



UNITED NATIONS
GENERAL
ASSEMBLY



Distr.
GENERAL
A/35/396
17 September 1980
ORIGINAL: ENGLISH

Thirty-fifth session
Item 61 (k) of the provisional agenda*

DEVELOPMENT AND INTERNATIONAL ECONOMIC CO-OPERATION
Study on financing the United Nations Plan of Action
to Combat Desertification
Report of the Secretary-General

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Study on financing the United Nations Plan of Action to Combat Desertification prepared by a group of high-level specialists in international financing convened by the Executive Director of the United Nations Environment Programme pursuant to General Assembly resolution 34/184

* A/35/150.

I. INTRODUCTION

1. This report is submitted in response to paragraph 7 of General Assembly resolution 34/184 of 18 December 1979. In that resolution, the Assembly, inter alia, expressed concern over the lack of financial resources for implementing the Plan of Action to Combat Desertification and requested the Secretary-General, in consultation with the Governing Council of the United Nations Environment Programme (UNEP), to submit a report on this subject to the General Assembly at its thirty-fifth session. The Assembly specified that the report should be based on a study prepared by a group of high-level specialists in international financing convened by the Executive Director of UNEP.

2. In accordance with the consultations called for under resolution 34/184, the Executive Director, on behalf of the Secretary-General, presented a note to the Governing Council at its eighth session (UNEP/GC/8/6/Add.1). The note described the arrangements for the preparation of the study by the high-level specialists and presented an annotated outline of what the study would involve, based on paragraph 7 of resolution 34/184. The procedures proposed were approved by the Governing Council in its decision 8/17 of 29 April 1980.

3. The Executive Director convened the group of high-level specialists at Geneva from 21 to 25 July 1980. The group reviewed and adopted a draft of the study prepared by a core group of its members, assisted by a secretariat made available by the Executive Director of UNEP. The study is annexed as part of this document and commended to the General Assembly for its consideration and action.

II. BACKGROUND OF STUDY

4. The question of financing the Plan of Action to Combat Desertification was first considered at the United Nations Conference on Desertification (A/CONF.74/36, chap. I), which met at Nairobi from 29 August to 9 September 1977. The Plan, which contains 28 recommendations for combating desertification, called for specific measures for the mobilization of capital resources essential for its implementation. These included recommendations for increased subregional co-operation and bilateral, multilateral and multi-bilateral assistance; the establishment of a consultative group of donor Governments and organizations and developing countries to mobilize resources for specific projects; the establishment of a special account which would draw its resources, inter alia, from Member States, international taxation, donations, multilateral financing institutions and interest-free loans; and additional measures of financing, including fiscal measures entailing automaticity, which should be the subject of a study by a group of high-level experts in international financing.

5. In its resolution 32/172 of 19 December 1977, the General Assembly approved the Plan of Action and, in paragraph 13, invited the Governing Council to have the study on additional measures prepared and submitted to the General Assembly at its thirty-third session, through the Economic and Social Council. The study prepared by the UNEP expert group on additional measures (UNEP/GC/6/9/Add.1) extensively discussed the need for additionality and automaticity in the financing of

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desertification control programmes and of development in general. It was made available to the General Assembly at its thirty-third session with a note by the Secretary-General (A/33/260). In its resolution 33/89 of 15 December 1978, the General Assembly, inter alia, requested the Secretary-General to solicit the views of Governments on the study on additional measures and to report to the General Assembly at its thirty-fourth session.

6. The Secretary-General submitted the requested report (A/34/575) to the General Assembly at its thirty-fourth session. In its resolution 34/184 of 18 December 1979, the General Assembly, inter alia, took note of the report and requested the Secretary-General, in consultation with the Governing Council of UNEP, to submit to the General Assembly at its thirty-fifth session the present report, which it specified should be based on a detailed study of this question by a group of high-level specialists in international financing to be convened by the Executive Director of UNEP.

7. It will be seen from the foregoing that the present report and the accompanying study by the group of high-level specialists are part of a continuing quest for solutions to the problem of financing the Plan of Action, including proposals for automatic measures of financing, which originated during the Conference on Desertification and were discussed by the General Assembly at its thirty-second, thirty-third and thirty-fourth sessions.

III. SUMMARY OF THE STUDY

8. The study is divided broadly into three parts:

- (a) An inventory of new means of financing involving automaticity proposed in the United Nations system (chap. I);
- (b) A financial plan and analysis outlining the components and costs of a programme for combating desertification, identifying what is already being financed and what additional resources may be required (chap. II); and
- (c) Analyses and recommendations for mobilizing the resources required under the financial plan (chaps. I, III, IV, V and VI).

A. Inventory of new means of financing involving automaticity proposed in the United Nations system (part one)

9. This inventory has been prepared in response to the request in paragraph 7 (a) of General Assembly resolution 34/184 for "a complete inventory of relevant ideas and proposals put forward in the United Nations system of possible new ways and means to finance programmes of multilateral organizations at the world level, additional to regular assessed budgets and conventional extrabudgetary resources". The inventory presented in the study is the first of its kind, and the most comprehensive and up-to-date at the time it was completed.

10. The inventory shows that, although the United Nations Conference on Desertification was the first United Nations forum in which the subject of international taxation and automaticity were discussed, ideas for generating international revenues on automatic bases have been of long standing within the United Nations. The inventory describes proposals for international taxation; revenues from the use of the "international commons"; income from military taxes and savings from disarmament; monetary measures such as a special drawing rights (SDR)-development link and a link between gold sales and development; commodity price stabilization mechanisms and orderly commodities development; and other, miscellaneous proposals. The inventory also deals with proposals concerning the related considerations of the mechanism for the mobilization of resources, burden sharing and the allocation of the proceeds. Finally, it contains a brief evaluation of the proposals presented.

11. The evaluation of the proposals contained in the inventory may be divided broadly into three categories:

- (a) Measures involving automaticity which have already been carried out and shown to be feasible, have been approved, or are nearing approval, e.g., the establishment of a trust fund from International Monetary Fund gold sales for assistance to developing countries; the agreement to establish the Common Fund with two "windows"; and various proposals made at the Third United Nations Conference on the Law of the Sea to use for international purposes revenues from the deep ocean bed and parts of continental shelves more than 200 miles from shore;
- (b) Proposals which, at least prima facie, appear feasible and merit detailed, action-oriented feasibility studies; e.g. international taxation, the SDR-development link and "parking" fees for satellites in geosynchronous orbit; and
- (c) Proposals, the implementation of which does not at the moment appear on the horizon. Some of these proposals may be aimed too far into the future or at present seem impractical. Others deserve further detailed studies and concerted efforts by the international community to advance their eventual development, e.g. disarmament and development, and military taxation, even if it is unrealistic to expect agreement on the proposals at the moment. 1/

1/ Pursuant to General Assembly resolution 34/200, the Secretary-General, in close co-operation with the United Nations Conference on Trade and Development, the International Labour Organisation and other relevant United Nations bodies, is preparing a study on the feasibility of the establishment of an international labour compensatory facility which will be presented to the General Assembly at its thirty-sixth session. In addition, the Group of Government Experts on the Relationship Between Disarmament and Development has commissioned 45 research projects in areas where disarmament could have a catalytic impact on development. The final report will be submitted to the General Assembly at the second special session on disarmament, which will be held in 1982.

12. The study notes that in the final analysis the prospects for the adoption of the proposals described in the inventory depend not so much on technical feasibility as on the political will of the Member States to whom the study is addressed.

B. Financial plan for combating desertification
(programme and budget) (part two)

13. The financial plan, contained in chapter II of the study, outlines the components and costs of a programme for combating desertification, identifying what is already being financed and what additional resources are needed as specified in paragraph 7 (b) of General Assembly resolution 34/184. The chapter contains original data and estimates - the only ones of their kind available to date - on areas affected by desertification, by country and type of land use. These estimates indicate that 3.3 billion hectares, or 80 per cent, of the world's total irrigated land, rangeland and rainfed cropland (4.1 billion hectares) in arid and semi-arid areas are affected by desertification. About 660 million people live in these areas, and 62 million are immediately threatened by the loss of the productivity of the lands and their sources of livelihood. The proposed programme calls for corrective measures covering all irrigated lands, 70 per cent of rainfed croplands and 50 per cent of rangelands in arid and semi-arid areas affected by desertification. It also calls for stopping the encroachment of moving sand dunes in critical areas.

14. Assuming that the programme is to be carried out over a 20-year period, which is in line with the long-term goal of the Plan of Action to be implemented by the year 2000, it is estimated that the cost would be in the region of \$US 90 billion, or roughly \$4.5 billion on an annual basis. In developing countries which, in the opinion of the group, require external financial assistance on the basis of their per capita incomes, balance-of-payments and the seriousness of the problem of desertification, the estimated costs are in the order of \$48 billion for the period, or \$2.4 billion, annually. These estimates do not cover the costs of other essential measures contained in the Plan of Action which cannot be quantified at present. These other measures include monitoring and the generation of alternative livelihood systems for pastoralists and alternative sources of energy, especially where over-grazing and the cutting of fuel wood are a cause of desertification and no alternatives currently exist. While the cost of the programme appears high, the study also notes that, under present conditions, (a) the current annual loss of production due to past desertification, which is reflected in the reduced productivity of the land at present affected by desertification, is in the order of \$26 billion, of which \$12 billion is incurred by developing countries requiring external financial assistance; and (b) over 20 million hectares, of which 9.8 million are in developing countries requiring external financial assistance, deteriorate annually to levels at which they yield zero or negative net returns.

15. Rough estimates of current expenditures for combating desertification have been prepared from data on assistance from the Organisation for Economic Co-operation and Development, the Organization of the Petroleum Exporting Countries (OPEC), the regional development banks, the World Bank, the International Fund for Agricultural

Development and other United Nations agencies, as well as from samples of national projects. These indicate annual expenditures in the region of \$500 million from external sources and \$59 million by national Governments of developing countries which the group considers should receive external financial assistance. The study concludes that an amount of at least \$1.8 billion of additional resources are required annually under the financial plan to implement the minimum programme in these countries.

C. Mobilization of resources under the financial plan (part three)

16. To meet the additional requirements estimated under the financial plan, the study proceeds to examine some of the methods of mobilizing resources as identified by the General Assembly in its resolution 34/184. These supplement the existing institutional arrangements for financing the Plan of Action established by the General Assembly, the UNEP Governing Council and the Executive Director, which include a special account, the Consultative Group for Desertification Control, the co-ordinating role of UNEP within the United Nations system, the responsibilities of the United Nations Sudano-Sahelian Office on behalf of UNEP in the Sudano-Sahelian region, and the reliance on other existing multilateral and bilateral assistance agencies. 2/

17. Chapter III of the financing study deals with the methods of mobilizing local resources, such as strengthening tax systems, the promotion of viable commercial schemes, the injection of catalytic external resources and national development financing institutions. On the basis of analyses of their domestic fiscal capacities, however, the chapter shows that in most developing countries affected by desertification, the potential for mobilizing local resources is limited.

18. Chapter IV deals with methods of mobilizing external funds, noting that the overwhelming portion of resources in developing countries for combating desertification must come from external sources, although their effectiveness will depend on the recipient Governments as well. The chapter discusses foreign governmental sources as well as capital markets. While government bilateral programmes provide assistance on concessionary terms, desertification control projects would not normally be expected to attract funds from conventional capital markets. The chapter, however, analyses and presents suggestions for innovative, unconventional ways of raising funds from international capital markets by such means as guarantees of interest and principal, payment of parts of interest charges, advancing the amortization of loans and blending concessionary and non-concessionary funds.

2/ See the report by the Governing Council of UNEP, Implementation of the Plan of Action to Combat Desertification (UNEP/GC.8/6 and Corr.1 and 2 and Add.1 and Corr.1, Add.2 and Corr.1 and Add.3 and Corr.1), which is also being submitted to the present session of the General Assembly. The report describes the activities of the international community to implement the Plan of Action, including the problems of mobilizing sufficient resources.

19. In chapter V, an analysis is made of a proposed public international corporation for financing anti-desertification projects on non-commercial terms. Alternative means are examined of establishing the corporation, either as an independent institution, or as an affiliate or subsidiary of an existing financial institution or institutions such as the World Bank, the International Fund for Agricultural Development (IFAD) and the OPEC Fund.

20. Chapter VI discusses ways of enlisting the support of foundations in supporting anti-desertification research and training programmes. It contains a world survey of foundations, including their asset base, the number and volume of grants and their areas of interest. It suggests ways of enlisting their participation and support but indicates that, at best, foundations can be expected to provide only a small fraction of the total requirements estimated in the financial plan.

IV. CONCLUSIONS AND RECOMMENDATIONS

21. As can be seen from the study, desertification is one of the most serious social and economic problems facing the world today. Although desertification control projects may not necessarily generate early returns in the form of financial flows, their benefits are unquestionable. These include increasing food production, the halting of declining yields caused by land deterioration and the very prevention of the extensive loss of human life, abject poverty and the loss of livelihood systems. There are, furthermore, social and ecological benefits, including the protection and enhancement of a vital, life-sustaining part of the environment, which may not be readily quantifiable but which is essential to the well-being of the countries as a whole. Anti-desertification projects are concerned with such goals as agricultural improvement, rural development, food production, development of water supplies, development of cash crops and other goals which are among the priorities of development planners and decision-makers.

22. In view of the seriousness of the problem and the long-term nature of projects to combat desertification, there is a clear and immediate need for the international community to increase substantially the level of assistance to developing countries suffering from desertification. With the present system of international financing, which is based on fluctuating voluntary contributions on which there are many competing demands, there is also a need to establish new means of financing involving automaticity. 3/

23. The Secretary-General recommends that the General Assembly should actively explore the different approaches to generating additional funds described in the attached study, both those currently in practice and innovative means involving automaticity, with a view to meeting the considerable financial requirements for combating desertification.

3/ The subject of automaticity is also discussed in the report of the Director-General for Development and International Economic Co-operation, entitled "Some policy issues pertaining to operational activities for development undertaken by the United Nations system" (A/35/224), which is being submitted to the General Assembly at its present session, in accordance with General Assembly resolution 32/197 of 20 December 1977.

ANNEX

Study on financing the United Nations Plan of Action
to Combat Desertification

Prepared by a group of high-level specialists in international
financing convened by the Executive Director of the United
Nations Environment Programme pursuant to General Assembly
resolution 34/184

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INTRODUCTION

1. This study has been prepared by a group of high level specialists in international financing convened by the Executive Director of the United Nations Environment Programme in accordance with General Assembly resolution 34/184 of 18 December 1979. In that resolution, the General Assembly, inter alia, expressed concern over the lack of adequate financial resources for the implementation of the Plan of Action to Combat Desertification and, as part of its search for a solution to this problem, requested the Secretary General, in consultation with the Governing Council, to submit to the General Assembly at its thirty-fifth session a report on this subject. The General Assembly specified that the report should be based on a study prepared by a group of high-level specialists in international financing to be convened by the Executive Director and that the study should deal with the following:

(a) A complete inventory of relevant ideas and proposals put forward in the United Nations System of possible new ways and means to finance programmes of multilateral organizations at the world level, additional to regular assessed budgets and conventional extrabudgetary resources;

(b) A financial plan and analysis outlining the components and costs of a programme to stop further desertification and identifying what is already being financed and what additional resources may be needed to meet the minimum objectives of stopping the spread of desertification;

(c) Methods for the mobilization of domestic resources;

(d) The practicality of obtaining loans from Governments and world capital markets on a concessionary basis;

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(e) The feasibility of the creation of a public international corporation which would attract investments from countries as well as institutions and would provide financing for suitable anti-desertification projects with non-commercial rates of return;

(f) The means for encouraging the active participation of foundations in the financing of anti-desertification training and research programmes.

2. In accordance with the consultations called for under resolution 34/184, the Executive Director, with the concurrence and on behalf of the Secretary-General, presented a note to the Governing Council at its eighth session (UNEP/GC/8/6/Add.1). The Note informed the Governing Council of the arrangements which were being initiated for the preparation of the study by the high-level specialists and presented an annotated outline of what the study would involve, based on paragraph 7 of resolution 34/184. The procedures proposed were approved by the Governing Council in its decision 8/17 of 29 April 1980.

3. On the basis of the above, the Executive Director convened the group of high-level specialists in international financing at Geneva from 21 to 25 July 1980. The group considered and adopted a draft of the study prepared by a core group of its members, assisted by a substantive secretariat made available by the Executive Director of UNEP.

4. The order of chapters in the study is in accordance with the sequence of subjects as listed in paragraph 7 of resolution 34/184. In chapter I, which immediately follows, an attempt is made to present a complete inventory of all proposals and ideas presented in the United Nations system for financing programmes of multilateral

organizations additional to regular assessed budgets and conventional extrabudgetary resources. It should be noted that the inventory has been prepared according to a functional classification, rather than in order of importance. Various references have also been made to the report of the Independent Commission on International Development Issues under the chairmanship of Willy Brandt. The report, North-South: A Program for Survival (hereafter referred to as the Brandt Commission Report), was presented by the Chairman to the Secretary-General on 12 February 1980 and was distributed by the Secretary-General to all of the Permanent Missions to the United Nations. Following a request by the Group of 77 that the report be made part of the background documentation of the Preparatory Committee on a New International Development Strategy, the report was distributed by the Secretariat to the members of the Committee as reference material. The implications of the report are considered to be of such significance as to warrant the inclusion of the relevant recommendations in the inventory.

Summary of Findings

1. Three years ago, the United Nations Conference on Desertification adopted a Plan of Action to combat the loss of productive land to spreading deserts. Only limited, and quite inadequate, resources have been mobilized to carry out this plan. Desertification, with its serious social and economic consequences, continues to be a major world problem.
2. About one-third of the earth's land surface (excluding Antarctica) is arid or semi-arid. Eighty per cent of the agricultural land in arid and semi-arid regions is affected by desertification which progressively decreases the land's productivity. Every year over 20 million hectares of land deteriorate to the level at which they yield zero or negative net returns.
3. Over half of the land affected by desertification is in countries that appear able to finance their own anti-desertification programmes and pay for any technical assistance they may require. The rest of the affected land is in less favourably situated countries, including some of the poorest countries in the world. A programme designed to stop the further loss of productivity caused by desertification in these countries would require average annual expenditures on the order of \$1.5 to \$4 billion, with a medium estimate of \$2.4 billion over a period of 20 years. These expenditures would be devoted solely to the restoration of the productivity of affected land. Additional expenditures, which can

not now be estimated, would be required for other essential measures, such as providing alternative livelihood systems and sources of energy to the populations involved.

4. The financial plan to stop desertification presented in this study calls for restoring the productivity of 100 per cent of the affected irrigated land, 50 per cent of the rangeland, and 70 per cent of the rainfed cropland. Gains in productivity on irrigated land would compensate for the fact that restoration of productivity of all affected rangeland and rainfed cropland could probably not be justified on economic or social grounds.

5. Most of the funds required to carry out the financial plan would have to be raised externally. How much external assistance is available for combating desertification, as opposed to relief and general development, cannot easily be determined, but it is clearly not enough. Total external assistance involving desertification control has been estimated at about \$500 million in 1978.

6. A substantial part of the resources required in anti-desertification projects is domestic. It does not follow, however, that requirements for external assistance are correspondingly reduced. Income levels in many countries severely affected by desertification are very low. The fiscal capabilities of their governments are weak, and institutions for accumulating and investing savings are limited or non-existent. Expenditures by developing countries in 1978 to combat desertification were on the order of only about 10 per cent of total expenditures for that purpose, including external assistance.

7. Some domestic resources might be mobilized by increasing tax collections or diverting revenues from lower priority uses. And as the anti-desertification programme begins to produce results, charges can be levied on the use of land whose productivity has been increased. At best, however, the affected developing countries could be expected to raise only a small fraction of the funds needed to stop desertification.

