Project planned for Kenya. Sewage systems are to be introduced into small villages upstream from the Cerron Grande dam project in El Salvador in order to stop the growth of aquatic weeds that would otherwise impede the project's operations.

Numerous examples can be cited of environmental safeguards that have or should have been built into the development project to ensure its success.³⁴ Problems of salinization and water-logging accompanying irrigation in the Oued R'Hir Valley in Algeria could have been avoided as could the salinization that soon rendered useless the agricultural land newly irrigated above the Aswan Dam. The salinization problems above the High Dam at Aswan are now to be remedied by a planned \$106 million agricultural drainage project. Better planning and a small incremental investment are usually all that are required to avoid such costs.³⁵ Designed to serve the goals of both development and environment, they require no independent justification and call upon no additional funding. All such examples again contain their own economic justification.

(iii) External preventive actions: These are actions to prevent development projects from inducing environmental damage outside the project. Efforts must be made not to threaten other resources or impede other development objectives. Examples of the incorporation of environmental safeguards into development projects are rapidly increasing. Those projects funded through international assistance are perhaps best documented.³⁶ Measures to reduce environmental costs external to the project can be found in the MBR Iron Ore Project in Brazil, where arrangements were made for reforestation of mined areas and treatment of ore wash water at the mining site, for safe handling of the ships' slops, and an improved navigation system to prevent accidents at the marine terminal. Other projects fitting this category and funded by the World Bank Group include expansion of a steel plant in Turkey, on the Black Sea, where provisions were made to control emission of liquid wastes into the sea and gaseous effluents into the air; the construction of a hotel complex in Djakarta, where measures were taken to treat the sewage and safely dispose of the solid waste; and sponsorship of a rice irrigation scheme in the Cameroons where efforts were made to minimize the possible spreading of bilharzia.

Involved here are components of development projects that generate environmental benefits - or prevent environmental costs - external to the original project. These constitute actions to internalize within the project those costs usually treated as external to the project. Although these serve the broader development concerns of the country as a whole and can thus be readily justified at the macro level, at the micro level - in terms of the specific project - they require additional costs, with no concomitant benefits to the project. It can be argued that such cases therefore require some form of additional financing.

The measures required within this category are theoretically the most contentious. Here the concerns of environment and development risk to conflict most sharply. In terms of the viability of the specific project, the environmental measure cannot usually be justified. Likewise, in terms of immediate development priorities, the action has less importance. It does, however, move to address development concerns - as well as environmental interests - in the long term. The more intangible and indirect the benefits, and the more long-term their realization, the more open is the confrontation with immediate development priorities, and the more pressing is the conflict over the limited resources available. For example, in a country where the only argument for wildlife preservation might be long-term ecological stability, measures to minimize the potential disruption to wildlife resulting from a development project might appear irrelevant and esoteric, and the incremental costs excessive and unacceptable. If the additional environmental action were to be funded out of the national budget, it would most likely be classified as a low priority and ignored.

However, where the project is financed by a third party (i.e. a multilateral or bilateral lending institution) which insists on the incorporation of environmental safeguards, the situation becomes still more complex, and the conflicts perhaps still sharper. Open disputes might arise between donor and recipient. In such a case, several alternatives are open: (i) the recipient government assumes the full costs of the environmental measures; (ii) the lending institution or government assumes the additional costs, either on grant or concessionary terms of the overall loan; (iii) the parties each retain the right to withdraw from the project, if one of them feels the other is acting with excessive arbitrariness or intransigence; (iv) the procedures of project planning and implementation are modified so that short- and long-term considerations are properly integrated and the environment and development are no longer treated as separate components within a development project. The last is perhaps the most

satisfactory solution and would result in the recipient government assuming as part of the regular terms of the overall loan the costs of any such environmental component. These costs would eventually no longer be viewed as additional or separate, as different accounting and planning procedures were adopted.

A scheme of concessionary terms was proposed at Stockholm by Antonio Ortiz Mena, President of the Inter-American Development Bank. However, because either concessionary or grant funds are in extremely short supply and are unlikely to be increased for environmental reasons, it should be pointed out that their use for the environment would simply reduce their availability for development, thereby exacerbating the conflict.

In any case, such separation is difficult, and often hypothetical, since it presupposes that the costs of not undertaking the environmental measure are able to be estimated. This cannot generally be done with any precision. What, for example, are the costs of constructing an environmentally-unsound dam or highway, and how do we know at what point it becomes unsound and at what cost, unless the alternative is constructed and the subsequent environmental effects observed? The fusion of environment and development concerns at the initial conception and formulation of a project - rather than the intervention of environmental reservations at the final stages of project preparation - would help to eliminate this separation and to diffuse the possible conflict. It would act to play down the additionality issue by integrating the two concerns from the very start. It would not eliminate all conflict; but by introducing the required environmental measures and their additional costs into the project formulation as early as possible, it would minimize the conflict. Just as regulations against child labour or safeguards against black lung disease - both initially involving added costs to industry - are now readily accepted, so environmental standards would gradually be regarded as an integral and necessary part of the planning and execution of development projects. Eventually the costs of such environmental actions would no longer be considered additional. This transition will be accelerated by the supply of imported equipment already adapted to the new environmental standards of the industrialized countries (albeit perhaps not fully adapted to the environments of developing countries).

The inclusion of environmental considerations would coincide with the principles of optimum resource use. Whatever additional costs did exist would be absorbed within total project costs, as would any other component of

the project. The relatively small amount this would involve, if it could be accurately identified - the World Bank has tentatively calculated such costs as no more than 3 per cent of total project costs³⁷ - would be viewed as part of the project and its end objectives. In any case, the high degree of imprecision associated with most initial cost estimates (price and physical contingencies often run as high as 30 per cent of total costs and the recipient countries raise few objections) would indicate that such minor amounts could be absorbed without difficulty. And, in the end, any conflict should be resolved, not by laying down any set of absolute principles, but rather by improvising on a case-by-case basis.

(b) Actions taken at the international level

Special attention should be paid to the international dimension of environmental measures. International environmental problems can be divided into three categories:³⁸ (i) those involving physical linkages, such as the pollution of a water body shared by several nations; (ii) those involving social or economic linkages, such as trade disruption due to environmental standards imposed by an importing country; and (iii) those problems shared in common by more than one nation. Of particular relevance to the concept of additionality are those actions cited above in Section C(a)(iii) of this Chapter as "external preventive", which generate environmental benefits outside the scope of the original project. Such actions, at the international level, relate to the problems of physical linkages and can be classified into those affecting neighbouring countries and those affecting the international commons - the atmosphere, oceans, and resources they contain. In the first instance, if Principle 22 of the Declaration of the Human Environment, adopted at Stockholm, is to mean anything, then action to mitigate the adverse effects of a development project upon the environment of a neighbouring country should be no more subject to additional funding than such actions affecting the country's own environment. Principle 22, which is the most far-reaching of the principles embodied within the Declaration, calls on States to:

cooperate to develop further the international law regarding liability and compensation for the victims of pollutions and other environmental damage caused by activities within the jurisdiction or control of such states to areas beyond their jurisdiction.³⁹

No country should knowingly inflict environmental damage upon a neighbouring country. Any costs to prevent such damage should be included in the total costs of the project, along with other costs of production. However,

because such costs cannot be justified within the context of the nation's own priorities and interests, it may well be argued that additional financing be provided by the international community in the near future for such projects.

It may also be argued that Principle 22 of the Declaration of the Human Environment, as well as the principle of internalizing environmental costs, should equally apply to actions of developing countries contributing to the degradation of the international commons. On the other hand, however, two arguments can be raised to support additional financing to prevent such actions:

(i) The "polluter must pay" principle, which serves as a basis for social cost calculus and which received strong support at Stockholm, should apply to the degradation of the international commons. Thus, those industrialized countries most responsible for the accelerating deterioration of the international commons must pay for their maintenance and restoration. The incremental damage introduced by the developing countries would be of little concern were not the carrying capacities of the commons already threatened by the years of negligent practices of the industrialized countries. This view has been repeatedly expressed by the developing countries and is perhaps best articulated in UN General Assembly Resolution 2849 (XXVI):

Pollution of world-wide impact is being caused primarily by some highly developed countries as a consequence of their own high level of improperly planned and inadequately coordinated industrial activities, and that, therefore, the main responsibility for the financing of corrective measures falls upon those countries.⁴⁰

The interconnectedness of the global ecosystem and all its parts will often make it difficult to distinguish between actions relating to the environmental health of the international commons and those confined to the environment of only one nation, whether or not the benefits can be readily identified. However, examples can be cited of measures that clearly apply to the international commons, e.g. the establishment of a monitoring station to measure the quality of the atmosphere, the creation of a national park or wildlife reserve of special international significance, or agreement to control the flow of effluents into a common water body. Such actions should be eligible for international financing - if the immediate costs of instituting such measures exceed the immediate benefits to the country emanating from such measures. Voluntary curbs on the

catch of a depleted fish stock might also be included, although measuring the losses incurred would be difficult. This leads to the interesting possibility of international environmental extortion, where, for example, a country demands payment not to dump nuclear wastes in the sea or decimate a valuable endangered species.

(ii) It is often difficult to trace the pathway of environmental damage and thereby link cause to effect. Although the discharge of effluents can be measured and regulated to meet specified standards, their influence on the quality of the international commons and subsequently on third parties is difficult, if not impossible, to determine. Any action to preserve or improve the environmental health of the international commons should thus be subject to additional funding. Reimbursement should, in principle, be available to all nations, and should be drawn from a fund established for the purpose. Assessments, however, should be calculated to place the financial burden upon the industrialized countries. Income for the fund could be based on a formula recognizing the proportional contribution to global pollution of those assessed. Alternatively, it could be funded through an automatic system of financing, such as an international levy on the maritime transport of petroleum. Such a specific measure would serve to internalize the costs of contaminating the international commons, in this case, the world's oceans. Preliminary studies commissioned by the United Nations Environment Programme indicated annual revenue from taxes on the maritime transport of petroleum would amount to as much as \$100 million annually. The design of such financing systems would be simple to administer, automatically operating, and consistent with the principles of internalizing costs and of additionality.