8. In many countries, a large proportion of the domestic resources required for anti-desertification work -- principally labour -- can be mobilized only by an injection of foreign assistance. Transferring external resources into poor countries is not easy, however. One approach would be to provide goods to be sold on the local market and put the resulting proceeds in a special account to finance anti-desertification projects. Another method would be to ship in food to pay for labour on anti-desertification projects, as is done by the World Food Programme. Still another possibility is to organize joint enterprises to raise cash crops, including new varieties, suitable to areas with limited rainfall. It would be hoped that the foreign capital and technical assistance put into such enterprises would stimulate the investment of domestic capital.

9. As previously stated, the medium estimate of the average annual cost of the programme in support of the anti-desertification effort is in excess of \$2.4 billion, of which it has been estimated that about \$500 million is currently being provided from external

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sources not counting a number of essential measures whose cost cannot now be estimated. This leaves a requirement from external sources of about \$1.8 billion annually. The programme would be smaller in the early years of the effort than it would be later. Some of the most urgent requirements of the affected areas would, however, have to be met in the early years.

10. At first, requirements for external assistance will of necessity be met exclusively from conventional sources, principally grants and concessional loans from governments and international financial institutions. Experience with other assistance programmes indicates that obtaining grants and concessional loan funds will not be easy. As the scale of the anti-desertification effort grows, other sources of finance will have to be developed.

11. Some anti-desertification projects yield high rates of return that would appear to make them eligible for loans from international capital markets. However, the governments of the poor countries affected by desertification have little or no experience in international finance, and their ability to service foreign loans is limited, especially if the terms are not concessional. The services of an intermediary to gain access to capital markets and to arrange concessional terms would be necessary. The intermediary could be an existing institution, such as the World Bank or one of the regional development banks. If existing institutions are unwilling to increase their activities in the field of desertification

control, a public international corporation might be created specially to arrange financing for anti-desertification projects. The principal purpose of such a corporation would be to provide funds on highly concessional terms.

12. A public international corporation could be chartered independently by a group of interested governments, or it could be established as an affiliate of an existing institution. In the former case, the corporation could contract with one or more existing institutions for technical services on a reimbursable basis. If the corporation were an affiliate, it could be put under the board of directors of the parent institution, or it could be governed by its own board. An independent corporation would have to have its own board of directors. Members of the board might appropriately be drawn from both the countries subscribing equity capital and countries to which the corporation would make anti-desertification loans.

13. The ability of the corporation to borrow in capital markets could be assured if a number of industrialized and oil-exporting governments provided equity capital and guaranteed its obligations. The corporation could achieve concessional terms in its anti-desertification lending operations by blending money borrowed on commercial terms with grants and concessional loans from aid donors or with funds raised by one of the new means described in paragraphs 18-20 below. Alternatively, it could use grants, concessional loans, or new revenues to cover both its administrative costs and

and part of the interest charges on money borrowed in capital markets. Some of the corporation's equity capital could also be used for blending and to hold down interest rates charged on anti-desertification loans.

14. Borrowing in capital markets could be only a small part of the answer to the problem of financing the Plan of Action to Combat Desertification. The ability of the affected developing countries to service even concessional loans is limited. Moreover, the total volume of loans would be constrained by the guarantees that sponsoring Governments would be prepared to extend to cover borrowings in capital markets.

15. Grants from private foundations for research and training programmes have been suggested as an additional source of funds. Training and applied research are important parts of the effort to control desertification. Foundations are not now active in these fields, but it would be desirable to encourage their participation in the future. Governments that do not now do so, should be urged to provide tax incentives to private donors that could stimulate foundations to play a greater role in international training and research programmes. At best, however, foundations could be expected to provide only a small fraction of total financial requirements.

16. If an adequate anti-desertification programme is to be carried out, new means of finance will have to be found. When account is taken of future needs in the field of general development, the necessity of finding new means of finance is all the more compelling.

17. New means of finance should be administratively feasible, create no severe inequities, and possess a degree of automaticity. Among the many new financial measures that have been proposed in the United Nations system, several seem to meet these criteria. These measures are of three kinds: international financial measures, revenue from the exploitation of the international commons, and taxes on international trade. All of these measures are potential means of financing any recognized international need. Desertification control would be one important claimant to the funds that these measures would generate.

18. In the field of international finance, three measures deserve serious consideration: the resumption of gold sales by the International Monetary Fund (IMF), the creation of a link between the special drawing rights (SDRs) issued by the IMF and assistance to developing countries, and the establishment of a Common Fund to stabilize commodity prices.

(a) Between 1 July 1976 and 30 June 1980, the IMF sold 25 million ounces of gold and returned a similar amount of gold to its members. The profits of gold sales were put in a trust fund from which concessional loans were made to poor countries experiencing balance-of-payments problems. The IMF still holds approximately 100 million ounces of gold. If gold sales are resumed, the need to combat desertification should be made a factor to be considered in making loans from profits. If additional gold is returned to members, they should be encouraged to use part of it to finance anti-desertification projects.

(b) SDRs are issued only when the international monetary system requires additional liquidity, so they are not a reliable source of finance for anti-desertification projects or other international needs. Moreover, they are distributed in proportion to the quotas of IMF members, which results in their going largely to wealthy countries. SDRs could be made available to help poor countries for anti-desertification and general development in one or two ways. They could be distributed in accordance with a new allocation formula favouring those countries. Or they could be issued in whole or in part to an international institution that would make loans to poor countries for anti-desertification and other purposes.

(c) The recent Agreement to establish a Common Fund to stabilize the prices of commodities subject to international commodity agreements, could also benefit countries suffering from desertification. Those countries could apply for assistance from the Common Fund's "Second Window".

19. The international commons consist of the oceans beyond national jurisdiction and outer space.

(a) On the basis of discussions at the Third United Nations Conference on the Law of the Sea, the oceanic part of the commons can be divided into three zones: the area lying between 12 and 200 miles from shore, the continental shelf where it extends more than 200 miles from shore, and the deep ocean. The first two areas will probably be designated exclusive economic zones for exploitation by coastal States. Before legitimizing the claim of the coastal States

to the resources of these areas, it would be proper for the Conference to require that a fraction of revenues derived be made available for international purposes. At present, the Conference appears to be considering applying this requirement only to those parts of the continental shelf more than 200 miles from shore. Some of the revenues derived from exploiting the non-living resources of the deep ocean -- principally manganese nodules -- will probably be made available for international purposes, but it is difficult at this point to estimate how large those revenues will be.

(b) The only use of space that might be a source of revenue for international purposes in the near future is the "parking" of geostationary communication satellites in a narrow band circling the earth at the equator. This band is becoming crowded, and parking spaces may have to be allocated. If so, charges might appropriately be imposed for their use.

20. A general trade tax could be a powerful revenue-raising measure. A 0.5 per cent levy on the value of all international trade would yield about \$7 billion annually. Even after exemptions for very poor countries and adjustments for countries especially dependent on international trade, the revenue would be quite large. Smaller, but still substantial, revenues could be raised by imposing low taxes on trade in specific commodities, such as energy materials and exhaustible minerals.

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21. The co-ordination of the various sources of funds to finance the plan to combat desertification is a complicated problem. Some funds will flow directly from aid donors or international financial institutions to anti-desertification projects. Other funds will be channeled through the special account administered by UNEP to finance the Plan of Action to Combat Desertification, the United Nations Trust Fund for Sudano-Sahelian activities, or the public international corporation, if it is established. Any new, unconventional sources of finance would have to be allocated among various claimants by some existing institution, such as the World Bank or the United Nations Development Programme, or by a new institution created for the purpose. The funds from such new sources allocated to anti-desertification activities would then flow to projects directly or by way of the special account, the UNSO trust fund, or the public international corporation. Co-ordination and, if possible, simplification of these various financial arrangements would obviously be desirable.

CHAPTER I

Inventory of Means of Financing Involving Automaticity Proposed in the United Nations System

Background

1. While the proposed inventory of new ways and means to finance multi-lateral programmes other than "regular assessed budgets and conventional extra-budgetary resources" has been requested by the General Assembly as part of a special study on the financing of the Plan of Action to Combat Desertification, this section clearly has implications which go far beyond the subject under consideration in the Plan of Action. These implications touch on the fundamental question of the nature of development assistance itself, particularly its adequacy, reliability and predictability, all of which are affected by monetary factors.
2. In various fora, both within and outside the United Nations system, serious doubts have been expressed regarding the adequacy of conventional extra-budgetary resources for financing international as well as bilateral programmes. These resources take the form mainly of voluntary contributions. Although they have been a significant and effective source for financing development, it has been noted that this type of assistance is often tied and, being of a voluntary nature, is subject to the vagaries of national political conditions. As is well known, the generally accepted target of devoting 0.7 per cent of GNP to official development assistance is far from being reached, the actual percentage amounting to 0.34 per cent in 1979.

3. The question of assessed budgets as a source of financing multi-lateral assistance programmes has not been the subject of as extensive discussion as has development assistance, primarily because they are basically not intended for multilateral assistance but rather for the administrative and operating costs of international organizations. With the exception of the World Health Organization (WHO), only small percentages of assessed budgets are used for assistance programmes per se. It has also been noted, however, that even under a system of assessed budgets, the independence, operation and financial viability of the organizations of the United Nations system can also be subject to the vagaries of national political conditions, which is less likely to be the case if these organizations had independent sources of income.

4. In its request for "a complete inventory of relevant ideas and proposals of ways and means to finance programmes of multilateral organizations at the world level, additional to regular assessed budgets and conventional extrabudgetary resources", the General Assembly thus had in mind the need for a new approach to financing. During its seventh special session, the General Assembly had declared, in resolution 3362 (S-VII) of 16 September 1975, that the flow of concessional financial resources to the developing countries should be made "predictable, continuous and increasingly assured." The Plan of Action to Combat Desertification, which was adopted by the United Nations Conference on Desertification held at Nairobi from 29 August to 7 September 1977, had recommended a study of additional measures of financing, including "fiscal measures entailing automaticity" (paragraph 104(e), and the General Assembly, in approving the Plan of Action in its resolution 32/172 of 19 December 1977, specifically invited the UNEP Governing Council to have such a study prepared.

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5. Although numerous ideas and proposals have been made on this subject, the General Assembly has requested an inventory restricted to ideas and proposals put forward in the United Nations system. The inventory will therefore cover, except for references to the Brandt Commission report (see introduction paragraph 4), only those proposals and ideas which have been presented in the United Nations, including its principal organs, subsidiary organs and specialized agencies as well as United Nations conferences, expert groups, ad hoc committees and other fora held under the auspices of the United Nations system.

6. The subject of generating resources for financing international purposes on an assured and predictable basis is not new. In fact, it has surfaced recurrently in the United Nations system in various forms for some time now. For instance, the idea of compensatory financing or buffer stocking to stabilize commodity prices - involving automatic compensatory schemes - was examined within the United Nations system in the early 1950's in a report, "Commodity Trade and Economic Development" (E/2519) prepared by a Committee appointed by the Secretary-General at the request of General Assembly resolution 623(VII) of 21 December 1952, on the subject of fluctuations in the prices of primary commodities and their relation to the prices of capital goods and manufactured products. Similarly, the idea of the use of sea-bed resources "in the interests of mankind" was discussed extensively as early as 1967 by the General Assembly, which established an ad hoc Sea Beds Committee to pursue the matter. Ideas of generating international revenues on an automatic basis have thus been of long-standing within the United Nations system.

7. It was not, however, until the United Nations Conference on Desertification (UNCOD), which was held at Nairobi from 29 August to 9 September 1977, that the principle of "automaticity" as such in international financing was

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explicitly presented in a United Nations forum. The Secretary-General of the Conference and Executive Director of UNEP, in addressing the Conference's Committee of the Whole, noted that the implementation of the Plan of Action to Combat Desertification was a long-term process which required international assistance on a sustained, predictable and assured basis. In the deliberations that followed, this issue was extensively discussed, and the Plan of Action adopted by the Conference specifically requested that a study be undertaken of additional measures and means of financing for the implementation of the Plan of Action including "fiscal measures entailing automaticity". The concept of "automaticity" was put forward to distinguish it from the present general system of financing on a purely voluntary basis.

8. In view of the wide variety of proposals which have been made for automatic sources of financing, a classification of the proposals has been prepared, based on broad categories of fiscal measures involving automaticity. These broad classifications are: (a) international taxation; (b) income from the use of the "international commons"; (c) income from military taxes and savings from disarmament; (d) monetary measures such as a Special Drawing Rights (SDR) - development link and a link between gold sales and development; (e) commodity price stabilization mechanisms and orderly commodities development; and (f) other miscellaneous proposals.

9. It should be noted that as this is an inventory it includes all proposals and ideas regardless of their stage of advancement. Many of the proposals have been presented informally; others in the form of draft resolutions or resolutions adopted by the United Nations General Assembly, United Nations conferences or governing bodies of other United Nations entities.

In a few instances, the proposals are close to realization or have already been initiated. The inventory will attempt to summarize what is involved in each proposal or idea; where, when and by which party the proposal was made; the course and extent of its development, if any; estimates, where they have been made, of potential revenues; and any comments made in the presentation and consideration of the proposal concerning its practicability. A summary evaluation will also be made noting those proposals which seem most significant as well as feasible, attainable or closest to realization.

Inventory

I. International Taxation of Trade Flows: Revenue Taxes

10. Although various studies have been made within the United Nations since its founding on the subject of international taxation, including effects on foreign trade, investments, double taxation and other matters, the subject of taxing international trade flows as a source of revenue was not presented until the United Nations Conference on Desertification. As noted previously, the Secretary-General of the Conference, in an informal note to the Committee of the Whole on 1 September 1977, suggested that in view of the substantial resources required to combat desertification, the competing demands on available resources and the need for financing on a long-term, sustained and predictable basis, the Conference should look into innovative financing mechanisms involving automaticity, including international taxation. The types of taxation discussed in sections A, B and C that follow are mainly of the revenue kind, i.e., taxes designed for the sole purpose of raising revenues, rather than as incentives to alter behaviour.

A. General trade tax

11. As was noted previously, the first formal request by a United Nations entity for a study of a general international tax was made in the Plan of Action to Combat Desertification, which suggested the creation of a special account that would draw revenues from various sources, "including international taxation", and asked for a special study on fiscal measures entailing automaticity. Specific proposals for a general turnover tax, i.e. a tax on all trade transactions, were presented in the study prepared by the group of high-level experts convened by the Executive Director, entitled "Additional Measures and Means of Financing for the Implementation of the Plan of Action to Combat Desertification" (UNEP/GC.6/9/Add.1 of 4 April 1978) (hereafter referred to as the UNEP expert group on additional measures). The study noted that in 1978, total world trade should reach \$1,000 billion, and that a tax of only 0.1 per cent of the value of international trade would yield \$1 billion annually and would not, in itself, be a disincentive to world trade in view of its low rate.

12. The proposal for a general trade tax received an additional impetus from the Brandt Commission Report. The report noted that the volume of international trade had in 1979 reached \$1,300 billion, and that a small surcharge on imports would not be difficult to administer. It estimated that a 0.5 per cent levy on international trade would yield about \$7 billion annually.

B. Specific traded commodities

1. Oil - crude and refined

13. In addition to suggestions relating to a general trade tax, proposals have been made for revenue taxes on specific traded commodities. At the thirty-first session of the United Nations General Assembly in November 1976, the delegation of Saudi Arabia proposed a tax of \$0.01 per barrel of oil

(as well as a voluntary tax of 0.1 to 0.2 per cent on arms sales) to provide additional funds to meet global, environmental and other needs. The UNEP expert group on additional measures also suggested a general tax on the trade of crude and refined oil products, on the grounds that it was the largest single component of world trade, with a value of approximately \$130 billion in 1977. The UNEP study group noted that such a tax might encounter some resistance from oil-exporting countries, but that some support could be forthcoming if some acceptable formula were developed. The Brandt Commission also included a tax on internationally traded crude oil among the recommendations in its report. At the fourth session in February 1980 of the Preparatory Committee on a New International Development Strategy, the ACC Task Force on Long-Term Development Objectives also suggested oil exports among the possibilities for international taxation.

2. Other - exhaustible minerals

14. In addition to crude and refined oil products, proposals have been made for taxing other specific internationally traded commodities. The Brandt Commission has proposed, as other specific traded commodities which can be taxed, hydrocarbons and other exhaustible minerals.

C. Invisibles

15. In addition to taxing internationally traded commodities, proposals have been made for the taxation of "invisibles". The Brandt Commission has noted the possibility of levies on international invest-

ment, international air-travel and freight transport. It estimated that a 1 per cent levy on international passenger and freight transport would yield \$250 million per year, with a growth of 10 to 15 per cent per annum.

II. Tax on reverse transfer of technology

16. Under one form, this tax would involve placing additional income taxes on migrants and remitting the proceeds of this tax to their countries of origin, at least until the cost of their education was covered. It is not, in this respect, strictly a revenue tax but also a compensatory tax for the reverse transfer of technology, or "brain drain" from developing countries. These proposals were made by Professor J. N. Bhagwati for the Group of Governmental Experts on Reverse Transfer of Technology of UNCTAD in February 1978. At the International Labour Conference (sixty-third session, 14th (special sitting)) in June 1977, the Crown Prince Hassan bin Talal of Jordan, also proposed the establishment of an "International Labour Compensatory Facility" (ILCF) that would draw its resources principally from labour-importing countries, with the revenues diverted to developing labour-exporting countries in proportions related to the estimated cost of the loss of labour. The General Assembly, in resolution 34/200 of 19 December 1979, inter alia, requested the Secretary-General to carry out, in close co-operation with UNCTAD, the ILO and other relevant United Nations bodies, a study on the feasibility of the proposal for the establishment of an international labour compensatory facility and to submit a progress report to the General Assembly at its thirty-fifth

session and a final report at its thirty-sixth session.

17. A third United Nations forum in which a "brain drain" tax proposal was presented was at the United Nations Conference on Science and Technology held in Vienna in August 1979, which, at the initiative of the Group of 77, adopted as a part of the Vienna Programme of Action, a proposal for the mobilization of resources to be accrued from the "International Labour Compensatory Facility". The Programme of Action was endorsed by the General Assembly in its resolution 34/218 of 23 January 1980.

18. Taxation of the reverse transfer of technology will also be among the possible means of financing to be considered in a study by an Intergovernmental Group of Experts which will prepare a Financing System for Science and Technology for Development, as requested in General Assembly resolution 34/218. The group, which will hold an initial meeting from 11 to 15 August 1980, will submit the study to the Intergovernmental Committee on Science and Technology for Development, that will consider the study and make appropriate recommendations to the General Assembly at its thirty-sixth session for decision. It is envisaged that the Financing System will come into effect on 1 January 1982.

III. Tax on Surpluses in Balance of Trade

19. At the United Nations Conference on Science and Technology for Development, the Group of 77 also presented a proposal for contributions from developed countries which would be calculated on the basis of a percentage, to be determined at a later stage, of the average quinquennial surpluses of developed countries in their balance of trade in manufac-

tured goods with the developing countries. The revenues generated would be used to help finance the Vienna Programme of Action of Science and Technology for Development. The proposal originated at the Second Latin American Regional Preparatory Meeting for the Conference on Science and Technology for Development, held from 29 November to 1 December 1978 at Montevideo, Uruguay, by the Economic Commission for Latin America (ECLA).

IV. Consumption Taxes

20. According to this proposal, a tax would be levied on a limited number of goods, the possession of which indicated the attainment of a relatively high level of living by the purchasers, e.g., private aircraft and pleasure-boats, automobiles, television sets, refrigerators, washing machines and dishwashers. The contribution would be assessed at a low uniform rate of about 0.5 per cent on the purchase price of the item, and would be collected by the tax authorities of each country on their own responsibility. The revenues would be used for financing international development. The Governments would be able to choose the particular uses and would be considered to have fulfilled their pledges by submitting each year the receipts to international development organizations chosen by them from a list adopted by the General Assembly.