In conclusion, components included within development projects to safeguard the environment must be viewed in terms of the local, national and international levels. By broadening the geographic perspective within which benefits are evaluated, the additional costs associated with the environmental component of a development project can be readily justified. At the local level, what have earlier been qualified as "internal corrective" and "internal control" actions are quite easily justified as financially sound. Both costs and benefits are internal to the project and are accommodated by standard accounting practices. Environmental action is justified within the objectives of the project itself. However, when benefits external to the project are involved, the framework for analysis and the accounting procedures used to evaluate all costs and benefits must be extended to the national level. Here, environmental action is justified by

arguments for the optimum management of the nation's resources. Finally, at the international level, although benefits of environmental measures to the global ecosystem can be readily identified, national resources and priorities cannot often justify such measures, particularly when disruption of the global ecosystem is due primarily to the industrialized nations, and additional financing from the international community is therefore required.

CHAPTER 4

APPLICATION OF THE PRINCIPLE OF ADDITIONALITY AT THE LEVEL OF ADDITIONAL RESOURCE FLOWS

As well as the aspects just considered, the concept of additionality has also taken on a broad meaning. Instead of being restricted to the additional funding of environmental measures introduced into individual development projects, it has also come to mean the transfer of funds, additional to existing ODA commitments, to meet the pressing environmental priorities of the developing countries. These, as has been mentioned, relate to a different set of environmental problems from those generally encountered by the developed countries. They include housing shortages, soil depletion and erosion, and water supply deficiencies. They lie at the heart of the development process.

The solution to such problems is the eradication of poverty and disease, which is the goal for both development and environment efforts in the developing countries.

The task is overwhelming, and the resources required are staggering. The combined gross national product of the developing world approaches half a trillion dollars; the flow of financial resources to developing countries from the industrialized world now exceeds 15 billion dollars. And these resources together have only begun to attack the basic problems confronting the development of the Third World. They, in fact, represent on a per caput basis less than one tenth of those available for development of the industrialized world. Additional resources are therefore required, and the environment is viewed by many developing countries as a possible new source of funds.

But does this broader meaning of additionality have any realistic application? Is it realistic to expect that funds additional to present ODA commitments will be forthcoming to meet the environment/development priorities of the Third World? Will the environment succeed in accelerating the flow of resources to the developing countries when development has failed? Three questions require attention: (a) What additional sources of funding are available? (b) Through which channels would they be

directed? (c) Toward which problems would they be addressed?

It must first be acknowledged that, as justified as many expectations might be, the possibility for any significant increase in the flow of resources appears slim indeed. Support in several donor countries for development assistance efforts is waning. The flow of American ODA, for example, is projected to decrease from 0.31 per cent of GNP in 1970 to 0.24 per cent of GNP in 1975.⁴¹ To label the same problems as environmental rather than developmental, in order to solicit new funds, will most likely not prove very convincing.

Nevertheless, additional funding could be provided from a variety of sources: the UNDP Voluntary Fund; bilateral or multilateral financial assistance institutions; grants by private voluntary agencies; the multinational corporations; an automatic system of financing; distribution of Special Drawing Rights; income that may be derived from resources of the proposed Seabed Regime; a proposed Human Settlements Fund; or the Fund of the United Nations Environment Programme. Some of these are speculative and long-term; others are clearly unlikely. For each, the measures eligible for additional funding, and the criteria for their selection, would differ. Most worthy of attention here are the final two - the Human Settlements Fund and the Fund of the United Nations Environment Programme - both of which were the subject of considerable discussion before, during, and after the Stockholm Conference.

A. The Human Settlements Fund

Human settlements pose some of the most urgent environmental problems for the Third World: inadequate water supply and transportation, deficient housing, and poor sewage and waste disposal. The developing countries concentrated their efforts during the Stockholm Conference on obtaining new funding for these compelling priorities. A fund for human settlements was initially proposed by India and Libya and was ultimately adopted by the Conference after considerable debate as Recommendation 17, by a vote of 50 for, 15 against, and 3 abstentions:

It is recommended that Governments and the Secretary-General take immediate steps towards the establishment of an international fund or a financial institution whose primary operative objectives will be to assist in strengthening national programmes relating to human settlements through the provision of seed capital and the extension of the necessary technical assistance to permit an

effective mobilization of domestic resources for housing and the environmental improvement of human settlements.⁴²

During the twenty-seventh session of the UN General Assembly, the financing of human settlements efforts was again debated. Resolution 2999 (XXVII), adopted by a vote of 93 to 5, with 27 abstentions, supported the establishment of an international fund or financial institution as outlined in UNCHE Recommendation 17. In addition, Resolution 2998 (XXVII), approved by a vote of 96 to 0, with 29 abstentions, recommended that the development assistance agencies give high priority to the needs of housing and human settlements. Finally, the First Session of the Governing Council of UNEP noted both of the above resolutions and called for their implementation.⁴³

The developing countries insist that some explicit recognition of, and response to, their environmental problems be given. The proposed Human Settlements Fund was suggested as a mechanism to meet such demands. The environmental problems of the Third World are rooted in poverty; and their solution rests in the accelerated flow of resources. A fund was therefore called for to channel these resources toward their most pressing environmental problems - human settlements. Resources, more than expertise, are now required to meet housing needs. For example, Latin America is expected to be facing in 1975 a deficit of some 43 million housing units - double the estimated 1960 deficit - despite the construction of public sector housing at annual rates approaching 300,000 units in 1967. Seed money to initiate national programmes was demanded at the Stockholm Conference. If the industrialized countries did not agree to such a fund, argued the developing countries, then their most urgent environmental needs would be ignored. To ignore these problems would be to deny the supposed unity of development and environment.

The industrialized countries have not agreed to such a fund. When the proposal was in the committee stage at Stockholm, all potential donors either abstained or voted against the resolution, and the proposed fund therefore seems likely to gain little effective support. The developed countries argued that, despite the importance of human settlements problems, a fund would detract from the proposed Environment Fund and divert the present thrust of international environmental action. In addition, they claimed that institutional mechanisms already existed to deal with such problems and should be used. In fact, at issue was the nature of development assistance itself. Should the transfer of resources be addressed to the direct

or indirect improvement of human welfare? Can welfare benefits be transferred directly or must they emerge from development of the appropriate infrastructure? Should, as the United Kingdom representative insisted at Stockholm, housing problems be solved through straight economic development and all international assistance efforts be directed to increasing the productive capacity of the developing world? Or should funds also be transferred to meet immediate as well as future social welfare needs? For the moment, some of the international lending institutions can be expected to increase gradually their present investments in housing, water supply and sewage facilities. For example, the Inter-American Development Bank, at the time of Stockholm, had already extended 86 loans during the past decade for water supply and sewage projects valued at more than \$1.2 billion; and the World Bank is expected to finance from 1972 to 1976 urbanization projects of about \$700 million in some 30 urban centres. These institutions should be encouraged to increase their financing to such environmental priorities. It must be recognized that such funds are unlikely to be additional to the international development efforts that would have been initiated irrespective of the recent environmental concern. On the other hand, however, the establishment of an independent fund for human settlements also seems remote.

B. The Fund of the United Nations Environment Programme

The Stockholm Conference adopted an Action Plan of 109 Recommendations relating to a full range of environmental concerns: from genetic resources conservation to an early warning system for natural disasters; from the monitoring of atmospheric pollution to the promotion of public information on the environment; from the study of adverse trade effects to support for waste disposal systems. To finance this comprehensive group of activities, the Conference provided for an Environment Fund. This Fund was the end result of some two years of discussions to identify an appropriate instrument to finance international environmental actions. The size of the Fund - \$100 million over a five-year period - was suggested by President Nixon in a message to the United States Congress on 8 February 1972. Its scope was first discussed by the official conference document "International Organizational Implications of Action Proposals"⁴⁴ distributed in March 1972, and subsequently reviewed by the Fourth Session of the UNCHE Preparatory Committee. The draft resolution on "Institutional and financial arrangements for international

environmental cooperation" adopted at Stockholm recommended that:

In order to provide for additional financing for environmental programmes, a voluntary fund be established . . . to finance, wholly or partly, the costs of the new environmental initiatives undertaken within the United Nations system.⁴⁵

It further stipulated that the Fund be used to finance, inter alia, monitoring, assessment, data collection, environmental quality management, research, education, information exchange, and assistance to national institutions. The resolution on financial and institutional arrangements adopted by the UN General Assembly at its twenty-seventh session (Resolution 2997 (XXVII)) incorporated essentially the same provisions for the Environment Fund. As of the close of the General Assembly in December 1972, up to \$81.5 million had been pledged from Australia, Canada, Finland, France, Federal Republic of Germany, Japan, Netherlands, New Zealand, Sweden, the United Kingdom and the United States, and several other governments had indicated their intention to contribute amounts that would bring the total of the Fund close to the \$100 million goal.

Agreement has thus been reached to establish an Environment Fund; and its general scope and size have been delineated. But how it would serve the principle of additionality has yet to be answered.

(a) The United Nations System

A series of questions have been raised. How would the UNEP Fund be instituted within the United Nations system and how would it relate to ongoing and proposed programmes and projects? What influence would the UNEP Fund exercise over the environmental activities of the Specialized Agencies? How would differences be reconciled where mandates from the respective governing bodies conflicted? Would additional staff required by the Specialized Agencies for new environmental programmes be funded? Would existing programmes and projects be funded, and if so, which ones? On what basis would activities undertaken outside the United Nations system be funded and how would they be related to United Nations programmes? Are new programmes to be financed in their entirety or with seed money only? How would the Fund be used as an instrument of co-ordination and what problems might this cause?

Some indications have already been provided. The UNEP Fund would generally finance broad interdisciplinary programmes, cutting across the expertise of several Specialized Agencies. It would begin by funding activities that filled existing gaps and that yielded immediate and visible results. It would finance new environmental elements within existing United Nations programmes. It would act to stimulate programmes much broader than the elements it would finance. It would use seed money to catalyze or initiate a sequence of activities. It would thus fund comprehensive and integrated programmes, rather than individual projects, so as to maximize the impact of its investment. Through the directives of its Governing Council, whose members also make up the governing bodies of the Specialized Agencies, and through the leverage of the monies it controls, it would act to co-ordinate the environmental activities of the United Nations system. However, greater clarification of these points will be required before the UNEP Fund can be applied on a systematic and equitable basis.⁴⁶ How present and future United Nations programmes, many of which service primarily the interests of the developing countries, would be affected is of immediate relevance to the developing countries and to the principle of additionality.