21. This proposal was discussed extensively by the Committee for Development Planning as a "World solidarity contribution" at its sixth session in January 1970 (ECOSOC, Committee for Development Planning,

Report of the Sixth Session; official records; 49th session, Supplement No. 7, E/4776). The Committee did not come to an agreement on the proposal and recommended that in view of the complexities of the problem, a study be undertaken as soon as possible of the feasibility of the proposal. To date, no such follow-up study has been undertaken. It may be noted, however, that the Brandt Commission has also presented a proposal for a tax on durable luxury goods.

V. Income from the Use of the International Commons

22. Another potential major resource for financing multilateral programmes lies in revenues from the exploitation of the "International Commons", i.e., those physical attributes of the universe which are not subject to national sovereignty and may be considered the common heritage of all mankind. One can include under this category much of the world's oceans, including the marine environment, outer space, telecommunications channels, the moon and Antarctica as well as parts of the continental shelves.

A. Ocean resources

23. The world's oceans cover 75 per cent of its entire surface and, as is well known, supply an enormous part of the world's resources—both living and non-living.

1. Living

24. Most of the world's oceans lie beyond national jurisdiction, and with their living resources as well as the right of passage, have

been considered under International Law as the "High Seas". They are open, in principle, to use by all nations for their national interests, with no international economic obligations. The oceans' considerable fisheries resources have generally been excluded from discussions of the international commons, as has been the right of passage. Ideas have been put forward, however, for the charging of fees for the exploitation of the oceans' living resources, as well as the right of passage. For instance, references have been made by the General Assembly (thirtieth session in 1975, by the delegate of Sri Lanka) and the FAO Council (seventy-first session in 1977, by the Committee on Fisheries) to the enormous unexploited living marine resources of the Southern Oceans and their possible exploitation and sharing to meet the world's future food needs. The Brandt Commission report also includes ocean fishing among the proposed automatic revenues for development.

2. Non-Living

25. As for non-living ocean resources, the subject has been followed closely within the United Nations system since 1967, when the idea of the use of sea-bed resources "in the interests of mankind" was first introduced at the General Assembly by the delegate of Malta. On 17 December 1970, the General Assembly, in resolution 2749 (XXV), declared the non-living ocean resources beyond national jurisdiction to be the "common heritage of mankind". The possible agreement on a scheme for charging fees for income from the deep ocean bed is being discussed by the Third United Nations Conference on the Law of the Sea, which will begin its final session on 28 July 1980.

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26. Among the proposals being considered is the establishment of a "Common Heritage Fund", which had first been presented by the delegation of Nepal during the seventh session of the Conference in 1978. The Fund would derive its income from a share of net revenues from (a) mineral exploitation of the sea-bed and sub-soil of the exclusive economic zones; and (b) those portions of the continental margins beyond the exclusive economic zones outlined in the Convention. The revenues of the Fund would be used principally to assist developing countries and also to help protect the marine environment and assist in the transfer of marine technology.

27. Support has also been expressed, without specifying operational details, for charges for the exploitation of the deep ocean bed by the Task Force on Long-Term Development Objectives of the ACC at the Preparatory Committee for the New International Development Strategy (A/AC.196/10) in February 1980 and by the Brandt Commission.

28. It should be noted, however, that the extent of the oceans' non-living resources available for international exploitation has been reduced by the assertion by coastal States of exclusive economic rights over zones extending 200 miles or more from land, which would, in effect, appropriate about one third of the ocean area containing most of the known hydrocarbon and other mineral resources of the sea. The only promising resources presently known to lie in the deep ocean bed beyond the exclusive economic zones claimed by coastal States are manganese nodules, which have some value for their manganese, nickel, copper and cobalt contents.

29. The UNEP expert group on additional measures recommended

that economic rents be appropriated for international purposes on the mining of these manganese nodules. The group estimated, on the basis of a United Nations study on the subject, that a nodule mineral industry might produce economic rents (i.e., net revenue after costs and a normal return on capital) of several hundreds of millions of dollars annually, possibly by the mid or late 1980s. In a note to the third regular session of 1979 of the Administrative Committee on Coordination (ACC/1979/72), the Director-General for Development and International Economic Cooperation pointed out that taxes on mining the sea-bed would not become available until the early 1990s, and that the magnitude of the income would be moderate at best.

B. The Moon

30. In resolution 34/68 of 5 December 1979, the General Assembly arrived at an Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. The Agreement specified that "the moon and its natural resources are the common heritage of mankind", that the exploration and use of the Moon shall be the problem of all mankind, carried out for the benefit of all countries irrespective of their degree of economic or scientific development, and that there should be an equitable sharing by all parties to the Agreement in the benefits whereby the interests of the developing countries as well as the efforts of those countries contributing to the exploration of the Moon shall be given special consideration. The Agreement also stated that due regard shall be paid to the interests of present and future generations as well as to the need to promote high standards of living and conditions of

economic and social progress and development. Finally, the parties to the Agreement would undertake to establish an international regime to govern the exploration of the natural resources of the Moon as such exploration approached feasibility (article 11(5)). A conference is to be convened ten years after the entry into force of the Agreement, during which the establishment of the international regime will be considered. The Agreement, annexed to General Assembly resolution 34/68, will, of course, have to be subject to the usual ratification procedures before it enters into force.

C. Antarctica

31. Resolution of the legal status of Antarctica has been deferred by international agreement, and the international community has been careful to avoid the question of the inclusion of the Antarctic continent and adjacent seas as part of the global commons. No proposals, for instance, have been made in this regard at the Third United Nations Conference on the Law of the Sea. It may be noted, however, that a number of relevant observations have been made in United Nations fora regarding the resources of the continent. At the thirtieth session of the General Assembly in October 1975, for instance, the delegate of Sri Lanka noted that there were still areas where there could be constructive and peaceful cooperation on the part of the international community for the common good of all rather than for the benefit of the few, and that such an area was the Antarctic continent. At the eleventh session of the Committee on Fisheries of FAO held in June 1977, the Conference noted the various known and potential resources of Antarctica

and the southern oceans—notably krill and hydrocarbons—which are believed to be substantial, and the need for carrying out development activities with due regard to the need for conservation in relation to the Antarctic ecosystem. It was agreed that FAO would keep the Treaty countries informed of its relevant activities.

D. Telecommunications and satellites in geosynchronous orbits

32. The UNEP expert group on additional measures noted that two special attributes of the physical universe can properly be regarded as part of the international commons: telecommunications wave-lengths, and parking spaces or "slots" in outer space for satellites in geosynchronous orbit. Economic rents produced by exploitation of these physical attributes could, in principle, be appropriated for international purposes.

33. The UNEP expert group noted that the use of telecommunications channels already produces significant rents, but appropriating them for international purposes would encounter serious complications. The assignment of frequencies is largely in the hands of national Governments, and the profits of the firms using those frequencies are already subject to national taxation. Moreover, an increasing part of the long-distance use of telecommunications frequencies involves satellites belonging to INTELSAT, which already charges for the use of its circuits. Alternatively a small national surtax on all telephone and telegram/telex charges was suggested, the proceeds of which could be used for international purposes.

34. Charging for parking spaces or "slots" for satellites in

geosynchronous orbit may one day become a source of revenue for international purposes. These slots are rapidly becoming a scarce resource, and the time may come when international action will be needed to control the allocation of the choice slots that are well located with respect to economically important land areas. A good case can then be made for charging for the use of such slots.

35. Proposals for charging rents for the use of telecommunications channels and parking spaces for satellites in geosynchronous orbits were also made by the Brandt Commission. The legal implications of satellites remaining in a stationary position relevant to a point above the earth are still under discussion and were on the agenda of the Legal Sub-Committee of the Committee on the Peaceful Uses of Outer Space which met in Geneva in March and April 1980. Some delegates pointed out that the geosynchronous orbit constituted a limited natural resource, over which the equatorial countries exercised sovereign rights. Other delegates maintained that geostationary orbits were inseparable from outer space which, under the terms of the Outer Space Treaty—including the geostationary orbit—were not subject to international application, and that the orbits were free for use by all States. Other States were of the view that a special regime for the geostationary orbit should be formulated.

E. Taxes on polluters of the marine environment

36. This proposal, although called a "tax" by the UNEP expert group on additional measures, is intended not so much as a revenue-raising mechanism as a punitive/incentive measure to reduce marine pollution.

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One of the ocean's most visible pollutants of the marine environment are oil and petroleum products. According to the UNEP expert group's study, a tax on the amount of oil or refined products discharged into the ocean would induce polluters to reduce their polluting emissions and, to the extent that total elimination of emissions was uneconomic, produce some revenue for international purposes. It therefore proposed that polluters who installed anti-pollution technology be taxed at a lower rate than those who did not.

37. For example, tankers with segregated ballast tanks do not, on the average, discharge as much oil into the oceans as those that are not so equipped. A differential tax on these two categories of tankers could induce owners to order new tankers with segregated ballast tanks when old tankers are retired. In the first year, such a tax might yield about \$30 million. In the twentieth year, assuming that all tankers would by then have segregated ballast tanks, revenues would fall to about half that amount because of the lower tax rates on pollution by tankers with segregated ballast tanks. Average annual revenue over the 20-year period was estimated at more than \$20 million.

38. In view of the particular severity of the problem in the Mediterranean, the "polluter-pays principle" was raised at an Intergovernmental Consultation of Experts on a regional oil-combating centre convened by the Executive Director of UNEP in accordance with a recommendation by the Intergovernmental Meeting on the Protection of the Mediterranean in 1975.

VI. Revenues from Off-Shore Resources

39. Through a series of unilateral actions, a considerable number

of coastal States have established "Exclusive Economic Zones" (EEZs) extending 200 miles or more from land, over which they claim exclusive economic rights. In a certain way, this trend reflects the text emerging from the Third United Nations Conference on the Law of the Sea. The exclusive economic zones would thus be placed outside the scope of the "common heritage of mankind". It is likely, furthermore, that the Third United Nations Conference on the Law of the Sea will legitimize these zones, the resources of which would, therefore, belong exclusively to the coastal States. The UNEP expert group on additional measures suggested that the Third United Nations Conference on the Law of the Sea should not legitimize these zones without at the same time asserting a claim on behalf of the international community to some percentage of the rents that these zones would yield, the percentages varying with the level of development of the coastal States. The Brandt Commission has also included levies on off-shore resources among the possible means of raising international revenues.

40. The basis of this proposal is that the off-shore resources of the exclusive economic zones appear to be much richer than those of the deep ocean. Considerable revenues will probably be produced through exploitation, not only of fisheries resources but also of oil and gas deposits within these coastal zones. The deliberations in the Third United Nations Conference on the Law of the Sea give no indication that the proposal for an international share in the exclusive economic zones will be approved.

41. A compromise is being considered at the Conference in the form of a proposal to the effect that resources from that part of the continental shelf beyond 200 miles would be shared by the coastal States with the

international community. This general proposal has been presented in a number of slightly different forms:

(a) The previously mentioned Common Heritage Fund would derive a share of the net revenues from those portions of the continental margins beyond the exclusive economic zones and would be used for development, the protection of the marine environment and assistance in the transfer of marine technology. It is unlikely that this proposal will be adopted.

(b) At the Third United Nations Conference on the Law of the Sea, a proposal was put forward by the Government of Seychelles, under which coastal States would make payments or contributions in kind in relation to revenues from non-living resources of the continental shelf beyond the 200 nautical miles from base lines from which the breadth of the territorial sea is measured. Under this proposal, a developing country which is a net importer of mineral resources produced from its continental shelf would be exempt from making payments or contributions in respect of those mineral resources. The payments and contributions would be made annually, through the International Sea-Bed Authority, with respect to all production at that site after the first five years of production at the site. For the sixth year, the rate would be 10 per cent of the value or volume of production at the site. The payments or contributions would be distributed by the International Sea-Bed Authority to the parties to the Convention, taking into account the interests and needs of developing countries.

(c) A third proposal, presented by the delegation of Sri Lanka at the Third United Nations Conference on the Law of the Sea, would require similar payments by coastal States based on revenues derived from resources

of the continental shelf more than 200 miles from shore. The payments would be fixed by the International Sea-Bed Authority at 4 per cent for the first to the fifth year, 8 per cent from the fifth to the tenth year, and 17 per cent from the tenth to the twentieth year, annual payments after the twentieth year reducing to 15 per cent.

(d) Under a Netherlands proposal, similar payments would be made, the production charge being fixed at a percentage of the gross proceeds of production at the site.

(e) Under a USSR proposal to the Third United Nations Conference on the Law of the Sea, similar payments would be made and developing countries which are net importers of mineral resources produced from the continental shelf would be exempt from making such contributions in respect of those mineral resources. The payments would be made annually with respect to all production at a site after the first five years of production at that site. For the sixth year, the rate would be 1 per cent of the value of production, and the rate would increase by 1 per cent for each subsequent year until the twelfth year, reducing to 7 per cent thereafter.

(f) Under a United States proposal to the Third United Nations Conference on the Law of the Sea, the coastal States would also make payments in respect of resources from the continental shelf beyond 200 miles. A developing country that waives all benefits from the distribution of the proceeds for a period of 20 years would be exempt from making all payments of such contributions for such a period. Under a proposal presented by Afghanistan, Austria, Bolivia, Lesotho, Nepal, Singapore, Uganda, Upper Volta and Zambia, a developing country which is a net importer of mineral

resources would be exempt from making such payments.

42. The proposals cited above indicate an emergent trend to give coastal States exclusive economic zones up to 200 miles from their coast to the full depths of the sea^{1/}, with the possibility of sharing revenues from non-living off-shore production in continental shelves beyond the exclusive economic zones with the international community. If such a scheme were adopted, however, the potential for international revenues would be somewhat limited, since it is estimated that only 5 to 20 per cent of off-shore reserves lie beyond 200 miles, and that the cost of exploitation and transport of oil or gas at the depths and distances involved are not likely to be economical in the foreseeable future.

VII. Military Taxes

43. Although falling under the general rubric "taxation", military taxes have generally been proposed not so much as a revenue tax as one to discourage military expenditures and, through its punitive aspects, to slow down the arms race. The subject of military taxation has been included in this inventory since practically all proposals call for the use of the military tax revenues for development and other programmes beneficial to mankind. Numerous proposals have been made on this subject in various United Nations fora, and this section will deal with the principal proposals made in this respect.

^{1/} This position is reflected in the Informal Single Negotiating Text for the Third United Nations Conference on the Law of the Sea (United Nations Document A/CONF.62/WP.8/Part I, May 1975). See also Informal Composite Negotiating Text Rev.2 (A/CONF.62/WP.10/REV.2, 11 April 1980).

A. Taxation of Military expenditures

44. This proposal would take the form of a tax on all or most military expenditures, the basis of which would be provisions made in national budgets or sums actually disbursed, as reported by the Governments to a central authority. To avoid some of the reporting difficulties which are likely to be encountered in efforts to tax current military expenditures, the tax could be based on reported expenditures for an earlier period, e.g., expenditures incurred three years previously. This proposal was presented, among others, by the UNEP expert group on additional measures. The UNEP expert group estimated that a tax of one-tenth of 1 per cent on total expenditures reported would be too small to have much effect on the total military burden, but that it would yield an annual income in the order of \$350 million. In many government budgets, there are specific sections comprising their military provisions, and a tax based on such military budgets has been suggested, among others, by the President of Senegal at the tenth Special Session of the General Assembly in June 1978 (note verbale from the Permanent Mission of Senegal to the United Nations, A/S-10/AC.1/37, paragraph 101).

45. In February 1980, the ACC Task Force on Long-Term Development Objectives presented a proposal for the establishment of an International Tax Institution that would derive revenues from various kinds of taxes, including military expenditures (A/AC.196/10, 7 February 1980), to the Fourth Preparatory Committee Meeting of the New International Development Strategy. No action was taken on the proposal.

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B. Taxation of arms transfers

46. The taxation of arms transfers has also been proposed in various United Nations fora. As noted previously, the delegation of Saudi Arabia suggested, during the thirty-first session of the General Assembly in 1976, a "voluntary" tax of 0.1 to 0.2 per cent on arms sales (summary record of the 45th meeting (A/C.2/31/SR.45)). At its thirteenth session in April 1977, the Committee for Development Planning also considered a report prepared by consultants entitled Disarmament and Development: An Analytic Survey and Pointers for Action (E/AC.54/L.90). The report estimated that deliveries of arms and the provision of military services to developing countries, including the OPEC countries, may average \$10 billion annually over the next few years. Thus, a 10 per cent tax would provide approximately \$1 billion a year to a possible disarmament/development fund.

47. The UNEP expert group on additional measures stated that since the general purpose of a tax on arms transfers would be to discourage the traffic in arms, it could be imposed at a rate substantially higher than the tax on military expenditure as a whole. The group recommended that consideration be given to imposing a tax of 5 per cent on all arms transfers. It estimated that since 1973, the world total of arms transfers had been running at a level between \$9 billion and \$10 billion annually. A tax at the rate of 5 per cent on all such transfers would therefore yield between \$450 million and \$500 million. If it were assumed that a tax at this rate would have the effect of reducing the volume of sales by, say one tenth, the annual yield would still be of the order of \$400 million. The tax, in

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this case, would be collected from the supplier country.

48. The Brandt Commission report also suggested that military expenditures might be one element in a new principle of international taxation for development purposes. It further stated that a tax on arms trade should be at a rate higher than that on other forms of trade.

C. Tax on possession of military weapons

49. Another form of military taxation that has been proposed is a tax on the possession of military weapons. In June 1978, the Permanent Mission of France to the United Nations presented to the Ad Hoc Committee of the Tenth Special Session of the General Assembly a proposal for the creation of an International Disarmament Fund for Development, which would be financed initially through a one-time endowment of US\$1 billion, levied in equal parts on the possession of two categories of weapons: (a) the number of vehicles for nuclear weapons; and (b) such conventional weapons as would be considered as representative of military efforts. On 14 December 1978, the General Assembly adopted resolution 33/71 I, which inter alia, requested the Secretary-General to transmit to the Group of Governmental Experts on the Relationship between Disarmament and Development, for its consideration, the proposal to establish an International Disarmament Fund for Development, which had been submitted to the General Assembly at its tenth special session. Two studies on the proposed Fund have been transmitted by the Secretary-General to the Group of Governmental Experts, which will present a report on this subject to the General Assembly at its thirty-sixth session.

VIII. Savings from Disarmament

50. Since the inception of the League of Nations, disarmament has been a subject of continuing international debate and aspiration. For more than 20 years, the United Nations has also discussed the subject extensively, with a view to promoting international peace and security and also to releasing funds for the development of the poorer countries of the world. The relationship of savings from disarmament to development has been discussed in different United Nations fora, particularly the General Assembly, where various proposals and resolutions have been introduced and adopted.

51. The principle that there should be a reduction in arms expenditures and the diversion of the expenditures for development has been presented in a number of General Assembly resolutions. These include resolution 380 (V) adopted in November 1950 which called for a reduction of arms expenditures to a minimum and the use of resources released for the general welfare, with due regard to the needs of the developing countries ^{2/}.

52. At its tenth special session held in May and June 1978¹ the General Assembly, inter alia, requested the Secretary-General, with the assistance of a group of qualified governmental experts appointed by him,

^{2/} Similar appeals have been made by the General Assembly in resolution 914 (X), adopted in December 1955; resolution 1837 (XVII), adopted in December 1962; resolution 2387 (XXIII), adopted in November 1968; resolution 2602 (XXIV), adopted in December 1969; resolution 2667 (XXV) adopted in December 1970; resolution 2685 (XXV), adopted in December 1970 (which called for a close link between Disarmament and the Development Decade); resolution 3470 (XXX), adopted in December 1975; resolution 31/68, adopted in December 1976; and resolution 34/88, I (h), adopted in December 1979.

to initiate an expert study on the relationship between disarmament and development. The Final Document pointed out that the idea of a link between disarmament and development was not new, and that the major reason why it had not been implemented was that there had been no objective or generally acceptable ways of measuring the true levels of armaments. It may be noted, in this connexion, that a detailed system and format for the international reporting of military expenditures for the General Assembly to consider and possibly introduce into general use, had been prepared by the Secretary-General, assisted by a Group of Experts on the Reduction of Military Budgets, appointed in accordance with General Assembly resolution 3463 (XXX) of December 1975. The report, "Reduction of Military Budgets: Measurements and International Reporting of Military Expenditures" (A/31/222/Rev.1), was presented to the General Assembly at its thirty-first session in 1976. The UNEP expert group on additional measures urged its adoption by the General Assembly, but the proposed format has not been approved thus far.