(b) Eligibility

Again a series of questions arise. Toward what kinds of environmental problems will the UNEP Fund be directed? Is it to apply to the "pollution of poverty" as readily as to the "pollution of affluence"? Are the problems of housing in Latin America and pollution of the North Sea to be equally eligible? Are the interests of the developed and developing countries to be served alike? To what degree will the UNEP Fund respond to the additionality principle and which of the developing countries' problems will receive additional financing?

A most difficult and critical problem confronts UNEP and its Governing Council. It has inherited a definition of the environment which is virtually unmanageable. Encompassing the entire agenda of the Stockholm Conference, it is the result of a political process - the compromise of all participating nations. The success of the Stockholm Conference attests to its efficacy as a political tool, for it induced the interest and participation of all nations, despite great differences of problems, interests, and priorities. But the political debts must now be paid, and \$100 million over a five-year period constitutes a very small pocketbook. As a management tool, the definition of the environment applied at Stockholm is of little value. It touches the full spectrum of

environmental concerns, indicating few priorities and offering little guidance.

The UNEP Fund is called upon to finance the full range of initiatives envisaged in the Action Plan. UN General Assembly Resolution 2997 (XXVII) lists all of the functions it should consider and calls upon actions at all geographic levels, citing global, regional, and appropriate national measures. In June 1973, the UNEP Governing Council approved a preliminary set of programme objectives and priorities for the UNEP Fund. The definition of the environment was again guided more by political than substantive considerations. In a discussion of programme priorities for action by UNEP, 47 items were specifically cited.⁴⁷ These encompassed the full spectrum of recommendations adopted at Stockholm, ranging from agrochemicals to the transfer of technology, from reforestation to an International Referral System, from industrial location to housing designs. A small degree of selection had been made, however, and a number of items eliminated, including natural disasters, urban transport, fisheries management, integrated land-use planning and management, forest fire and disease, and the quantitative aspects of water management. However, whatever slight precision could be found in the original 109 Stockholm Recommendations was lost in the very general items upon which consensus was achieved at the Governing Council session. The same Governing Council session that outlined 47 items for priority action provided \$5.5 million to finance such action during 1973.

Attempts to establish criteria for the use of the UNEP Fund may prove inadequate. The criterion of ecological interdependence - distinguishing primary and secondary effects - would perhaps appear the most reasonable. But even this criterion allows for more scope than the Fund could ever accommodate and raises numerous political difficulties. Whether the criterion be the novelty, the universality, or the interdependence embodied in the action undertaken, it will suffer from imprecision and obscurity. Its application will be subjective and arbitrary. Such is the nature of the environment, which defies any systematic and ordered classification. Differences in stages of development and levels of environmental awareness make the task even more difficult.

Two and one half years after consensus on the Stockholm Agenda was originally achieved, the list of items requiring priority attention remains virtually intact. Such accommodation serves important political ends, but provides little operational guidance. If concrete action is to be taken, if specific projects are to be launched, if a

small budget of \$5.5 million is to be observed in the first year, then decisions must be made on which measures will be financed under the United Nations Environment Programme. These decisions should be taken soon, for politics must not be advanced at the expense of the environment.

Such decisions cannot result from any systematic attempt to establish criteria for use of the Environment Fund. This would be unrealistic and misdirected, for the environment does not permit a Cartesian approach. Instead, a pragmatic course must be pursued. This is the solution that has been followed thus far, and it can be expected to continue. In other words, the developing countries get a piece of the pie but not enough to antagonize the Fund's donors or to threaten their priorities. Priority components will be identified without ever defining too precisely the general framework. Programmes will be initiated without ever establishing specific criteria by which they are selected. Small pieces of the pie will be given out on a priority basis without ever deciding how the whole should be divided. This constitutes a most delicate political exercise. This is what Stockholm proved it could do best, but it must be done soon.

CHAPTER 5

CONCLUSION

That the developing countries should insist on the principle of additionality is thoroughly understandable. Most of the developing world has come to regard the environment as a new issue that, on the one hand, will lead to additional costs in the formulation of development projects and, on the other hand, gives emphasis to some of its oldest and most compelling development concerns (e.g. water supply, soil erosion, housing). In either case, the developing countries generally consider the solution to lie in the increased flow of financial resources. The incremental costs attached to some projects are viewed as unacceptably high; and the funds available for traditional environment/development concerns are regarded as unacceptably low. To meet both these needs, additional resources are called upon. The principle of additionality is thus invoked, demanding resources additional to current ODA commitments, in order to finance environmental measures undertaken by the developing countries. Such demands are not unreasonable, for they spring from very real needs.

However, the practical application of such a principle must be examined within the context of existing realities. First, at the project level and, second, at the level of overall development assistance, what arguments can be raised and what possibilities exist for additional funding?

1) Which environmental measures involving incremental costs to development projects should be eligible for additional funds? If the principle of "polluter must pay" (where all costs, long-term as well as short-term, indirect as well as direct, social as well as economic, are assumed by the unit responsible for such costs), plus the principle of "optimum natural resource management" (where environmental control measures will result in the best use of a country's resources over time) are both observed, then the separation of development and environment virtually dissolves. The interests of each are met, in the long term if not the short term, and it becomes difficult to argue the principle of additionality. The one clear instance, however, in which additional funds should be supplied by the international community occurs when a

developing country acts specifically to safeguard the environmental quality of an international common property resource, such as the oceans or atmosphere. For here it would be acting to preserve or enhance a resource already despoiled by others, i.e. the industrialized countries.

2) What additional financial sources are available to supplement existing ODA commitments in order to fund the environmental priorities of the developing countries? The needs are great and well justified, and every effort should be made to increase the flow of resources to the developing countries to serve these needs. The indications are, however, not encouraging. Although many sources can be suggested which might channel additional funds, very few seem likely to do so. Some, such as the international lending agencies, can redirect their resources to address more closely the environmental dimensions of the development effort, e.g. housing, water supply, reforestation, or soil conservation. But such efforts, although important, embody no additionality. The institution of an automatic system of financing, such as that proposed for the maritime transport of petroleum, represents an interesting but long-term possibility. The most immediate opportunity lies with the Fund of the United Nations Environment Programme, which the developing countries continue to view as an important potential source of additional financing. However, the Fund is only large enough to direct passing attention to the environmental priorities of the developing countries. Moreover, their share of the Fund's \$100 million is likely never to be clearly formulated, as any systematic attempt to establish criteria for the Fund's use would appear unadvisable. Instead, monies will most likely be allocated on a piecemeal basis, as the only politically acceptable means of dispensing resources from an inadequate fund. All parties have an interest, however, in assuring that the concerns of the developing countries be fairly represented in the programmes to be financed by the Fund and that the programmes be initiated as soon as possible.

NOTES

Chapter 1

1. The United Nations Conference on the Human Environment (UNCHE) was held in Stockholm from 5-16 June 1972. The Secretary-General of UNCHE was Maurice F. Strong, a Canadian. Representatives from 113 countries, observers from over 400 intergovernmental and non-governmental organizations, and more than 1500 representatives of press, radio and television were present. At the Conference, an Action Plan comprising 109 measures was recommended, a Declaration on the Human Environment was drafted, and a permanent organ within the United Nations to co-ordinate international environmental activities, with a US\$100 million Environment Fund for doing so, was proposed. These were all either acknowledged or approved at the twenty-seventh Session of the United Nations General Assembly, and the United Nations Environment Programme was subsequently established on 1 January 1973.
2. A Preparatory Committee of 27 nations, chaired by Ambassador K. Johnson of Jamaica, was constituted to provide policy guidance to the UNCHE Secretariat during the preparatory process. Four formal sessions were held: 10-20 March 1970, 8-19 February 1971, 13-24 September 1971, and 6-17 March 1972. The first, third and fourth sessions were held in New York, and the second session was held in Geneva.
3. The final Agenda for the Stockholm Conference included six principal subject areas:
 - I. Planning and Management of Human Settlements for Environmental Quality.
 - II. Environmental Aspects of Natural Resource Management.
 - III. Identification and Control of Pollutants of Broad International Significance.
 - IV. Educational, Informational, Social and Cultural Aspects of Environmental Issues.
 - V. Development and Environment.

VI. International Organizational Implications of Action Proposals.

Although Subject Area V, Development and Environment, focused on the specific concerns of the developing countries, their interests were also considered under all the other subject areas. Topics as diverse as water supply facilities and training in wildlife management, soil conservation and urban transport systems, pesticide use and early warning measures for natural disasters were taken up under various other agenda items, all being related to the concerns of the developing countries.

4. The Founex Panel, as it became known, was composed of 27 eminent economists, sociologists, and environmentalists. It undertook to assess the implications of the newly-founded environmental concern for the traditional development priorities of the developing world. The results of its deliberations were published in what came to be known as the "Founex Report": Panel of Experts on Development and Environment, Final Report of Meeting. See also the associated documents which include background papers to the panel and related articles:

Development and Environment (Founex, Switzerland, June 4-12, 1971), Mouton, The Hague.

"Environment and Development: The Founex Report" in International Reconciliation (published by the Carnegie Endowment for International Peace), No. 586, January 1972.

5. Founex Report (see Note 4), para. 4.17. The specific areas eligible for additional funding - environmental research, incremental costs of development projects attributed to environmental measures, and disruption of developing country exports due to decreased demand or new requirements arising from environmental concern in the industrialized countries - were cited more explicitly at the Founex meeting than at any subsequent forum. It is interesting to note that the last item relates to the disruption of international trade resulting from environmental measures, which later emerged as the principle of compensation. See The Concept of Compensation in the Field of Trade and Environment by Shadia Schneider-Sawiris, IUCN Environmental Policy and Law Paper No. 4 (Morges 1973).