53. The proposals for channeling savings from disarmament to development have also been presented in other specific forms. General Assembly resolution 3093A (XXVIII), adopted in December 1973, was specifically directed at the States permanent members of the Security Council and suggested, inter alia, that they should reduce their military budgets by 10 per cent from the 1973 level during the next financial years and allot 10 per cent of the funds released for assistance to developing countries.

54. In the study, Disarmament and Development: An Analytical Survey and Pointers for Action, prepared for the Committee for Development

Planning in January 1977, it was estimated that a 10 per cent reduction in United States-USSR military expenditures alone would mean a "disarmament dividend" of \$23 billion a year. If this dividend were to be shared in the proportion of 90 per cent for social and economic programmes in the United States and the Soviet Union themselves, and 10 per cent for the provision of increased concessional capital to the poorest countries, there would be a substantial increase of \$2 to 3 billion, representing a 20 per cent increase in official development assistance over the previous year.

55. The UNEP expert group on additional measures estimated (for 1977) that the level of world military expenditure was on the order of magnitude of \$360 billion annually. A reduction of merely 5 per cent could release some \$18 billion a year. If one-half of this amount could be earmarked for international programmes, over \$9 billion a year would be available for these purposes. An intensified effort to reverse the present trend in arms expenditure was imperative.

56. In the course of its activities on the subject of disarmament and development, the United Nations has commissioned studies and appointed expert groups to deal with the problem. The most recent body established is the Group of Governmental Experts on the Relationship between Disarmament and Development, which was established under the provisions of the Final Document of the tenth special session, devoted to disarmament, of the General Assembly held in 1978. The Group commissioned 45 research projects in areas where disarmament could have a catalytic impact on development. The projects were to be submitted and reviewed in June 1980, so that the Group could complete its final report in time for

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consideration by the second special session of the General Assembly on disarmament which will be held in 1982.

IX. Special Drawing Rights (SDR) - Development Link

57. In the monetary field, proposals have been made for a link to development of the "Special Drawing Rights" (SDRs), which were established and have been issued from time to time by the International Monetary Fund since 1968. The SDRs are essentially a permanent line of credit in the IMF from which member countries can draw under certain conditions, to obtain the foreign currencies they need. SDRs have thus become an important reserve asset, along with gold and foreign currency reserves, in countries' Central Banks and Treasuries. Even before the SDRs were established, proposals were made, in anticipation of the time when a new kind of reserve asset would have to be created, for a link of the new reserve asset to development purposes.

58. The proposals for a link to development were originally made by an UNCTAD Group of Experts in 1965, which prepared a report for the Trade and Development Board entitled "International Monetary Issues and the Developing Countries". Among the relevant conclusions of the UNCTAD Expert Group were that: (a) the general level of reserves was inadequate or about to become so; (b) developing countries had a legitimate and pressing need for additional liquidity, which should be provided in part through the expansion of reserves and by increasing the amount of credit facilities available from the IMF; (c) it was both feasible and desirable to establish a link between the creation of international liquidity and the provision of development finance without detriment to either process; and (d) the reform of the international monetary system should be truly

international, with developing countries represented in the discussions leading up to monetary reform and in the operation of the new arrangement, in accordance with the degree of their interests and concerns.

59. When the IMF finally decided to increase international liquidity through the creation of SDRs as a reserve asset, no special relationship was provided for a link to development. In fact, the SDRs, which were created solely for increasing international liquidity, were allocated in proportion to the quotas of the members of the IMF. Thus, the richer countries (which had the largest quotas) obtained the greatest share of the SDRs, while the poorer countries, with their low quotas, obtained only small amounts of the new reserve assets.

60. In view of the above, proposals have been made for a different system of distributing SDRs, taking into account the countries' level of development and needs. No precise formulas have been presented in the United Nations fora for a new key for the distribution of SDRs. The Group of 77, however, has repeatedly pressed for a different system of allocation of SDRs in various United Nations fora, including the General Assembly and UNCTAD. At the IMF itself, where the necessary international monetary reforms giving effect to a link would be made, the Group of 24 has also made similar proposals. These are included in the Programme of Action on International Monetary Reform which was prepared by the Group of 24 and endorsed by the Group of 77 at a meeting in Belgrade on 29 September 1979, and in a communiqué issued in Hamburg on 24 April 1980 prior to the annual meeting of the IMF Board of Governors. The case for the link has also been presented unsuccessfully in the deliberations of the Committee on Reform of the International Monetary System and Related Issues

of the IMF Board of Governors—the "Committee of Twenty"—which was created by the IMF to include representatives from both developed and developing countries.

61. On the means by which the link could be established, several variations have been proposed: (a) the channeling of SDRs through an international financing organization, such as the International Development Association (IDA), as proposed, among others, by the UNCTAD Group of Experts; and (b) the creation of additional SDRs and their direct distribution to members of the IMF, according to a key different from that based on the quotas of IMF members. This is the approach taken by the Group of 77.

62. It has been noted that the reforms proposed would probably involve amendments to the IMF's Articles of Agreement. Since SDRs, under IMF's rules can be allocated in principle only to Central Banks and Treasuries, an amendment would be required to allow the allocation of SDRs to an international financing organization such as IDA. One proposal that would circumvent the need for such an amendment would involve the creation of additional SDRs with a tacit understanding that the developed countries would voluntarily contribute a proportion of their allocations to the international financing organization whenever new SDRs are created. Such a proposal was made by I.G. Patel in a study for UNCTAD in 1967, "The Link Between the Creation of International Liquidity and the Provision of Development Finance", (TD/B/115/Add.2 and TD/B/C.3/43/Add.2; 14/8/67). This approach was also suggested at the 1968 IMF annual meeting by Finance Minister Emilio Colombo of Italy (International Monetary Fund, Summary Proceedings of the twenty-third annual meeting of the Board of Governors, 1968, page 81). Most of the other proposals

which have been presented, however, have been for a more binding agreement, through an amendment to the Articles of Agreement of the IMF.

63. No progress has been recently made on the establishment of an SDR-development link at the IMF. The idea of a link, however, is being kept alive by the Group of 77 at the United Nations and by its related Group of 24 at the IMF, as well as by the study of the UNEP expert group on additional measures. The idea of an SDR-development link has also received new impetus, along with other proposals, in the recommendations of the Brandt Commission report.

X. Proceeds from IMF Gold Sales

64. Aside from the proposed SDR-development link, a major potential monetary resource for multilateral programmes lies in the large holdings of gold by the IMF. Proposals for the tapping of these resources have, in fact, been made and were realized with the Agreement adopted in August 1975 by the IMF's Interim Committee of the Board of Governors on the International Monetary System to reduce the role of gold in the International Monetary System while assisting the developing countries. The agreement provided for the abolishment of the official price of gold; it also provided that one-sixth of the IMF's gold holdings would be sold, with the profits going to the developing countries, and that another one-sixth would be returned to members.

65. At the Jamaica meeting in January 1976, the Interim Committee, to implement its earlier decisions, agreed that the profits would be channelled through a Trust Fund within the IMF. The Trust Fund was established in May 1976 for the purpose of providing additional balance-of-payments assistance on concessional terms to developing member countries. The

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resources available for loans by the Trust Fund are derived mainly from the profits of the sale, through auctions, of 25 million ounces of the Fund's gold.

66. Each disbursement under a Trust Fund loan is to be repaid in 10 equal semi-annual instalments, which begin not later than the end of the first six months of the sixth year after the date of the disbursement, and are to be completed at the end of the tenth year. Interest is charged at the rate of one-half of one per cent per annum on the outstanding balances of the loans and is paid in semi-annual instalments. Although these terms are not as concessionary as those governing IDA credits, they are highly favourable, especially in comparison with other terms for IMF loans, and in view of current high interest rates and rates of inflation.

67. The Trust Fund's operations have been divided into two periods, the first from 1 July 1976 through 30 June 1978. During this period, Trust Fund loans totalling the equivalent of SDR 841 million were made to 43 IMF members. The second period ran from 1 July 1978 through 30 June 1980, when the Trust Fund ended as a source of assistance to developing countries. To date, loans amounting to SDR 800 million have been made during the second period.

68. Recently, two other proposals were presented for the use of proceeds IMF gold sales for development purposes. At the fourth session of the Preparatory Committee for the New Development Strategy held in February 1980, the ACC's Task Force on Long-Term Development Objectives proposed the establishment of an International Development Fund that would, inter alia, be designated as a beneficiary of resources generated in the public domain, including profits from the sale of monetary

gold.

69. The Brandt Commission has also proposed that the remaining IMF gold stocks, which amount to about 100 million ounces, be utilized for development purposes. This could be accomplished by using the gold stocks as collateral against which the IMF could borrow from the market the borrowed funds then being made available to developing countries, particularly the middle-income groups. Further staggered sales of some of the gold could also be made and the profits from such sales used as interest subsidies on loans to low-income developing countries.

70. More generally, the Brandt Commission has also suggested that profits from gold sales be used for development assistance in ways to be decided by the members of the IMF. The Commission estimated, in this connexion, that profits from the progressive sale of the remaining two-thirds of the IMF's gold holdings—about 100 million ounces—could amount to a sum in the order of \$30 to \$40 billion over a period of time, assuming a market price of \$300 to \$400 per ounce of gold. Such a sum could yield annual revenues in the order of \$2.4 to \$3.2 billion, assuming a return of 8 per cent. Because of the fluctuating price of gold, the Brandt Commission's estimates are, of course, subject to change.

XI. Commodities Stabilization and the Common Fund

71. In the area of trade and development, multilateral compensatory measures for commodities exports fluctuations—which involve automatic mechanisms—have been the subject of discussion in various United Nations

fora since the early 1950s. As was noted previously, the General Assembly, in resolution 623 (VII) of 21 December 1952, expressed its concern over the declining terms of trade of primary commodities in relationship to capital goods and other manufactured articles and, inter alia, requested the Secretary-General to appoint a Committee of Experts to consider the subject. The Committee's report pointed out the deficiencies of single commodity agreements and outlined schemes for automatic compensation of large short-term changes in the terms of trade.

72. The question of international compensation for fluctuations in commodity trade has since been discussed extensively by the General Assembly, the Economic and Social Council and its former Commission on International Commodity Trade, as well as by the FAO Committee on Commodity Problems. General Assembly resolutions 1324 (XIII) of 14 December 1953 and 1423 (XIV) of 5 December 1959, as well as ECOSOC resolution 726 (XXVIII) of 24 July 1959 called for proposals for automatic compensatory financing of fluctuations in commodity trade. These were also discussed extensively by the Commission on International Trade and the FAO Committee on Commodity Problems. In response to requests by these bodies, a number of reports were prepared containing proposals for compensatory mechanisms^{3/}.

^{3/}These included a report by a group of experts appointed by the Secretary-General, "International Compensation for Fluctuations in Commodity Trade" (E/3447, January 1961); Secretariat studies, "Stabilization of Export Proceeds through a Development Insurance Fund" (E/CN.13/43 of 13 January 1962) presented to the tenth session of the Commission on International Commodity Trade and "A Development Insurance Fund for Single Commodities" (E/CN.13/45, 6 February 1962) which was presented to the Joint Session of the United Nations Commission on International Commodity Trade and the FAO Committee on Commodity Problems; a report of a technical working group, "Compensatory Financial Measures to Offset Fluctuations in the Export Income of Primary Producing Countries" (E/CN.13/56, 16 January 1963), presented to the eleventh (cont'd.)

73. The major breakthrough on automatic compensatory mechanisms was reached by UNCTAD IV, which met in Nairobi in 1976 and adopted an Integrated Programme for Commodities with a time-table for the negotiation of the Programme, comprising mainly a Common Fund and International Commodity Agreements (ICA's). Since then, intensive negotiations have been carried out on the Common Fund and ICA's. The Common Fund would derive its resources from an initial paid-in capital for supporting stock operations, from borrowing and from cash deposits and guarantees from ICA's associated with it. The financing arrangements for the Common Fund thus involve a measure of automaticity.

74. While the initial discussions concerned mainly the financing of buffer stocks to stabilize commodity prices, the Agreement recently reached for the establishment of the Common Fund provides for a Second Account or "Window" which would finance research and development, productivity improvements, marketing and other development measures for commodities in developing countries. Although the resources would come mainly from voluntary contributions, earnings derived from the First Account may be allocated to the Second Account. In certain cases,

^{3/} cont'd. from Page 35: session of the Commission on International Commodity Trade and an IMF report, "Compensatory Financing of Export Fluctuations" (Washington, D.C., February 1963) prepared in response to an invitation by the United Nations Commission on International Commodity Trade. The report noted that the IMF regarded deficits arising out of commodity export shortfalls as a legitimate reason for the use of IMF resources and expressed its readiness to assist in the solution of problems within the context of its activities for assisting countries with balance-of-payment difficulties.

funds made available through the Second Window for developmental measures in respect of individual commodities produced in countries where desertification is a problem might provide support for anti-desertification efforts.

XII. Other fiscal measures involving automaticity

75. Another proposal for the automatic generation of resources has been the establishment of a world-wide lottery under the sponsorship of the United Nations. This proposal was presented by the delegation of Ghana to the Administrative and Budgetary (Fifth) Committee of the General Assembly, during its twenty-sixth and twenty-seventh sessions. The Committee decided to request the Secretary-General "to undertake an evaluation of a world-wide United Nations Lottery as a potential source of revenues." The Secretary-General, in a report based on responses to a questionnaire sent to Member States, concluded that the General Assembly would not wish him, for the time being, to engage the services of an outside consultant to study the question. The Fifth Committee concurred with this conclusion, although it was pointed out that not enough replies were made to the questionnaire^{4/}.

76. Other than the above, the only other measure involving an element of automaticity is a "tax-like" proposal for the introduction of special contributions by multi-national corporations operating in developing countries. This proposal was presented at the sixth session of the Committee for Development Planning in 1970, but no decision was taken on it.

^{4/} See Documents A/8985 and Add.1, General Assembly, Official Records of the Fifth Committee, 1430th meeting, 13 October 1971 and A/9450.

Related Considerations Concerning Automaticity

77. In the presentation of proposals for the generation of resources for multilateral programmes involving automaticity, the related elements of the mechanism for the mobilization of the resources, burden sharing and the allocation of the proceeds have also been dealt with, in varying degrees of detail.

Mobilization

78. The UNEP expert group on additional measures acknowledged that this was a complicated problem and noted the following: First, that the provisions for the generation and collection of the funds would have to be agreed upon by international treaty. Secondly, the Governments would, except in the case of the SDR-development link^{5/}, have to act as agents for the collection of funds and for channeling them to some central international authority. Thirdly, there would be a need for an international mechanism for the collection of funds centrally. Fourthly, some kind of policy board would be needed for allocating the funds among the different agencies, sectors and fields of activity. Finally, an appropriate intergovernmental body would have to be assigned the responsibility for the programming and expenditure of the share of such general development funds allocated for anti-desertification measures.

79. The UNEP expert group also noted that in some cases the collection of the new sources of revenue could be assigned to existing

^{5/} This would also be true of IMF gold sales, which was not included in the study of the UNEP group of experts on additional measures.

mechanisms. National customs officials could collect international taxes on trade, and national port authorities could enforce pollution charges on shipping. In other cases, new mechanisms would be necessary. For example, the proposed International Sea-Bed Authority would seem to be the proper agency for collecting revenues from the exploitation of non-living resources of the ocean beyond national jurisdiction.

Burden sharing

80. On the question of burden sharing, the UNEP expert group acknowledged that the proposed sources of financing would not impose equal burdens on all countries, either in total magnitude or in relationship to their GNPs. For instance, international trade taxes would impose an especially heavily dependent on international trade, and adjustments would have to be made to ease the burdens.

81. The UNEP expert group stated that this fact was not in itself a reason for rejecting international taxes, since differential burdens are an unavoidable attribute of all workable revenue systems, both national and international; nevertheless, adjustments of national burdens would clearly be required in the interests of equity and political acceptability. Thus, the burdens imposed on individual countries should, in principle, be directly related to their level of development. This result could be achieved by permitting poor countries to retain part or all of the funds they collect for international purposes (e.g., in the case of trade taxes) or by selecting sources of revenue which, by their nature, benefit the poorer countries rather than the rich (e.g., the SDR - development link). The distribution of benefits from the disbursement

of international revenues should also be taken into account in evaluating the fairness of measures used to create those revenues.

82. The question of a more equitable sharing of the costs of financing the United Nations system's operational activities is also touched upon in a report by the Director-General for Development and International Economic Co-operation, "Some Policy Issues Pertaining to Operational Activities for Development of the United Nations system" (Document A/224/Add.1), for the General Assembly at its thirty-fifth session. The report also discusses other aspects concerning the need to generate resources available for operational activities on a predictable, continuous and assured basis, in accordance with the General Assembly resolution 32/197.

83. The Brandt Commission report, in reference to this problem, emphasized that international taxation must be universal, and that all countries must share the burden. It noted that universality calls for contributions not only from the industrialized Western countries, but also from Eastern countries and from developing countries, except the poorest.

Allocation of proceeds

84. With the principle of automaticity in the mobilization of resources a relatively recent one, the suggestions made thus far for their allocation have been limited. The UNEP expert group on additional measures suggested that those funds raised or contributed directly for anti-desertification programmes should be the responsibility of the UNEP Governing Council, which is the body entrusted by the General Assembly with the follow-up and co-ordination of the implementation of

the Plan of Action to Combat Desertification. It also suggested that the Consultative Group for Desertification Control (DESCON), and a public international corporation (See UNEP/G.6/9/Add.1 paragraph 31) proposed for the mobilization of funds for anti-desertification projects, should be used, if established, in the financing of anti-desertification programmes and projects.

85. Other proposed mechanisms for the allocation of automatically generated resources for specific purposes include the International Sea-Bed Authority and its related Enterprise, which would be established by the Third United Nations Conference on the Law of the Sea. In the case of IMF gold sales, the IMF itself administered the distribution of profits in the form of loans to developing countries through the establishment of a trust fund.

86. In the case of the proposed SDR-development link, the International Development Association (IDA) or some other intergovernmental financing agency has been proposed as the mechanism for the allocation of SDRs. No precise formula has been presented in the case of the direct distribution of SDRs to developing countries since this itself could be a controversial subject among the developing countries, and the Group of 77 is more interested in pressing for agreement on the principle of an SDR-development link.

87. In the Brandt Commission report, finally, a case has been made for the creation of a new institution which might be called a "World Development Fund". The World Development Fund would not be an alternative to existing institutions, but rather a supplementary institution that would channel resources mobilized through automatic means. The

proposed institution would be established by all countries—"West, East and South". It would complement the lending of the World Bank and the IMF and co-operate with them as well as the regional development banks in financing development.

Evaluation

88. It is evident from this inventory of new means of financing international needs proposed in various fora of the United Nations that extensive consideration has been given to the principle of automaticity, and that this principle is gaining momentum within the United Nations system. Although there will be political opposition by governments to many of the proposals which have been presented, it should be noted that automatic mechanisms have a clear advantage over the present system of voluntary contributions in that they would resolve the problems that governments and bilateral assistance programmes often have to face in trying to obtain the local political support necessary to increase the level of assistance—which indeed they must—to developing countries. Many of the automatic means of financing cited in this inventory could be an effective means of augmenting the resources of developing countries without straining the national budgets of the developed countries. The provision of increased assistance on an assured and more predictable basis is essential for development. This is especially so in developing countries suffering from desertification, for which programmes of a sustained and long-term nature are urgently required.