6. Four regional meetings were held in 1971 under the auspices of the Environment Secretariat. They were convened by the Economic Commission for Asia and the Far East (17-23 August at Bangkok), the Economic Commission for Africa (23-28 August at Addis Ababa), the Economic Commission for Latin America (6-11 September at Mexico City), and the United Nations Economic and Social Office in Beirut (27 September - 1 October at Beirut).
7. Report of Regional Seminar on Development and Environment held at Beirut, Lebanon, on 27 September - 1 October 1971, organized by the UN Economic and Social Office in Beirut (UNESOB) in cooperation with the Secretariat of UNCHE. UNESOB Document ESOB/DE/1.
8. Report of the Seminar on Development and Environment held at Bangkok, Thailand, on 17-23 August 1971, organized by the Economic Commission for Asia and the Far East. UN Economic and Social Council Document E/CN.11/999, page 22.
9. Report of the First All-African Seminar on the Human Environment held at Addis Ababa on 23-28 August 1971, jointly sponsored by the Economic Commission for Africa and the UN Secretariat, Geneva. UN Economic and Social Council Document E/CN.14/532, para. 26.
10. Report of the Latin American Regional Seminar on Problems of the Human Environment and Development held at Mexico City on 6-11 September 1971, organized by UNCHE and the Economic Commission for Latin America. UN Economic and Social Council Document ST/ECLA/CONF.40/L.5/Rev. 1, para. 106.
11. Report of a Working Party on Environment Problems in Developing Countries held at Canberra, Australia, 24 August - 3 September 1971, convened by the Special Committee on Problems of the Environment (now Scientific Committee) (SCOPE), International Council of Scientific Unions (ICSU), with the support of the UNCHE Secretariat. It aimed to add to the economic focus of the Founex Panel a contribution from scientists concerned with the environmental problems confronting developing countries.
12. Report on the Third Session of the Preparatory Committee for the United Nations Conference on the Human Environment held at New York on 13-24 September 1971. UN General Assembly Document A/CONF. 48/PC/13, para. 107.

13. Declaration and Principles of the Action Programme of Lima adopted by the second Ministerial Meeting of the Group of 77 assembled at Lima, Peru, on 7 November 1971, UNCTAD Document TD/143. The Group of 77 originally referred to the initial 77 developing countries which participated in the inception of the United Nations Conference on Trade and Development (UNCTAD). The Group of 77, in which there are now nearly 100 members, meets periodically to discuss the interests of developing countries on issues to be considered in the various organs of the United Nations system.
14. UN General Assembly Resolution 2849 (XXVI) on Development and Environment (20 December 1971), para. 19 of the Preamble.
15. "Additional" Financing for the Developing Countries for Environmental Progress. Progress Report by the Secretary General of the United Nations Conference on the Human Environment, UNCHE Document A/CONF. 48/CRP.1, para. 6.
16. Report of the Fourth Session of the Preparatory for the United Nations Conference on the Human Environment held at New York on 6-10 March 1972. UN General Assembly Document A/CONF. 48/PC/17, para. 69.
17. Report on the Impact of Environment Policies on Trade and Development, in particular of the Developing Countries by UNCTAD Secretariat for the Third Session of UNCTAD, Santiago, Chile, 13 April - 21 May 1972. UNCTAD Document TD/130, especially paragraphs 51-56.
18. Report of the Third Session of the United Nations Conference on Trade and Development held at Santiago, Chile, 13 April - 21 May 1972. UNCTAD Document TD/178, paragraphs 268-281.
19. Report on Environment and Development by Secretary-General of UNCHE. UN General Assembly Document A/CONF. 48/10, page 7.
20. Report of the United Nations Conference on the Human Environment held at Stockholm on 5-16 June 1972. UN General Assembly Document A/CONF. 48/14.
21. UN General Assembly Resolution 3002.(XXVII) on Development and Environment (15 December 1972), operative paragraph 4.

22. Whether or not such actions were truly additional, however, could not be determined until the 0.7 per cent Official Development Assistance (ODA) target was fully met and all additional commitments could then be identified. Alternatively, the legislative process by which funds for international environment action were appropriated could be examined to determine whether such funds were, in fact, additional. For example, the United States legislative process lends itself to this kind of analysis. The United States contribution of \$40 million to the United Nations Environment Fund is to be authorized separately by the U.S. Congress as H.R. 6768, the United Nations Environment Program Participation Act of 1973. On 15 May 1973, the House of Representatives approved the bill, 266 for, 123 against, and 44 abstentions, thus authorizing appropriation of funds additional to traditional development commitments for international environmental measures. On 8 June 1973, the Senate approved the authorization, with amendments on a voice vote.
23. Report of the First Session of the Governing Council of the United Nations Environment Programme held at Geneva on 12-22 June 1973. Document UNEP/GC/10, Annex 1, page 9.

Chapter 2

24. The imbalances between population and GNP are strikingly illustrated in two charts, one showing the world in 1980 drawn in terms of millions of inhabitants, and the other in terms of national revenue prepared by Godfrey N. Brown to illustrate an inaugural lecture at the University of Keele, United Kingdom, entitled "Towards an Education for the 21st Century - A World Perspective".
25. Address to the Board of Governors by Robert McNamara, President World Bank Group, Washington, D.C., 25 September 1972, page 21.
26. The Founex Report very rightly described as environmental a wide range of problems falling within the traditional concerns of the Third World - from water supply to soil conservation, from sewage control to deforestation. These broader aspects of the environment gained such impetus that they dominated the UNCHE Agenda and Action Plan, and the list of priorities emerging from the First Session of the UNEP Governing Council.