89. Among the large number of proposals listed in this inventory, several appear to be feasible, practicable or attainable in the near

future. These measures would raise funds for any agreed international purpose, including combating desertification.

90. First, it should be noted that the system of gold sales by the IMF and the use of the profits for assistance through a trust fund has, by its very establishment and operation, proven its feasibility, practicability and desirability. This experience suggests that the IMF may again decide to resume the sale of its gold stock—presently about 100 million ounces—and revive its trust fund operations. On the basis of a market price of \$400 to \$600 per ounce, the profits from the sale of the IMF's gold holdings could yield a sum in the order of \$40 to \$60 billion over a period of time. Another measure could be to use the IMF's gold holdings as collateral for mobilizing funds in financial markets for re-lending to developing countries. In considering the eligibility of countries for loans or grants from a revived trust fund, desertification should be recognized as an important factor affecting the countries' balance-of-payments problems.

91. The group also sees merit in pursuing the long-standing proposals for an SDR-development link, through the issuance of additional SDRs and their distribution to developing countries either directly using a new key or through an international financing institution. The SDRs have become an important part of the reserves of countries' central banks and treasuries, and developing countries have a need for a much greater share than they receive under the present system of distribution. The group does not consider that the establishment of a development link would lessen the standing of SDRs. Like gold sales, the generating of resources for development through a link with special drawing rights

could play a significant role in accelerating development.

92. Another multilateral mechanism involving automaticity is the Integrated Programme for Commodities, including International Commodity Agreements (ICA's) and the Common Fund. While this multilateral programme involving automaticity is close to realization, it should be noted that the financial resources involved are likely to be relatively small. This is especially so as concerns the amount of funds generated on an automatic basis that could be devoted to the Fund's second window. This programme can therefore be regarded only as a starting point.

93. Most economically exploitable non-living ocean resources appear to lie within the exclusive economic zones claimed by coastal States. The Third United Nations Law of the Sea Conference will probably legitimate these claims. The Conference may also approve proposals for obtaining revenues for international proposals from the sea-bed beyond the exclusive economic zones and from the parts of the zones lying on the continental shelf more than 200 miles from shore. Modest international revenues may then be obtainable from mining manganese nodules and possibly from extracting oil and gas from the designated parts of the continental shelf.

94. The proposal involving automaticity with perhaps the greatest potential is an international trade tax. In view of the enormous volume of world trade—\$1,300 billion in 1979—a tax could be levied at a rate which would generate substantial revenues without acting as a disincentive to trade expansion, although there can be arguments concerning questions of its economic repercussions and equity. The international

taxation system should include provisions to ensure that the poorest countries are not hurt. Acceptable alternatives could be taxes on specific commodities, such as oil, uranium and bauxite.

95. Another proposal involving automaticity which may appear attainable is the proposal to charge fees for "parking slots" of satellites in geostationary orbit. No claims have been legally established so far in this part of the international commons, which is presently not subject to regulation. It is suggested that with the increase in the number of satellites in geosynchronous orbit, a system of regulation accompanied by charges which could be determined by auction might be established by the international community.

96. The proposal for taxing military expenditures and the linking of disarmament to development could, if implemented, release substantial resources for the benefit of developing countries. In view of the state of international politics, however, it is unrealistic to expect agreement on the proposals in this area at the present time or in the near future.

97. In terms of timeliness, practicability and feasibility the proposals reviewed in the foregoing paragraphs (92-95) appear in the judgement of the group to be the ones most likely to be attainable in the near future. That is not to say, however, that other proposals cited in the inventory are lacking in merit or unworthy of further study. Some at least are undoubtedly destined in due course to come forward as candidates for more intensive consideration; and it is entirely possible that a number may, at a later date, find acceptance.

98. In the final analysis the prospects for adoption of any of

the proposals mentioned depend not so much on technical feasibility as on the political will of member States. The increased international resources that would be generated by automatic means, furthermore, would be available for anti-desertification programmes only to the extent that it is so provided under a system of allocation. The first pre-requisite to constructive action is that member States should understand and accept the fact that the problem of desertification vitally affects the lives and well-being of hundreds of millions of the world's inhabitants—and that if its ravages are left unchecked, it will surely pose a critical threat to tens of millions more. But understanding and acceptance alone are not enough: the second pre-requisite is that governments, through the United Nations, manifest their willingness to take the political action required if the challenge posed by desertification is to be met.

CHAPTER II

Financial Plan for Combating Desertification

99. The Plan of Action to Combat Desertification comprises 28 recommendations, all of which must be carried out to achieve the goal of stopping further desertification. The cost of many of the actions called for by these recommendations cannot, however, be estimated with any confidence at this time. The financial plan presented here therefore deals principally with those aspects of the Plan of Action the costs of which can be assigned at least rough orders of magnitude. Execution of only these aspects of the Plan of Action, it must be emphasized, would not stop further desertification. All other parts of the Plan would also have to be carried out.

Magnitude of the Problem

100. About 47 million square kilometres, or one third of the earth's land surface,^{6/} are arid or semi-arid. Roughly 20 per cent of these lands are hyperarid climatic deserts where agriculture is sustained in river basins and oases; the rest are areas with limited and irregular rainfall, used mainly for grazing and dryland farming. Between 600 and 700 million people depend on these fragile ecosystems for their livelihood.^{7/}

^{6/} Excluding Antarctica.

^{7/} Estimates are based on UNESCO sources, including map of World Distribution of Arid Regions (1977) and Man and the Biosphere Technical Note 7 (UNESCO, 1977) as well as secretariat of the United Nations Conference on Desertification (UNCOD), Desertification: An Overview (A/CONF.74/1/Rev.1).

101. Because of the overuse and misuse of the land in these fragile ecosystems, extensive areas have been degraded, in the extreme to non-productive, desert-like conditions. The process of desertification, accompanied by declining yields, is continuing in the face of rising global food needs, which will require a 50 per cent increase in food production by the year 2000 if only to meet the present inadequate intake levels.^{8/} The total area affected by desertification is estimated at 3.3 billion hectares, or 80 per cent of the world's agricultural land in arid and semi-arid regions. A summary classification of lands affected, by type of land use, is shown in following table:^{9/}

<u>Type of Land Use</u>	<u>Total Area</u> (000) ha	<u>Area affected by</u> <u>Desertification</u> (000) ha	<u>Percentage of</u> <u>Total Area</u>
Irrigated Land	126,283	27,053	21
Rangeland	3,751,071	3,071,603	82
Rainfed Cropland	224,428	173,127	77
Total:	4,101,782	3,271,783	80

^{8/} Estimate based on FAO, Agriculture: Toward 2000 (C79/24), July 1979

^{9/} Estimates of irrigated land area are derived from FAO Production Yearbook, (1978), adjusted for arid and semi-arid regions only. Other estimates are based on data compiled by H. Dregne, Director of the International Center for Arid and Semi-arid Land Studies (ICASALS), Texas Tech University, Lubbock, Texas, and Consultant to FAO; and estimates prepared by the United Nations Sudano-Sahelian Office (UNSO). Consultations were also held with Dr. M. Kassas, Professor of Plant Ecology, University of Cairo. For details, see Table I.

102. The process of desertification results in sharply lower productivity than in lands not affected by desertification. This is reflected in losses of potential production and reduced incomes for the populations involved.^{10/}

103. The seriousness of the problem is also reflected in the amount of productive land deteriorating each year. According to preliminary estimates prepared for the United Nations Conference on Desertification, the equivalent of roughly six million hectares of productive land is going out of production each year. Another, more comprehensive measure of the damage caused by desertification is the area of productive land deteriorating each year to a level at which it yields zero or negative net returns.

The annual rate of land degradation, following this definition, involves 20 million hectares, broken down as follows:^{11/}

<u>Type of Land Use</u>	<u>Estimated area deteriorating annually to a level of zero or negative net returns</u>
	(000) ha
Irrigated Land	546
Rangeland	17,700
Rainfed Cropland	2,000

Total:	20,246

^{10/} It has been calculated, on the basis of estimates provided by H. Dregne, that the value of the current annual loss of production due to past desertification is on the order of over \$26 billion, of which \$6.6 billion are from losses in irrigated lands, \$7.4 billion in rangelands and \$12.3 billion in rainfed croplands.

^{11/} See Desertification: An Overview, op. cit for estimates prepared for UNCOD. New estimates of land deteriorating to a level of zero or negative net returns are from H. Dregne.

104. In certain cases, especially in developed countries, the farmers and ranchers or pastoralists are able to subsist and maintain their land-use systems through supplementary incomes. In most cases, however, the degradation of the land to or below the level of zero net returns is reflected in malnutrition and poverty.

Scope and Objectives of a Financial Plan

105. In paragraph 7 (b) of resolution 34/184, the General Assembly has asked for "a financial plan and analysis outlining the components and costs of a programme to stop further desertification and identifying what is already being financed and what additional resources may be needed to meet the minimum objectives of stopping the spread of desertification." The financial plan which is presented here is formulated within the framework of the Plan of Action to Combat Desertification, which was approved by the United Nations Conference on Desertification at Nairobi on 9 September 1977 and subsequently by the General Assembly in resolution 32/172 of 19 December 1977. The immediate goal of the Plan of Action is to prevent and arrest the advance of desertification and, where possible, to reclaim desertified lands for production.

106. The financial plan presented here does not cover the opening of new land for productive use, but includes corrective measures involving the improvement and restoration of desertified lands. Desertification is a continuing process involving the degradation of the productive capability of affected land. For purposes of formulating the financial plan, stopping desertification has been taken to mean preventing a further net loss of productive capability. This requires arresting the process of

degradation on some land, reversing it on some land and, for economic reasons, accepting the fact of its continuance on some land.

107. The plan will comprise the following five components:

- (a) corrective measures for irrigated land deterioration;
- (b) corrective measures for rangeland deterioration;
- (c) corrective measures for rainfed cropland degradation;
- (d) the stabilization of moving sand dunes in critical areas;
- (e) other essential measures whose cost cannot now be estimated.

In dealing with the first three of the components listed above, attempts will be made to estimate the extent of the areas affected, to examine the manifestations of the problem as well as their causes and solutions, and to calculate the cost of corrective measures. The land areas considered will include only those in arid and semi-arid regions.^{12/}

108. In line with the long-term goal of the Plan of Action to implement it by the year 2000, the financial plan will be placed in a 20 year time-frame. It will deal only with the desertification that is taking place in irrigated lands, rangelands and rainfed croplands. While the areas referred to will include all such lands affected by desertification, the plan will deal only with the problems of desertification in developing countries requiring external financial assistance. For purposes of this study, per capita GNP of \$1,000 has been used as the dividing line between countries requiring financial assistance and those that do not. Exceptions have been made for a few countries with per capita GNPs close to the line that are experiencing substantial favourable or unfavourable balances of payments. It is recognized that some countries not requiring financial assistance should be able to obtain technical assistance from United Nations agencies.

^{12/}Arid lands are defined roughly as those receiving 0-25 centimetres and semi-arid as those receiving 25-50 centimetres of rainfall annually.

109. The plan will not cover the loss of land productivity resulting from mining, tourist development, development of highways and the expansion of urban communities, although it is recognized that these account for a significant amount of agriculturally productive land lost and other forms of environmental degradation each year.^{13/}

110. The component of the plan concerning sand dunes will cover the critical areas affected also in arid and semi-arid areas. It will not deal with the overall problem of moving sands, although it is also recognized that moving sands are a serious problem in many countries.

111. The section of the plan on other measures that are necessary to implement the Plan of Action does not include all such measures, but only some of them that may be especially significant financially. Measures discussed include ecosystem conservation and the provision of alternative or supplementary livelihood systems and sources of energy to the populations involved, where overgrazing and the cutting of fuel wood are a cause of desertification. Monitoring programmes for desertification control and strengthening government machineries for planning and implementation are also given attention.

^{13/} Between 1960 and 1970, Japan lost 7.3 per cent of its agricultural land to buildings and roads, European countries lost between 1.5 per cent (Norway) and 4.3 per cent (The Netherlands). See the State of the Environment: An appraisal of Economic Conditions and Trends in OECD countries, (OECD, 1979).

112. The figures presented in the financial plan are necessarily only general orders of magnitude. High, medium and low illustrative figures have been calculated for most components of the plan. Estimates of unit costs of corrective measure are on the conservative (low) side in all three cases. More accurate and comprehensive estimates of the cost of carrying out the Plan of Action to Combat Desertification must await the development of more detailed national programmes.

Corrective Measures for Irrigated Land Deterioration

113. The total area of irrigated land affected by desertification is the smallest among the three types of land use. It is also the costliest and most profitable to recover. The desertification of irrigated land is manifested principally in waterlogging, salinization and, to a minor extent, alkalization. As the water table rises, bringing the salt contents up with it, productivity is reduced. Desertification results mainly from a lack of drainage, and/or use of low quality water. This is especially widespread in the world's arid and semi-arid areas.

114. The recovery of desertified land under irrigation is accomplished through the installation of proper drainage systems, leaching the soil of its salt content and, in the few cases of alkalization, applying soil amendments. For the purposes of the calculations made in this study, the financial plan calls for restoring all irrigated land in developing countries requiring external financial assistance to a condition of optimum productivity.^{14/}

^{14/}Optimum productivity is the maximum productivity sustainable over a long period of time.

115. The average cost of restoring irrigated land to a condition of optimum productivity is estimated at from \$500 to \$1,200 per hectare, with an average which may be placed at \$750 per hectare.^{15/} The cost of "restoring" such desertified land should be distinguished from the cost of land "reclamation" through the establishment or expansion of irrigation systems, which actually involves opening new land and is much more expensive.

116. Corrective measures to restore all arid and semi-arid irrigated lands in the world affected by desertification would have a "medium" cost in the neighbourhood of \$20.5 billion. This is based on the estimate that 27 million hectares are affected by desertification. Over 16 million hectares of the total area of desertified land under irrigation are in developing countries requiring external financial assistance, and the total cost of a programme for rehabilitating irrigated lands in those countries would range from \$8.2 billion to \$19.6 billion, with a medium estimate of \$12.3 billion. On the assumption that this programme will be carried out over a 20-year period, which would be in accordance with the goal of implementing the Plan of Action by the year 2000, the average annual expenditures would range from a low of \$400 million to a high of \$1 billion and a medium estimate of \$600 million, in 1980 dollars. These estimates are detailed in Tables III and IV.

^{15/} These estimates are based on actual costs of samples of projects supported by the World Bank, the Inter-American Development Bank and FAO. In these and subsequent cost estimates, consultations were also held with Dr. Dregne, Professor Kassas and Dr. A.M. Balba, Professor of Soil Science, University of Alexandria, Egypt. The costs of rehabilitating water-logged and salinized irrigated land through drainage and leaching varies from country to country, and project to project. For instance, recent projects, using tiles and pumps to drain water, have cost \$925 per hectare in Egypt. In simpler projects using local labour for constructing open ditches, projects have been carried out at a cost as low as \$120 per hectare, such as in Pakistan and the Yemen Arab Republic. A medium figure of \$750 per hectare is considered to represent the majority of cases where tile drainage and leaching--but not pumping--are involved.

Corrective Measures for Rangeland Deterioration

117. As can be seen from Tables I and II, the total areas of rangelands and of rangelands affected by desertification are the most extensive of the three types of land-use systems. It is estimated that over 82 per cent, or 3.1 billion hectares, of the world's arid and semi-arid rangelands are affected by desertification. This is due to the degradation of grazing lands over the years, the expansion of cultivated lands so that the worst lands have been left for grazing purposes, and the low inherent productivity of rangelands, especially in arid and semi-arid areas.

118. Desertification is manifested in the thinning or disappearance of vegetation, especially of fodder species. The natural vegetative cover is replaced by hardy unpalatable species or by short-lived vegetation. The main causes of rangeland deterioration are overgrazing and, in some areas, deforestation resulting from the cutting of fuel wood. The salvaging of rangelands and the restoration of the range ecosystem to equilibrium and optimum productivity can be achieved through sound range management, including reducing livestock numbers, controlling the cutting of fuel wood, and afforestation. There are considerable related additional costs in such measures, such as giving the people concerned alternative or supplementary livelihood systems and sources of energy (including planting of woodlots) to relieve the pressure on the land.

119. For the present, the cost of restoring rangelands is based on the immediate costs of better rangeland management. This involves grazing patterns that allow vegetation to recuperate. As a first step, the carrying capacity and stocking rates of the rangelands should be determined. Rotational grazing and the establishment of reserves in the event of drought are also used. Watering points are planned to give adequate access to all land being grazed. Reseeding and even fencing and guarding of grazing lands

are necessary in some cases. The whole-hearted cooperation of the people directly involved is essential to the success of these measures.

120. The direct costs of these aspects of proper range management are estimated at from \$5 to as high as \$400 per hectare where fencing and guarding are involved. The average low, medium and high costs per hectare have been estimated at \$10, \$25 and \$40 respectively.^{16/}

121. The total cost of stopping the degradation of the world's rangelands affected by desertification, 3.1 billion hectares, using the estimated medium cost per hectare, would be on the order of \$78 billion. A programme of this magnitude would clearly be unrealistic. The costs and areas involved are so vast that it does not seem feasible to restore the entire area even over a 20-year period. There are further considerations. It is estimated that only about 25 per cent of the rangelands in the arid and semi-arid countries can be recovered with positive economic returns.^{17/}

^{16/} These estimates are based mainly on costs of rangeland rehabilitation projects and consultations with FAO, World Bank and UNDP staff, as well as Balba, Dregne and Kassas. FAO cost estimates of projects involving rotational grazing and seeding are in the range of \$10 to \$20 per hectare, depending on the intensiveness of the practices or measures carried out. These are conservative estimates made over five years ago and do not take inflation into account. The high estimate of \$40 per hectare includes control of noxious weeds by mechanical and/or chemical means. It is considered that a unit cost of \$25 per hectare is a conservative average estimate reflecting the most common measures of rangeland rehabilitation.

^{17/} H. Dregne, op.cit.

122. If the programme were to try to restore only the approximately 25 per cent of rangelands affected by desertification which would yield positive benefit cost ratios, then the medium total cost would be in the order of \$19.4 billion for all countries and \$9 billion in developing countries requiring external financial assistance. This, however, would not be an acceptable solution in view of the considerable populations whose livelihoods are directly at stake.^{18/} For reasons unrelated to strict cost-benefit criteria, such as the need for a protective zone, consideration should be given to including, besides the area which can be improved with positive economic returns, additional rangelands in the 20-year programme. If one included an additional 25 per cent of the affected rangelands in developing countries requiring external financial assistance, the total average annual costs would be on the order of \$361 million (low), \$903 million (medium) and \$1.4 billion (high) These estimates are detailed in Table IV.

^{18/} It is estimated that 660 million people live within the arid and semi-arid regions where the food-producing systems are threatened to a greater or lesser degree by the processes of desertification. Of this number, 62 million, living in rural areas, are immediately menaced by loss of the productivity of the land and face the grim prospect of uprooting themselves and migrating to other areas. (Estimates are by Kassas.)

123. The financial plan makes no provision for the remaining 50 per cent, which should be a question of national policy. Minimal measures involving no structural improvements but including more efficient management might be applied to slow down or even arrest the rate of desertification of this land. Complementary measures such as supplemental or alternative means of livelihood could also be applied. Finally, uneconomic rainfed cropland can be converted to rangelands and fodder can be grown intensively around the perimetres of irrigated land to compensate for the decrease in livestock production in arid and semi-arid areas. To meet the world's increasing food requirements, the development of other promising lands should also be pursued.^{19/}

Corrective Measures for Rainfed Cropland Degradation

124. The deterioration of rainfed croplands is manifested in three ways: (a) depletion of soil fertility, (b) water and wind erosion and (c) soil compaction and crusting. Depletion is caused by the leaching of nutrients, and erosion by the lack of protection from rain and wind. To restore rainfed croplands to a state of optimum productivity requires various measures. Where the problem is solely that of soil nutrient depletion, the solution lies in fertilization. Where the problem is erosion, compaction, or crusting, various soil conservation techniques are used such as windbreaks, terracing, contour ploughing, strip cropping, water control and residue management.

^{19/}Such a programme of agricultural development for 90 developing countries is detailed in FAO, Agriculture: Toward 2000, op cit.

125. Taken as a whole, the average costs of rehabilitating desertified rainfed croplands are estimated at \$200 per hectare (low), \$250 (medium) and \$450 (high). Where the problem is solely that of soil depletion, the average cost of corrective measures is estimated at \$50 per hectare. Where the problem is also that of erosion, the average cost is estimated at \$500 per hectare.^{20/}

126. Approximately 173 million hectares of the world's total rainfed croplands in arid and semi-arid areas are affected by desertification, of which about 70 million hectares are subject to depletion of soil fertility and 103 million to water and wind erosion. Of the total, about 97 million hectares are in developing countries requiring external financial assistance. It is estimated that 70 per cent, or 68 million hectares, of these lands can be recovered with positive net economic returns. This is the area included in the financial plan. In the remaining 30 per cent, alternative or supplementary livelihood systems can be introduced for the populations involved (as in the case of rangelands), and a large part of the areas can be converted to grazing lands. The declining yields resulting from the desertification of rainfed croplands and their conversion to grazing lands could be compensated for by the development of other more promising lands to meet the world's growing needs, as detailed in the programme proposed by FAO in Agriculture: Toward 2000.

^{20/} These costings are based mainly on data on project samples from FAO and Dregne. The low estimate of \$200 per hectare involves minimal levels of structural changes, mainly strip cropping, residue management and contouring. Where major structural changes are involved, such as terracing, wind breaks, water conservation, contour ploughing and strip cropping, project costs have averaged \$450 per hectare. In most cases, however, less intensive techniques are adequate and the unit costs per hectare have been estimated at \$250.

127. The medium cost of rehabilitating 70 per cent of the rainfed croplands affected by desertification in developing countries requiring external financial assistance would be on the order of \$17 billion over a 20-year period. The estimated annual costs would be on the order of \$680 million (low), \$850 million (medium) and \$1.5 billion (high). These estimates are detailed in Tables III and IV.

Stopping the Encroachment of Moving Sand Dunes

128. A special kind of desertification is in the form of the encroachment by moving sand dunes on productive agricultural areas, communities, oases and even roads and rivers. The problem of moving sands is a special one in that while the sandy areas themselves are already desert or desert-like (climatic or man-made), they pose a threat to productive and inhabited areas. In addition, the erosion of certain drylands has reached the point where sand dunes have formed and should be stabilized.

129. While the problem of moving sands is an extensive one, the financial plan includes only the critical areas affected. These include:^{21/}

(a) Sand dune fixation in hyperarid areas through non-vegetative means. The areas threatening oases, roads, airfields and small communities in hyperarid regions total roughly 78,000 hectares. This is the most expensive method of sand dune fixation and includes the use of bituminous and chemical covers as well as fences. The cost of fixation per hectare

^{21/} Estimates are from H. Dregne.

is estimated roughly at \$1,000, based on samples of actual projects. The total cost of sand dune stabilization to protect threatened critical areas through non-vegetative methods would be on the order of \$78 million.

(b) Green belts to protect cultivated lands and communities. The areas of moving sand dunes threatening cultivated lands and communities are estimated at 200,000 hectares. The average cost per hectare of establishing green belts is estimated at \$300, giving \$60 million as the total cost of this type of sand dune fixation.

(c) Revegetation for stabilization and range forage production. This is the most extensive form of sand dune fixation, involving a total area of 3.8 million hectares. The cost of revegetation is estimated at \$200 per hectare, slightly less than for green belts, or \$760 million for the total area involved.

130. In sum, the area of critical moving sand dunes is estimated at 4.1 million hectares. The total cost of sand dune fixation would be on the order of \$900 million. No country-by-country breakdowns are available. In the absence of detailed estimates, it is assumed for the purposes of the financial plan that one-half are in developing countries requiring external financial assistance. The only countries for which estimates are available are Australia, the United States and the USSR, where the areas of moving sands are estimated at 1.6 million hectares. In view of the relatively small magnitudes involved, the margin of error would not significantly affect the total estimated costs of corrective measures.

Other Essential Measures

131. The problems of desertification are complex and require a variety of measures for their solution. This is especially true of rangelands and, to a lesser extent, of rainfed croplands, where population and animal pressure is severe. In many cases, expenditures for the proper technical management of rangelands will not succeed unless this pressure is permanently relieved. Because they are fragile ecosystems, the world's arid and semi-arid rangelands have a limited bio-mass and limited carrying capacity. Two major factors in the desertification of rangelands are overgrazing and the excessive cutting of fuel wood. It is estimated that some 4 million hectares of open woodland (steppe and savannah) are cut every year. Reforestation and revegetation of denuded land is an integral part of action to protect against desertification (e.g. shelterbelts), as are stabilization of productive rainfed agricultural and pastoral systems (the concepts of green belts), and provision of alternative sources of income.

132. As was noted at the beginning of this chapter, the financial plan presented here includes estimates of the costs of only part of the measures called for in the Plan of Action. Carrying out the other measures that are essential to the success of the Plan would entail substantial additional costs that cannot now be estimated. It is not necessary to review all of these measures here, but it may be useful to call attention to some of them that may prove to be especially significant financially.

Alternatives to Pastoral Livelihood Systems

133. To an extent, overgrazing and animal pressure can be reduced by stratification of livestock, i.e., by careful planning of the movements

of livestock at various stages of their growth cycle to achieve the optimum distribution of herds throughout the different rainfall zones. This approach would involve serious political problems, especially when movements across national borders are required. Moreover, most of the world's arid and semi-arid rangelands -- over 75 per cent -- do not have sufficient carrying capacity under present conditions economically to support their present livestock populations. In many areas, livestock populations will have to be reduced and this will encounter formidable political and social obstacles. It is suggested that in order to make this transition less difficult and as an essential part of the measures to improve the condition of rangelands the following measures be taken:

(a) Intensive production of fodder. The need for animal feeds can be met more fully if fodder could be grown intensively on the perimetres of irrigated areas. This would supplement the traditional grazing methods of the pastoralists.

(b) Storing animal feeds for periods of drought. Attempts should be made to build up stocks from local surpluses. Animal feeds could also be provided by developed countries as emergency assistance to poor countries such as those of the Sudano-Sahelian region. This measure should be undertaken as insurance against risk of drought and should not be used as an artificial means of maintaining herds at a level clearly beyond the carrying capacity of the land.

(c) To reduce the number of livestock in rangelands to a safe level and yet provide the pastoralists with sufficient income, it may be necessary for a time to subsidize these industries. A more viable and permanent solution, however, should be found. This would

require the generation of new livelihood systems to supplement the incomes of pastoralists. Such alternative livelihood systems could include the growing of promising drought-resistant cash crops, such as gum arabic, guayule and jojoba. This will be discussed further in Chapter III. In other cases, where agricultural opportunities are clearly limited, the generation of livelihood systems outside the agricultural sector should be carried out. These all call for programmes of development.

Meeting the Energy Crisis

134. The cutting of firewood, while a cause of desertification, is necessary to supply the energy requirements of the people, not only in rangelands and farms, but also in urban areas. One way of meeting energy needs would be the establishment of fuel wood plantations, especially around towns and cities in developing countries. Alternative technologies for energy may also be developed, such as bagasse charcoal and small inexpensive stoves including, in certain cases, solar stoves.

Monitoring

135. Another important measure is the monitoring of desertification and related natural resources processes. This would give more accurate data on the extent, location and kind of desertification taking place and its effect on the populations involved. Such information is essential for planning anti-desertification programmes and monitoring their effectiveness. With the spectacular advances made in remote sensing, regional and global monitoring systems using Landsat imagery, aerial photography and ground checking, national, regional and global monitoring systems could be established as part of the anti-desertification programme.

Total Cost of Financial Plan

136. Counting only the measures whose costs can be estimated, the total cost of a 20-year programme to combat desertification in developing countries requiring external financial assistance would be on the order of \$4.8 billion, in 1980 dollars. This figure can be broken down as follows:

(a) The rehabilitation of all irrigated lands in such countries affected by desertification, 16.3 million hectares. The total estimated costs would be on the order of \$8.2 billion (low), \$12.3 billion (medium) and \$19.6 billion (high);

(b) The rehabilitation of 50 per cent, (or 723 million hectares) of the 1.4 billion hectares of all rangelands affected by desertification in such countries. The total estimated costs would be \$7.2 billion (low), \$18.1 billion (medium) and \$28.9 billion (high);

(c) The rehabilitation of 70 per cent (or 68 million hectares), of the 97 million hectares of all desertified rainfed cropland in such countries. The total estimated costs would be \$13.6 billion (low), \$17 billion (medium), and \$30.6 billion (high);

(d) Sand dune fixation in critical areas totalling two million hectares. The cost would be on the order of \$449 million.

137. On an annual basis, the total costs of these measures, assuming that they are implemented over a period of 20 years, would be on the order of \$1.5 billion (low), \$2.4 billion (medium) and \$4 million (high). These are estimated average annual expenditures, and it is assumed that expenditures will be lower in the initial years and increase with time.

An Alternative Approach

138. The financial plan presented here deals with aspects of a programme to counter the degradation and declining productivity of land affected by desertification. An alternative approach is to limit the anti-desertification effort to those lands that deteriorate each year to a level of zero or negative net returns. The difference between these two approaches is essentially that of dealing with a process on a broad scale and defending a line.

139. Because it involves a smaller land area -- 9.8 million hectares annually in developing countries requiring external financial assistance -- the second approach would be less expensive, although the unit costs would be higher since the areas involved would be severely desertified. The estimated annual cost of comparable aspects of this approach would be on the order of \$1.3 billion. It would not, however, help to stop desertification on a comprehensive basis. The degradation of the productive capability of land that had not yet fallen to the zero level would continue, with adverse ecological and socio-economic consequences. Moreover, by failing to deal broadly with the desertification problem, this alternative approach would not keep additional land from falling to or below the level of zero net returns every year for an indefinite future.

The Need for External Assistance

140. The General Assembly has requested that in addition to giving the components and estimated costs of a financial plan to stop further desertification, the plan include estimates of what is already being

financed and what additional resources may be needed to meet the minimum objectives of stopping the spread of desertification. Estimates of the level of expenditures for combating desertification are not readily available. The reason is that anti-desertification activities are not a distinct, separately identified category in statistical classifications of expenditure flows. This is true not only of bilateral and multilateral programmes but also of national development plans and budgets, which classify their planned, on-going and past expenditures according to systems which do not identify desertification as such.

141. In order to obtain an estimate of the amount of external assistance concerned with desertification control to arid and semi-arid developing countries, the Desertification Unit of UNEP held discussions with officials of OECD and multilateral assistance agencies. Using the OECD project classifications, an average desertification control component for each type of project was estimated. On this basis, estimates were made of the flows of assistance from OECD Member States; international and regional financing agencies including the World Bank, the regional development banks and IFAD; bilateral and multilateral assistance from OPEC Member States; and assistance from the United Nations system other than the World Bank and IFAD.^{22/} The total external assistance involving desertification control has been calculated at \$527 million in 1978 divided as follows:

^{22/} It may also be noted that during a series of UNSO planning and programming missions which visited 13 Sudano-Sahelian countries, UNSO received requests for assistance to 107 priority anti-desertification projects costing \$640 million, of which \$395 million had already been pledged or provided, and an additional \$246 million was immediately required. The missions were undertaken in 1979.

OECD Member States plus international and regional financing agencies	\$443 million
OPEC bilateral and multilateral flows	\$ 23 million
UN system other than World Bank and IFAD	\$ 61 million

There is reason to believe that these estimates are high as they include some expenditures for areas which are not presently threatened by desertification. Taking the 1978 estimate, external assistance constitutes 22 per cent of the average annual amount of funds necessary for a minimum programme of those corrective measures whose costs can be estimated.

142. In developed countries, national expenditures to control desertification are significant and will probably increase. In less-developed countries, however, they are inadequate and, in the case of the least developed of the developing countries, they are negligible. On the basis of samples of on-going desertification control programmes, it is estimated tentatively that expenditures by Governments of developing countries on such programmes account for roughly 10 per cent of total expenditures, including external assistance. The on-going expenditures for combating desertification in 1978 would therefore be on the order of \$59 million. This represents only 2 per cent of the aspects of a minimum 20-year programme whose costs can be estimated.

143. In short, the levels of additional assistance required to stop further desertification, after taking on-going expenditures into account and ignoring measures whose costs cannot be estimated, would amount to \$1.8 billion per annum, as illustrated in the following table:

Total annual requirements (medium estimate)		- \$2,358 million
Current level of external assistance	- \$527 million	
Current level of local expenditure	- \$ 59 million	
Total annual expenditure		- \$ 586 million
Net additional resources required		- \$1,772 million

144. These figures indicate that a considerable amount of additional resources are required for combating desertification. It should be emphasized that these estimates do not take into account the cost of many measures which are essential for the implementation of desertification control programmes. Nor do they include rising costs due to inflation and the increased costs which would result from the deterioration of what are now slightly or moderately desertified lands to severely degraded conditions, which would be more expensive to correct. While initial expenditures should necessarily be low and built up with time, there is a clear and immediate need to increase substantially the level of assistance to developing countries suffering from desertification.

Table 1
Arid and Semi-Arid Areas Affected by Desertification
By Type of Land Use, Country and Region

	Irrigated Land (000ha)			Rangeland (000ha)			Rainfed Cropland (000ha)		
	Total	Area affected by desertifi- cation	Total	Area affected by desertifi- cation	Total	Area affected by desertifi- cation	Total	Area affected by desertifi- cation	
I. Western Hemisphere									
North America:									
USA	15,500	1,650	235,000	188,000	30,000	15,000			
Canada	300	60	10,000	7,000	5,000	3,000			
Mexico	3,750	1,125	100,000	96,000	7,500	6,700			
South America:									
Argentina	1,550	310	180,000	126,000	5,000	3,800			
Bolivia *	65	6	12,000	11,500	1,000	950			
Brazil	520	78	140,000	135,000	6,000	5,000			
Chile	1,280	320	24,000	22,400	1,400	1,350			
Colombia	0	0	3,500	3,200	0	0			
Ecuador *	460	115	300	280	40	39			
Paraguay *	9	2	12,000	9,600	50	20			
Peru *	1,155	346	9,500	8,800	500	450			
Venezuela	350	52	2,800	2,600	300	250			
II. Africa									
North Africa:									
Algeria	292	65	83,000	76,500	4,500	4,000			
Egypt *	2,846	735	10,000	9,700	5	1			
Libya	154	12	35,200	33,600	2,500	2,000			
Morocco *	630	125	28,000	27,200	7,000	5,600			
Tunisia *	128	50	10,100	9,000	3,000	2,100			

Table 1 (continued)

	Irrigated Land (000ha)		Rangeland (000ha)		Rainfed Cropland (000ha)	
	Total	Area affected by desertifi- cation	Total	Area affected by desertifi- cation	Total	Area affected by desertifi- cation
Sudano-Sahelian Regions						
Cape Verde*	1	0.03	0	0	45	30
Chad *	3.5	0.17	97,000	96,000	1,800	1,700
Djibouti *	0	0	2.2	2.2	0	0
Ethiopia *	30	5	85,125	77,000	3,500	3,100
Gambia *	29.5	5	0	0	200	100
Kenya *	20	1.1	22,000	21,000	300	270
Mali *	120	12	108,000	106,000	2,000	1,500
Mauritania *	28	0.15	72,300	71,000	150	100
Niger *	16.5	0.83	104,000	101,000	4,000	3,000
Nigeria *	13	0.6	30,000	28,000	5,500	5,200
Senegal *	144	0.10	13,000	12,100	2,400	2,000
Somalia *	100	9	63,600	57,500	1,000	950
Sudan *	1,610	250	203,000	198,000	3,500	2,600
Uganda *	4	0.2	375	350	0	0
United Republic of Cameroon *	2	0.3	10	6	8	7
Upper Volta *	5.0	0	16,000	15,500	2,700	2,500
Other countries south of the Equator:						
Botswana *	2	0.2	50,000	10,000	30	20
Madagascar *	670	45	5,000	4,800	200	150
Namibia *	8	0.1	66,000	16,500	10	5
South Africa	860	46	45,000	38,000	1,000	650
Tanzania *	40	4	28,000	14,000	2,400	1,900
Zimbabwe *	0	0	7,500	4,000	300	150
III. Australia	1,600	160	550,000	330,000	2,000	1,500

Table 1 (continued)

	Irrigated Land (000ha)		Rangeland (000ha)		Rainfed Cropland (000ha)	
	Total	Area affected by desertifi- cation	Total	Area affected by desertifi- cation	Total	Area affected by desertifi- cation
IV. Asia						
West Asia/Middle East:						
Bahrain	1	0	65	65	0	0
Iraq	4,000	2,400	33,000	31,000	5,000	4,500
Israel	170	17	1,240	1,100	190	185
Jordan *	60	9	8,400	8,200	1,000	950
Kuwait	1	0	1,580	1,500	0	0
Oman	35	15	21,238	20,000	0	0
Qatar	0.12	0	2,070	2,000	0	0
Saudi Arabia	130	26	194,000	175,000	900	800
Syria *	600	150	13,000	12,000	5,000	4,000
Turkey *	2,000	600	11,000	9,400	9,000	6,000
United Arab Emirates	5	0	8,366	7,900	0	0
Dem. Rep. of Yemen *	5	0.5	28,500	22,800	0	0
Yemen Arb. Rep. *	100	20	18,300	17,000	600	350
South-West Asia:						
Afghanistan *	2,900	600	39,000	35,000	5,000	4,500
India *	30,000	4,500	18,000	15,000	40,000	34,000
Iran	5,250	1,320	127,000	124,000	6,000	5,500
Pakistan *	13,300	5,050	56,000	54,000	6,000	5,400
China *	19,000	3,700	370,000	307,000	8,000	7,400
Mongolia *	30	4.5	93,000	56,000	900	150
V. Europe						
Spain	2,400	890	16,000	15,500	5,000	4,200
VI. USSR	12,600	2,160	230,000	190,000	25,000	17,500
GRAND TOTAL	126,282.62	27,052.78	3,751,071.2	3,071,603.2	224,428	173,127

Source: Prof. Harold Drege, Director, International Center for Arid and Semi-arid Land Studies (ICASALS), Texas Tech University.

* Developing countries requiring external financial assistance.

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Table 2

Arid and Semi-Arid Areas Affected by Desertification, by Type of Land Use, showing
(a) Areas in Countries not requiring Assistance; (b) Areas in Developing Countries
requiring Assistance; (c) Areas in (b) to be included in Programme of Corrective

Measures

Type of Land	Area affected by desertification (mil.ha)	Area of desertified land in countries not requiring external financial assistance (mil.ha)	Area of desertified land in developing countries requiring external financial assistance (mil.ha)	Area of desertified land in developing countries requiring assistance included in programme of corrective measures (mil.ha)
(1)	(2)	(3)	(4)	(5)
Irrigated land	27.05	10.71	16.35	16.35
Rangeland	3,071.60	1,626.36	1,445.24	722.62
Rainfed cropland	173.13	75.94	97.19	68.03
Total	3,271.78	1,713.01	1,558.78	807.00

Source: The figures given in this table are derived from data in Table 1.