Chapter 3

27. The examples which follow are drawn from Survey of Pollution Control Cost Estimates Made in Member Countries, Environment Directorate, Organization for Economic Co-operation and Development (OECD), Paris, 1972. In addition to such aggregate figures, costs by individual products, industries, pollutants, and media are also under study.
28. The Economic Impact of Pollution Control; a Summary of Recent Studies, prepared for The Council on Environmental Quality, Department of Commerce, and Environmental Protection Agency; Washington, D.C.: U.S. Government Printing Office, March 1972.
29. A valuable compilation of environmental problems arising from developments projects is: The Careless Technology; Ecology and International Development; John Milton and Taghi Farvar, eds., Garden City, New York: The Natural History Press, 1972.
30. Environmental cost and benefits must be regularly incorporated into the decision-making process. This requires new methods of economic analysis at both the micro and macro levels. A sample of the literature includes:

Problems of Environmental Economics; OECD: Paris, 1972;

Political Economy of Environment: Problems of Method; The Hague: Mouton, 1972;

Proceedings of International Symposium on Environment Disruption: A Challenge to Social Scientists; Shigeto Tsuru, ed.; Tokyo: International Social Science Council, 1970;

The Economics of Environment; Peter Boyn and Allen Kneese, eds.; New York: Macmillan, 1971;

Economics and the Environment: A Materials Balance Approach; Ralph d'Arge, Robert Ayres, and Allen Kneese; Baltimore: Johns Hopkins Press, 1970;

ECE Symposium on Problems relating to the Environment; United Nations Doc. ST/ECE/ENV/1, 1971, pages 258-302; United Nations Research Institute on Social Development, Report No. 7, Geneva, April 1966.

31. The "pareto criterion", named after the Italian sociologist and economist Vilfredo Pareto (1848-1923), stipulates that overall welfare will have improved if you can make at least one person better off without making someone else worse off.
32. The World Environment and the World Bank; World Bank Group: Washington, D.C., June 1972, page 12.
33. Ibid., pages 12-13.
34. See Ecological Principles for Economic Development; Dasmann, R.F., J.P. Milton, P.H. Freeman; London: John Wiley and Sons, 1973.
35. Literature on environmental criteria in development project analysis includes:
 - a technical series, TA/OST/71, 1-4, prepared by the Office of Science and Technology, Agency for International Development, Washington, D.C.;
R.F. Dasmann, J.P. Milton, P.H. Freeman (see Note 34);
 - A Procedure for Evaluating Environmental Impact, U.S. Geological Survey Circular 645; Washington, D.C.: U.S. Government Printing Office, 1971;
 - L'environnement; contribution à la théorie de la planification; O. Godard and P. Lagadec; research study prepared for the Ecole Pratique des Hautes Etudes, June 1972;
 - Environmental Aspects of World Bank Projects: Some Questions and Answers; The World Bank: Washington, D.C., 1972;
 - Environmental, Health and Human Ecologic Considerations in Economic Development Projects; World Bank Group: Washington, D.C., 1972.
36. The address given by Robert McNamara to the Stockholm Conference on 8 June 1972, contains some examples of projects financed by the World Bank in which environmental safeguards were introduced.
37. Environmental Aspects of World Bank Projects: Some Questions and Answers (see Note 35); page 4.
38. C.S. Russell and H.H. Landsberg, "International Environment Problems - A Taxonomy", Science, 25 June 1971.

39. See Report cited in Note 20.

40. UN General Assembly Resolution 2849 (XXVI), (see Note 14), para. 9 of Preamble.

Chapter 4

41. See address cited in Note 25, page 21.

42. See Report cited in Note 20.

43. See Report cited in Note 20, Annex I, page 7.

44. Report of the Secretary-General to the Fourth Session of the Preparatory Committee to the United Nations Conference on the Human Environment, UNCHE Document A/CONF./PC/15, page 23.

45. See Report cited in Note 20.

46. Reference on this point should be made to the general decision on the UNEP Fund taken by the Governing Council of UNEP at its First Session, 12-22 June 1973. In particular, refer to the Report cited in Note 20. Article VI, No. 5 of Annex I, states that the "Executive Director, on behalf of and under the authority of the Governing Council, shall approve projects within the apportionment of resources of Fund Programme Activities, and allocate for such projects within the approved Fund Programme".

47. See Report cited in Note 20, Annex I, pages 5-11.

The International Union for Conservation of Nature and Natural Resources (IUCN) is an independent international body, formed in 1948, which has its headquarters in Morges, Switzerland. It is a Union of sovereign states, government agencies and non-governmental organizations concerned with the initiation and promotion of scientifically-based action that will ensure perpetuation of the living world - man's natural environment - and the natural resources on which all living things depend, not only for their intrinsic cultural or scientific values but also for the long-term economic and social welfare of mankind.

This objective can be achieved through active conservation programmes for the wise use of natural resources based on scientific principles. IUCN believes that its aims can be achieved most effectively by international effort in co-operation with other international agencies, such as Unesco and FAO.

The World Wildlife Fund (WWF) is an international charitable organization dedicated to saving the world's wildlife and wild places, carrying out the wide variety of programmes and actions that this entails. WWF was established in 1961 under Swiss law, with headquarters also in Morges.

Since 1961, IUCN has enjoyed a symbiotic relationship with its sister organization, the World Wildlife Fund, with which it works closely throughout the world on projects of mutual interest. IUCN and WWF now jointly operate the various projects originated by, or submitted to them.

The projects cover a very wide range from environmental policy and planning, environmental law, education, ecological studies and surveys, to the establishment and management of areas as national parks and reserves and emergency programmes for the safeguarding of animal and plant species threatened with extinction, as well as support for certain key international conservation bodies.

WWF fund-raising and publicity activities are mainly carried out by National Appeals in a number of countries, and its international governing body is made up of prominent personalities in many fields.