Table 3

Alternative Estimates of Total Costs of a Twenty-Year Programme of Basic Corrective Measures for the Rehabilitation of Desertified Lands in Developing Countries Requiring External Financial Assistance

Type of land (1)	Area Covered ^{1/} (mil. ha) (2)	Total Cost of Programme of Corrective Measures ^{2/} (mil. \$)		
		Low (3)	Medium (4)	High (5)
Irrigated land	16.35	8,175.00	12,262.50	19,620.00
Rangeland	722.62	7,226.20	18,065.50	28,904.80
Rainfed cropland	68.03	13,606.00	17,007.50	30,613.50
Sand dune stabilization	2.04	449.00	449.00	449.00
Total	809.04	29,456.20	47,784.50	79,587.30

^{1/} Source: Table II, column 5.

^{2/} Estimates are based on area covered and average low, medium and high unit costs of rehabilitation of desertified lands, as discussed in the text. Costings are based on the assumption that the affected areas in column 2 are moderately desertified.

Table 4

Alternative Estimates of Average Annual Costs in a Twenty-Year Programme of Basic Corrective Measures for the Rehabilitation of Desertified lands in Developing Countries Requiring External Financial Assistance

Type of land	Area Covered ^{1/} (mil. ha)	Average Annual Cost of Programme of Corrective Measures ^{2/} (mil. \$)		
		Low	Medium	High
(1)	(2)	(3)	(4)	(5)
Irrigated land	16.35	408.75	613.13	981.00
Pangeland	722.62	361.31	903.27	1,445.24
Rainfed cropland	68.03	680.30	850.37	1,530.68
Sand dune stabilization	2.04	22.45	22.45	22.45
Total	809.04	1,472.81	2,389.22	3,979.37

^{1/} Source: Table II, column 5.

^{2/} Estimated annual costs derived from Table III.

CHAPTER III

Methods for the Mobilization of Domestic Resources

145. In considering the subject of the methods of mobilizing domestic resources for implementing the Plan of Action to Combat Desertification, a distinction should be made between the developed and the developing countries. In developed countries suffering from desertification such as Australia, the United States and the USSR, the mobilization of domestic resources does not loom as so large a problem. Resources are available, and methods of mobilizing them have been developed and applied. It is for this reason also that the financial estimates given in Chapter II focussed on the needs of the developing countries.

146. It is in the poorer countries, especially the least developed, that the problem of mobilizing domestic resources is particularly acute. In these countries, furthermore, the ways of mobilizing domestic resources are closely intertwined with problems of low levels of overall domestic resources available and the competing demands on the allocation of these resources.

147. Re-allocation of limited available resources in favour of anti-desertification projects is a delicate policy planning matter. In those countries most seriously affected by desertification, special priority should clearly be given to desertification control projects.

Priority should also be given in countries where the results of desertification are not so apparent, but where protective and corrective measures should be taken lest the process sharply accelerate, which would result in severe losses in future production.

148. It should be realized that, although desertification control projects do not necessarily generate early returns in the form of financial flows, their benefits are unquestionable. These include increased food production, the halting of declining yields due to land deterioration and the very prevention of extensive loss of human life, abject poverty and the loss of livelihood systems.

149. There are, furthermore, social and ecological benefits, including the protection and enhancement of a vital, life-sustaining part of the environment, which may not be readily quantifiable but which are essential to the well-being of the country as a whole. It is necessary, for these reasons, to have well-formulated projects providing information on these important factors and to make governments more aware of the need to give priority to desertification control programmes in their development plans and allocation of resources.

150. Attention is drawn, in this connexion, to the guidelines provided in the Plan of Action to Combat Desertification, particularly to the recommendations that public participation be made an integral element of the prevention and combating of desertification. Account would thus be taken of the needs, wisdom and aspirations of the people. Attention should also be given to the Plan of Action's recommendations

concerning regional projects. It is emphasized that the mobilization of local potential resources is an essential prerequisite and an integral part of some programmes which require domestic financial resources as well as, in the case of many developing countries, foreign assistance.

Domestic Fiscal Capacity

151. To estimate the potential for the mobilization of domestic resources, an analysis has been made of the fiscal capacity of the affected countries. For working purposes, the countries for which the estimates were obtained were taken from a list of the countries of the world with arid and semi-arid areas. These are shown in Table V. The methodology involved a survey of the fiscal indicators in these countries. The survey showed a wide range of tax revenues as a percentage of Gross Domestic Product (GDP). A number of countries demonstrated a high capacity, on the order of magnitude of 18 to 20 per cent; others showed very low capacities, on the order of magnitude of only 11 to 12 per cent. For those countries suffering from desertification with lower capacities, an attempt has been made to estimate the increased revenues that might be realized if the revenue/GDP ratio were raised. The procedure used was to consider the countries by income groups (low, medium, high) and for all countries with low capacity, a ratio equal to the average of the per capita income group was then applied. The resulting estimates are defined as the potential Government revenues.

152. The potential government revenues, reflecting the increase that could be achieved by more efficient tax efforts, are shown in column 5 of table 6. As can be seen, the increase is not large. The global total of \$1,550 million for the "total most affected" countries represents an increase of only 3.2 per cent of actual revenues. (This compares with a potential increase of \$2,028 million, or over 8 per cent, for the "less affected" countries.) It is obvious that even if potential government revenues were realized, the amounts available for desertification control programmes would be limited, especially in relation to the estimated financial needs described in Chapter II.

153. Another method of measuring the potential level of resources which could be mobilized domestically is to measure the growth increments from which these resources could be mobilized. The aggregate real growth rate of the affected countries, as shown in table 1, is estimated at less than 4 per cent annually, compared with 5 per cent for all developing countries^{23/}, so that increased incomes that can be tapped would not appear to be a significant overall source of capital mobilization. In examining the fiscal capacities and growth increments of the affected countries one must consider, furthermore, the competing claims for a share of these increased revenues. Bearing in mind that domestic resources available in most developing countries are extremely limited, the following are some of the principal methods by which domestic resources could be mobilized for programmes to combat desertification.

^{23/} World Bank, World Development Report, 1979, Table II.

Conventional Methods

154. A basic approach to mobilizing domestic resources is to increase the tax efforts. In the area of administration the system of tax collection can be improved by strengthening the tax authorities of the Government. More efficient revenue collection could be realized in this connexion, by providing local Governments with taxing powers.

155. Income taxes in developing countries usually account for a small portion of revenues because the potential is quite low. The existence of high income groups does sometimes permit a far greater tax intake than average income might suggest, but this is not the case in many desert-prone developing countries, where such groups are few or small. For lower income groups in many of the affected countries, especially in the Sudano-Sahelian and southern neighbouring countries, income taxes are nonexistent or non-applicable, and poll taxes (or hearth taxes or the "impôt minimum fiscal") are applied instead. Their volume, however, is generally small and has been either considerably reduced or largely eliminated since the droughts of the early 1970s decimated the potential to pay.

156. Other possible taxes are indirect taxes (sales or turnover, value-added, excise, customs duties on both imports and exports). These, however, already account for the major portion of revenues (60 to 70 per cent), and increases may cause serious disincentives and other counter-productive effects.

157. Betterment taxes at first sight would seem to be very appropriate to the type of projects involved in combating desertification, for these projects generally have high social returns. Taxing such an "externality benefit" - in this case the increase in private land values due to social, publicly financed projects - is the basic rationale of betterment levies. In general, however, such taxes are difficult to administer in rural areas and are more effective in urban communities. Capital improvements resulting from increased production through anti-desertification measures, furthermore, are usually realized over the long-term. Much grazing land, especially in the Sahel, is considered part of the public domain, and is therefore not taxable.

158. The most promising source of tax revenues appears to lie in the area of user charges, such as in irrigated areas, cattle ranching schemes, rangeland wells, veterinary activities and woodlots. All of these show tangible benefits readily identifiable to the users. It should be realized, however, that such taxes can be made only after initial investments have produced the necessary results. Even in this area, moreover, there are problems to be encountered such as initial resistance to "purchases" which may have originally been "freely available", problems of administration and poorly functioning facilities.

159. In sum, there is clearly a potential for increasing domestic revenues to finance desertification control programmes, but this potential appears to be limited by the countries' limited fiscal

capacities, limited domestic resources, difficulties in administration and sociological problems. The most promising tax measures for raising revenues appear to be in the field of user charges.

Promotion of viable commercial schemes

160. Another possible method of generating domestic sources of income lies in the promotion and development of commercially viable enterprises with initial technical or investment assistance. These could include such schemes as feed-lots and fattening ranches, bio-gas production at feed-lots, forage production, desert tourism and - probably the most promising - the development of certain cash crops.

161. It may be noted that the guayule and the jojoba, which are native to the arid and semi-arid areas of southwestern United States and northern Mexico, and gum arabic (acacia senegalensis), which grows in many parts of Africa, thrive in arid and semi-arid ecosystems and therefore could be grown extensively in the desert-prone areas of the world. There have been successful experiments in growing and transplanting these crops, for instance, from the Western Hemisphere to Africa. In addition to their suitability to the semi-desert ecosystems, these crops have significant potential and export markets. The guayule is a source of latex and rubber; jojoba produces a valuable kind of oil found elsewhere only in the sperm whale, an endangered species; and gum arabic has a variety of uses in the pharmaceutical, confectionery and other industries. These crops could thus serve the dual purpose of preventing desert creep and generating cash revenues. Commercially profitable enterprises

such as these could be used for mobilizing domestic capital either through taxation or through the ploughing back of profits for investment.

162. Still another method is the use of a "food for workers" scheme for the mobilization of a country's labour resources. This, of course, would depend largely on contributions by food surplus countries of the necessary food supplies. If food (from external sources) were provided during the off season when it would be more valuable to workers and thus represent higher wages in kind, labour resources could be more readily mobilized. There are already many valuable examples of such projects, in particular, in the Sudano-Sahelian zone.

Injection of External Resources

163. It is not realistic to expect the poorer countries affected by desertification to mobilize more than a small fraction of the domestic resources required for desertification control through their own efforts. A large part of these resources must be mobilized through the injection of foreign aid.

164. As has been done in many past aid programmes, aid donors can provide goods marketable in the recipient country. The local currency obtained by selling such goods can then be put in a special account and used to finance anti-desertification projects. A variant of this approach would be for aid donors to accept local currency rather than convertible foreign exchange, for part of their exports to developing countries affected by desertification. This local currency could then be put in a special account and used for anti-desertification purposes.

165. External resources can also be distributed on a preferential basis to provide incentives to relocate populations and economic activities (such as charcoal making) in ways that facilitate the control of desertification.

National Development Financing Institutions

166. In general, national governments do not make loans directly to development projects, such as those concerned with desertification control. Loans are usually made through semi-autonomous or quasi-governmental bodies, such as national development banks, marketing boards, development corporations and other institutions in which the governments have an equity. In the poorer countries suffering from desertification, with which we are more concerned, unfortunately, there is a dearth of such institutions, and the financial resources of existing institutions are limited.

167. Many development banking institutions - despite their mandate to promote development projects - would not be apt to finance desertification control projects, except those which are likely to yield early cash returns which could be ploughed back into the development banks' capital resources. In many countries suffering from desertification, furthermore, especially in the Sudano-Sahelian and southern neighbouring countries, there are few development banks and those that exist have little capital.

168. When considering loan applications, the national lending institutions appraise the project proposals on the basis of a number of criteria. One of the major ones is the question of priority, in view of the competing demands for the institutions' scarce resources. Unfortunately, desertification control is not given as high priority as it should, except perhaps in some of the most seriously affected countries. The reason, partly, is that they often do not yield returns in the form of early cash flows, which other projects do. Desertification control projects are

also often neglected because of their remoteness from the centres of decision-making and the areas where the majority of the population reside. Desertification, furthermore, has not to date been categorized as a specific sector in economic and related classifications of government and international institutions.

169. In view of the above, desertification control projects in general do not receive loans from national lending institutions on a priority basis. The situation, however, can be improved in various ways. Although desertification is not considered a sector as such, actual anti-desertification projects are concerned with such goals as agricultural improvement, rural development, food production, development of water supplies, development of cash crops and other designations which fall within the priorities of development planners and financial decision-makers. These aspects of the projects should therefore be highlighted together with the social and ecological benefits noted at the beginning of this chapter.

Table 5

LIST OF COUNTRIES WITH ARID AND SEMI-ARID AREAS, BY REGION AND DEGREE OF DEVELOPMENT

<u>Region</u>	<u>Countries most affected by aridity and least developed</u>	<u>Countries most affected by aridity but not least developed</u>	<u>Countries less affected by aridity but least developed</u>	<u>Countries less affected by aridity but not least developed</u>
MEDITERRANEAN	Democratic Republic of Yemen Yemen Arab Republic	Algeria Bahrain Egypt Iraq Israel Jordan Kuwait Lebanon Libyan Arab Jamahiriya Morocco Oman Qatar Saudi Arabia Syrian Arab Republic Tunisia Turkey United Arab Emirates		Cyprus Greece Malta Portugal Spain
AMERICAS		Argentina Chile Mexico Peru United States of America		Bolivia Brazil Canada Colombia Ecuador Paraguay Venezuela
SUDANO-SAHELIAN AND TROPICAL AFRICA	Angola Central African Republic Chad Ethiopia Mali Niger Somalia Sudan Upper Volta	French Territory of Afars and Issas (now Djibouti) Mauritania Namibia Senegal Western Sahara	Botswana Gambia Lesotho Uganda United Republic of Tanzania	Cape Verde Ghana Kenya Madagascar Nigeria Swaziland United Republic of Cameroon Zambia
ASIA AND THE PACIFIC	Afghanistan	Australia China India Iran Mongolia Pakistan USSR		Burma Sri Lanka

This list was prepared by a panel of senior consultants to the Secretary-General of the United Nations Conference on Desertification (UNCOD), an Ad Hoc Inter-Agency Task on countries with arid and semi-arid areas and the UNCOD Secretariat.

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Table 6

**BASIC FISCAL CAPACITY INDICATORS
 FOR DEVELOPING COUNTRIES AFFECTED BY DESERTIFICATION^{a/}
 (1977 estimates)**

Breakdown by Region and Degree of Aridity	Population (millions)	Aggregate GDP (millions \$US)	Actual Government Revenue (millions \$US)	Actual Government Revenue as a per cent of GDP	Potential Government Revenue (millions \$US) c/
	(1)	(2)	(3)	(4)	(5)
<u>Most Affected</u>					
South America	27.02	24,960	6,131	24.6	6,308
Northern Africa	63.05	29,030	7,012	24.2	7,112
Sudano-Sahelian and southern neighbouring countries	86.59	18,110	2,736	15.1	3,236
Middle East	63.18	62,090	14,474	23.3	14,882
Asia	717.76	118,400	18,686	15.8	19,051
<u>Total Most Affected</u>	957.60	252,590	49,039	19.4	50,589
<u>Total Less Affected</u> b/	234.83	99,774	25,029	25.1	27,057
<u>Total All Affected</u>	1,192.43	352,364	74,068	21.0	77,646

Source: World Bank, World Tables 1976, and IMF International Financial Statistics.

a/ Countries affected as given in list in Table V. Excludes: Peoples Republic of China and Mongolia; Algeria and Mexico because of oil surplus; and Western Sahara for lack of data.

b/ Excludes Brazil which otherwise dominates the group.

c/ Computed by applying to each country the average revenue ratio in 1973 for its income group, as given by the World Tables, p.440.

CHAPTER IV

The Practicability of Obtaining Loans from Governments
and World Capital Markets on a Concessionary Basis

Loans from Foreign Government Sources

170. As a general rule, loans on a concessionary basis are provided to the poorest countries, which are least able to borrow on commercial terms. These are mainly the least developed of the developing countries (LDCs), which have been classified as such by the United Nations General Assembly because of their low per capita incomes, limited natural resources, lack of economic diversification or other factors. Other bases for the provision of loans on a concessionary basis are the degrees to which the countries have been "most severely affected" by the energy crisis (MSAs), whether they are land-locked, newly independent and the like. In addition, certain bilateral assistance agencies accord priority to certain regions because of the severity of their geographical problems (e.g., the Sudano-Sahelian region) or because of special ties (e.g., the assistance programmes of Australia and New Zealand in the South Pacific and the French assistance programmes in various parts of Africa).

171. An important factor in obtaining loans from government sources is the cost-benefit relation in the particular desertification control projects.^{24/} Most governmental and intergovernmental financial institutions (e.g., IDA) apply technical feasibility and cost-benefit analyses in their

^{24/} UNEP is conducting an extensive study of the cost/benefit analysis of environmental projects, which will include a study of the methodology of the cost/benefit analysis of anti-desertification projects.

appraisals of project proposals, even when loans are provided on a concessionary basis, first to ensure that the project is technically feasible and, secondly, to ensure that it will have a positive impact on development. Increasing recognition is now being given to social costs and benefits and to the concept of national profitability, rather than strictly to the financial profitability of the project itself. There is also increasing attention given to the benefits of the projects to the poorer segments of the populations of the countries, especially in the rural areas.

172. Loans from foreign governments are not generally made directly by the governments themselves but rather through statutory bilateral assistance agencies or development corporations. Most bilateral assistance programmes in the international donor community provide grants and loans on highly concessionary terms as part of their official development assistance. A number of bilateral government assistance programmes, although they do not include desertification as a separate sectoral classification, do give priority to desert-prone arid and semi-arid areas, such as the Sahel. Since desertification control programmes, furthermore, involve rural development and affect the poorest segments of the population, they would be looked upon favourably by foreign lending agencies for lending on concessionary terms.

173. It is important, nevertheless, to have well-prepared applications which describe the projects' favourable benefit-cost ratios and social benefits from a national viewpoint, as well as the high priority that the recipient government accords them, reflected, to the extent possible, by pledges of the necessary counterpart support. In applying for assistance, the following points should be highlighted:

(a) Desertification-control projects support priority objectives of bilateral assistance programmes, such as agricultural improvement, rural development, food production, water resources development and basic needs;

(b) Rates of return, even if not in the form of early financial profits, are often high. Studies undertaken for the United Nations Conference on Desertification showed internal rates of return ranging from 14 per cent to 51 per cent for projects financed by the World Bank and the Inter-American Development Bank. Broad estimates also indicated potential benefit-cost ratios in order of magnitude of over 3;^{25/} and

(c) Desertification control projects are typically in rural areas and benefit the poorest segments of the population.

174. While desertification control projects, for the reasons explained above, would be looked upon favourably for lending on a concessionary basis, it should be noted that the current international financial environment indicates a slowing down or even a reduction of the amount of development assistance provided by the donor community, particularly the OECD countries. While the OECD countries as a group ran substantial current account surpluses in the 1960's and early 1970's, the situation radically changed in 1974, which was followed by years of large deficits, although there was a small surplus in 1978. In 1979, a current account deficit of about US\$30 billion was recorded by the OECD countries, and present estimates suggest a current account deficit of US\$74 billion for 1980 (the exceptions are expected to be Switzerland and Norway). The OPEC countries, on the other hand,

^{25/} UNCOD, Economic and Financial Aspects of the Plan of Action to Combat Desertification, A/CONF. 74/3/Add.2, Tables II and III.

have had a parallel and somewhat larger surplus. The 1975-78 trend of declining OPEC surpluses was reversed in 1979, when it totalled US\$60 billion. Preliminary estimates indicate that the OPEC surplus will be about US\$115 billion in 1980, a level which is not expected to decline rapidly in the succeeding years.^{26/} It may be noted that the official development assistance of OPEC countries amounted to \$5.3 billion, or 1.59 per cent of their GNP, in 1978.

175. Although there are already many competing demands for both OECD and OPEC funds, most of the OPEC countries are themselves suffering from desertification and OECD countries have an interest in providing assistance to less developed countries, including those suffering from desertification, independently of purely balance of payments considerations. Both groups, therefore, might be interested in participating and taking the lead in international programmes for combating the degradation of and for the development of arid and semi-arid lands.

Loans from World Capital Markets

176. By definition, there is an inherent paradox in obtaining loans from world capital markets on a concessionary basis. The reason is that the world's capital markets are commercial and profit-making in nature, so that they do not provide loans on concessionary terms. The principal means, therefore, by which concessionary terms could be obtained for the borrower would be through assistance from third parties through mechanisms such as guarantees of interest and principal, payment of part of the

^{26/} See International Monetary Fund, World Economic Outlook, especially Table 12 (Washington, D.C., May 1980).

interest charges, advancing the amortization of the loan and blending concessionary and non-concessionary funds. In this way, the borrower could obtain concessionary terms, i.e., low interest payments or fees, long repayment periods and provisions for grace.

177. In principle, grants by aid donors could make it possible to re-lend on concessionary terms funds borrowed on capital markets. If such grants are insufficient, some of the new means of raising funds discussed in Chapter I might be considered. For example, if the international community decided that it was appropriate, a tax might be levied on non-renewable energy resources. Whatever source of revenue is used, some entity would have to be charged with the task of allocating the funds raised.

178. The most prevalent means of borrowing from world capital markets are through investment banking, or underwriting, and through commercial bank loans. Investment banks raise the funds both through public offerings and private placements. It should be emphasized that they are more interested in the nature of the guarantees of repayment, the assurances of continuity and reliability, i.e., automaticity, and other standards of creditworthiness than in the nature of particular projects. Commercial banks, unlike investment banks, are primarily interested in lending to Governments or other borrowers for individual projects directly rather than through an intermediary institution for a group of projects. Their credit standards, however, are similarly rigorous.

179. To obtain loans on concessionary bases from world capital markets, it is unlikely that a developing country would negotiate such a deal directly with a commercial bank or other private source of financing, and the use of an intermediary development finance institution would be indicated. There is a limited number of such institutions, e.g., the World Bank (IDA) and the regional development banks, which could "package" concessionary loans for the developing countries, the sources of private capital and the donor willing to blend grant and long-term, low-interest development funds. Such deals could also be arranged by a public international financing corporation, such as was suggested by the UNEP expert group on additional measures. The next chapter of this study will deal with the proposal for the establishment of such an institution, as called for in paragraph 7(e) of General Assembly resolution 34/184.

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CHAPTER V

A Proposed Public International Corporation For Financing Anti-Desertification Projects

Background and Nature of Proposal

180. The establishment of a public international corporation to attract investments and provide financing for suitable anti-desertification projects with non-commercial rates of return was proposed by the UNEP expert group on additional measures. The proposal called for providing the corporation with equity funds from countries with surpluses in their international accounts, as well as from financial institutions.

181. The present group understands the original proposal as relating essentially to those projects which, although indispensable to the very survival of human and animal life in the arid and semi-arid regions, have extremely long gestation periods and, while having substantial expected benefits, present unusual difficulty in quantifying the potential returns at the preparation stage of the project. A large number of desertification control projects will be of this character. They cannot be avoided or ignored. A coherent financial plan requires that provision be made for their financing.

Feasibility

182. The feasibility of establishing such a public international corporation, which paragraph 7(e) of General Assembly resolution 34/184 requested the Group to deal with, depends on whether donor countries and organizations will provide the necessary resources for its establishment.

183. The projects which the corporation will be expected to finance would for the most part be incapable of bearing interest costs, even on the highly concessional terms which are presently available through IDA and similar financing institutions. It is important to recognize, therefore, that such projects will have to be financed primarily with funds provided on an interest free basis.

184. It is not being suggested that the financial institutions such as IDA, IDB, IFAD and the regional development banks should be relieved of the obligation to consider proposals for financing anti-desertification projects. Indeed, they should be encouraged to expand their activities in this direction. It is recognized, however, that there will still remain a substantial number of projects which these institutions could not reasonably be expected to finance, and we are agreed that there is room for an institution whose main function will be the financing of those long-term projects of desertification control with non-commercial rates of return, which would not ordinarily commend themselves to existing financial institutions.

185. If the proposed new financing institution were established in the form of a public international corporation, it would have the flexibility in operation, and would encourage the efficiency in management, that would commend its activities to potential suppliers of funds.

186. Assuming efficient managerial leadership, a public international corporation established for the primary purpose referred to above should readily attract a nucleus of uniquely qualified and competent staff with a degree of specialized expertise in the

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anti-desertification field not possessed by other financial institutions. It should not, therefore, be precluded from extending the range of its services to include projects which are capable of being funded on a basis which will assure over time a return of capital and even, in some cases, modest interest charges. To the extent that the corporation were able to establish a sound record of managing such projects, it would be reasonable to expect that it would attract funds from sources which would not be interested if the corporation's activities were confined exclusively to undertakings which could be financed only on a full grant-in-aid or interest free loan basis.

187. The Group is fully aware of the reluctance with which the Member States of the United Nations receive proposals for the creation of new institutions. It suggests, therefore, that if the United Nations decides that funds should be provided for the establishment of the proposed public international corporation, the possibility of having this corporation made a subsidiary or affiliate of an existing institution should be actively explored.

Establishment as an Affiliate or Subsidiary of an Existing Institution

188. The establishment of such a corporation as an affiliate would have the advantage of lending it the reputation, facilities and expertise of the established institution. In this way, it would also benefit from a shortening of the proving period. By a decision of the competent organ of the intergovernmental financing organization, combined possibly with an agreement with donor governments and institutions, the proposed corporation could be established. A corporation which is established as an affiliate of an existing institution could also have the advantage of eligibility,

(in determined circumstances) for the supply of capital from the parent institution as well as from donor members.

189. There are a number of possibilities for such an affiliation role. One possibility is the World Bank, with its solid reputation. It may be noted that the Bank is already engaged in a variety of activities and has major affiliates -- IDA, for which it raises replenishment funds and contributes a portion of its operating income, as well as the International Finance Corporation (IFC).

190. Another possibility which could be pursued is the OPEC Fund. Many of the major OPEC members have serious problems of desertification and, therefore, should be particularly interested in the subject. Their interest could be heightened if the purposes of the public international corporation were to include not only combating desertification per se and reclaiming desertified land, but also desert use and development -- all of which are intertwined. There is a movement to transform the OPEC Fund into a development agency capitalized at \$20 billion, with authority to borrow in capital markets to re-lend for a variety of development purposes, including the financing of balance-of-payment deficits, project financing and certain merchant banking functions. The fund will have currently at its disposal a cash amount of \$2.4 billion after the current round of replenishment is completed, of which around \$2 billion is likely to remain undisbursed.

191. A third possibility is the International Fund for Agricultural Development (IFAD), which started operations in 1977 with a subscribed capital of \$1 billion. Although a new organization,

IFAD is progressively gaining experience in its loan operations and has given priority to assisting poor countries, especially the poorer segments of their rural areas. Desertification control, therefore, could be of possible interest to IFAD.

Establishment of an Independent Institution

192. If none of the organizations cited above would be willing to establish an affiliate organization and it were not possible to find another appropriate capital financing agency for the establishment of a public international corporation with affiliate status, the proposed corporation could be established as an independent institution. The feasibility of its establishment, as noted previously, will depend on the willingness of the international community to provide the necessary capital.

Independent or Affiliate

193. A donor government or institution wishing to make a contribution to the resources of the corporation in the form of funds to be applied towards the subsidization of interest rather than as capital, could also do so. The operating and administrative costs of the corporation could be provided from its paid-in capital, and from interest and operating income supplemented initially by grants from governments or organizations such as the UNDP, which has provided considerable institutional support in meeting the administrative costs of the Caribbean Development Bank.

194. The proposed corporation could either borrow directly by issuing notes or bonds through investment banking firms, or expedite borrowing by the governments of affected countries from commercial banks. Notes or bonds issued by the corporation would be guaranteed

by the governments investing capital in it. Funds raised at commercial interest rates could then be blended with concessionary loans and grants to lower the average rate for each project. This would be accomplished by package arrangements including "hard" and "soft" loans combined with grant elements.

Summary

195. The possibility of encouraging existing institutions to finance anti-desertification projects should be actively explored. As this approach might not appear to be promising, the creation of a public international corporation to channel funds to anti-desertification projects should be seriously considered. Such a corporation should, if possible, be established as an affiliate of an existing financial institution.

Increasing the Role of Foundations in Anti-Desertification Research
and Training

196. General Assembly resolution 34/184 requested that the study should deal, inter alia, with "the means for encouraging the active participation of foundations in the financing of anti-desertification training and research programmes". It is assumed that the Assembly had primarily in mind the institutions known as private foundations, of which the majority are to be found in the developed OECD countries -- the United States, Canada, the countries of Western Europe, Japan, Australia and New Zealand.

197. In the United States, foundations, of which there are over 26,000, are classified as (a) independent; (b) company-sponsored; (c) operating ; or (d) community^{27/}. A few government foundations, such as the National Science Foundation, also make grants for specific purposes. In terms of their resources, the private foundations have assets in the region of \$32 billion; in 1978, they made grants of over \$2.1 billion. In Europe the number of private foundations is smaller, and so is the average size of the assets they control. Between 16,000 and 21,000 foundations possessing assets valued at \$8.5 billion made grants of about \$900 million in 1978. In other OECD countries about 1,000 foundations had assets of some \$300 million.^{28/}

^{27/} Operating foundations do not, as a rule, make grants but spend their money on programmes they themselves conduct. Community foundations confine their charitable activities to specific geographical areas in the United States.

^{28/} Private foundations constitute a small portion only of the non-profit community. Church-related and secular voluntary agencies have extensive networks of overseas personnel and missions and are estimated to spend about \$500 million each year.

198. A new kind of agency dispensing assistance for training and research has recently emerged. Some are government agencies, such as Canada's International Development Research Center (IDRC), the Swedish Agency for Research Co-operation with Developing Countries (SAREC), and the United States' Appropriate Technology International and Inter-American Foundation. These are oriented towards indigenous research and training projects in developing countries. Their annual grant-making resources are of the order of \$100 to 150 million.

199. In addition, there are the four "political" foundations in the Federal Republic of Germany, representing the interests of four major political parties and receiving government funds in proportion to the size of their representation in the national legislature. In the aggregate, these foundations have an annual budget of \$130 million, of which about \$50 million are allocated for international purposes.

200. In a somewhat different category are the handful of foundations recently established in the Middle East as non-governmental bodies serving to express the philanthropic interests of their founders. These include the Queen Alia Foundation (Amman), the King Faisal Philanthropic Foundation (Riyadh), and the Philanthropic Trust (Kuwait). There are no available estimates of their resources, but these foundations could possibly be interested in financing research and training related to desertification control.

Fields of Interest

201. A survey of United States' foundations in 1978 showed the following distribution of the grants they made by dollar volume^{29/}:

^{29/}The Foundation Directory, 7th Edition (The Foundation Center, New York, 1979).

<u>Field</u>	<u>Percentage of Total</u>
Education	27
Medecine/Health	21
Social and Natural Sciences	17
Social Welfare	15
Arts and Humanities	10
International Activities	8
Religion	2

In Europe, the distribution, measured by numbers of foundations involved in each area, was as follows^{30/}:

<u>Field</u>	<u>Percentage of Total</u>
Medicine	19
Social and natural science	17
Arts and humanities	14
Social welfare	12
International activities	9
Education	6
More than one field	23

It will be seen, therefore, that anti-desertification research and training is, by no means, a priority interest of the foundations at this time.

202. In the opinion of the group, the foundations which are most likely to be associated with the anti-desertification effort are those which already have an interest in one or the other of the following two fields: international relations and the environment. The possibility exists, however, that a few foundations whose interests lie in the fields of education and the earth-sciences may be encouraged to participate.

^{30/}Guide to European Foundations, Third Edition (Giovanni Agnelli Foundation, Turin, December 1978).

203. Private voluntary agencies in the OECD countries have, over the years, made substantial assistance grants to developing countries. Table VII which has been extracted from the OECD review of 1979, shows that the amounts of such grants equalled \$1,663 million in 1978. It can, therefore, be assumed that such philanthropic institutions can be persuaded to take an interest in anti-desertification research and training, especially since such activities as agricultural development, arid and semi-arid land development, food production, rural development, research on new plant species and others already fall within the ambit of their activity.

Potential Resources for Training and Research Related to Desertification Control

204. As far as the privately-endowed, independent foundations are concerned, no more than 150 to 175 are active international givers and fewer than 20 account for 90 percent of the grants to developing countries. Whilst the range of the individual grants varies from \$5,000 to \$1 million, the average size is considerable, between \$40,000 and \$300,000.

205. Among the better known international foundations with an interest in the Third World, are the following: Ford, Rockefeller, Rockefeller Brothers Fund, Lilly Endowment, W.K. Kellogg, Carnegie Corporation, A.W. Mellon, E.M. Clark and Tinker in the United States; Wolfson, Nuffield and Leverhulme in the United Kingdom; Alfried Krupp von Bohlen und Halbach, Kübel and Volkswagenwerk in the Federal Republic of Germany; NOVIB and NUFFIC in the Netherlands; Calouste Gulbenkian in Portugal; Juan March in Spain; and Toyota in Japan. A breakdown of some of the world's largest privately-endowed foundations, by region, assets, types of grants and areas of operation is shown in Table VIII.

Enlisting the Participation of Prospective Donors

206. As can be seen from the above, there are considerable resources available in the foundation sector which could be usefully applied to research and training programmes relating to desertification control. It should be emphasized, however, that these grant-making bodies do not ordinarily prepare their own projects. They prefer to contribute to the financing of projects brought to them by other bodies. Neither are they eager to be the sole financiers of any particular project.

207. In order to enlist their support for programmes of anti-desertification training and research, it is suggested that the General Assembly take the following action:

- (a) call upon UNEP, in the implementation of the Plan of Action to Combat Desertification, to institute, in co-operation with the relevant United Nations Agencies, specific programmes of research and training at the national, regional and international levels;
- (b) invite private foundations and other grant-making institutions in the developed countries and elsewhere to co-operate with UNEP in the execution of such training and research programmes;
- (c) encourage those member Governments which are not already doing so to recognise as eligible for tax exemptions private foundations which contribute to the support of international training and research programmes, specifically those relating to the control of desertification.

208. It is further suggested that UNEP and on its behalf, the United Nations Sudano-Sahelian Office, which are the entities in the United Nations system most concerned with desertification, should contact individually and systematically those foundations with an interest in international relations and environmental problems^{31/}, in order to familiarize them with the problems of desertification and to explore their interests in the financing and implementation of research and training.

209. The Consultative Group on International Agricultural Research (CGIAR), the membership of which includes foundations as well as governments and intergovernmental organizations, provides substantial assistance to research and training institutes which deal in whole or in part with arid and semi-arid areas and thus cover desertification control. These institutes include the International Center for Agricultural Research in the Dry Areas (ICARDA), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the International Livestock Center for Africa (ILCA), and the International Food Policy Research Institute (IFPRI). The CGIAR should be encouraged to increase its members' assistance to desertification control research and training in these and similar institutions.

210. While recognizing the value of the activities of other United Nations agencies, it would be particularly desirable for the United Nations University (UNU) and the United Nations Institute for Training and Research (UNITAR) to increase and intensify their activities for

^{31/} The Foundation Directory, published biennially by the Foundation Center, lists the major United States foundations, the value of their assets and the amounts of grants they made in the most recent year. It also indicates their main fields of interest and gives the names and addresses of the officials who should be approached when seeking grants. Approximately similar information is given about European foundations in the Guide to European Foundations by the Giovanni Agnelli Foundation.

training and research projects concerning desertification control and the development of arid and semi-arid lands. In particular, the UNU, with endowment funds of \$95 million and pledges of an additional \$50 million, already has a project within its natural resources programme for research and training relating to arid lands. All three of the principal areas in which UNU has decided to concentrate its efforts--the World Hunger Programme, Natural Resources, and Social Development--have relevance for the problem of desertification. An agreement on mutual co-operation between UNU and UNSO could very well provide the basis for an expanded activity in combating desertification generally. UNU, with its worldwide network of affiliated institutions, is in a good position to support expanded activities in the training and research fields relating to arid lands, including desertification control.

211. However useful the role of foundations might become as financial supporters of training and/or research schemes in the context of national and international efforts to halt desertification, it seems clear that their contributions will not, by far, be sufficient to cover the need of the countries affected by desertification.

212. Greatly expanded research and training are fundamental to desertification control and, therefore, require major attention and greatly expanded financing, with particular emphasis on the development of national institutions in the areas subject to desertification. Additional resources will have to be devoted to the purpose, for instance, from within overall national training and research programmes, through additional government-to-government aid, or through the diversion of resources which are, at present, being used for other purposes. Some rearrangement of priorities would thus, in all likelihood, become necessary.

Table 7

Development Assistance Grants by Operating Foundations in the OECD Countries
in 1978

(\$ millions)

Australia	38.3
Austria	14.6
Belgium	31.5
Canada	87.0
Denmark	8.1
Finland	6.2
France	19.9
Germany	284.0
Italy	0.3
Japan	18.9
Netherlands	55.5
New Zealand	5.9
Norway	25.9
Sweden	44.3
Switzerland	48.6
U.K.	50.2
U.S.	924.0
	<u>1,663.2</u>

Source: OECD, 1979 Review: Development Co-operation
(OECD, Paris, 1979)

Table 8

Largest Independent International Grant-Making Foundations
(by country)

	Assets	Total Grants (U.S.\$ millions)		International Grants*		Special Geographic or functional area of interest, if any
		Number	Amount	Number	Amount	
<u>North America</u>						
<u>U.S.</u>						
Ford	2,291	147	32.1	(298)		Latin America
W.K. Kellogg	827	42	13.0	(45)		
Rockefeller	740	43	11.0	(105)		
A.W. Mellon	776	41	6.1	(20)		U.S. Int'l.
DeRance	103	7	5.4	(159)		(religious-welfare)
Rockefeller Bros.	182	17	3.2	(57)		Asia; Latin America
E.M. Clark	192	11	2.3	(33)		
Lilly	524	32	1.7	(40)		Africa
Luce	68	2	1.0	(11)		Asia
Tinker	29	1	1.0	(33)		Latin America
Carnegie Corp.	284	13	.8	(7)		Africa; Oceania; Carib- bean (educ.)
Macy	47	2	.7	(31)		Medical
Kresge	586	25	.6	(9)		U.S. Int'l (capital costs)
Subtotal	6,649	383	78.9			
<u>Europe</u>						
<u>U.K.</u>						
Wolfson	133	8	1.2	(est.)		Commonwealth
Nuffield	51	4	.6	(est.)		Commonwealth
Leverhulme	-	3	.5	(est.)		
<u>F.R.G.</u>						
Volkswagenwerk	763	47	3.5	(29)		
Kubel	-	2	1.0	(est.)		
<u>Netherlands</u>						
NUFFIC	-	6	3.0	(est.)		
NOVIB	-	5	2.5	(est.)		

... continued

Table 8 (continued)

Largest Independent International Grant-Making Foundations
 (by country)

	Assets	Total Grants (U.S.\$ millions)	International Grants*		Special geographic or functional area of interest, if any
			Amount	Number	
<u>Portugal</u>					
C. Gulbenkian	293 ('70)	13 ('70)	2.0	('70)	Middle East
<u>Spain</u>					
Juan March	65 ('71 est.)	6 ('71 est.)	.6	('71 est.)	Latin America
<u>Switzerland</u>					
Nestle	9	-	.5		malnutrition
Subtotal	1,314	94	15.4		
Total	7,963	477	94.3		

Sources: The Foundation Directory, Seventh Edition (The Foundation Center, New York 1979); Guide to European Foundations, Third Edition (Giovanni Agnelli Foundation, Turin, December 1979) and The International Foundation Directory, Second Edition, R.V. Hodson, Ed. (Europa Publications Ltd., London 1979).

* International refers to developing countries.

APPENDIX

Participants in Group of high-level specialists in international financing convened by the Executive Director of the United Nations Environment Programme to prepare a study on financing the United Nations Plan of Action to Combat Desertification in accordance with General Assembly Resolution 34/184

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