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Implementation of the resolutions adopted by the United Nations
Conference on Desertification

Report of the Secretary-General

1. The present report has been prepared in accordance with paragraph 16 of General Assembly resolution 32/172 of 19 December 1977, in which the Secretary-General was requested to report to the Assembly, at its thirty-third session, on the implementation of the resolutions adopted by the United Nations Conference on Desertification (A/CONF.74/36, chap. II), especially resolution 2 on financial and technical assistance to the least developed countries and resolution 4 on the effect of weapons of mass destruction on ecosystems. The resolutions adopted by the Conference are as follows:

1. Implementation of General Assembly resolution 3337 (XXIX) (I. Assessment of all available data; II. World map of desertification; III. Plan of Action to Combat Desertification).
2. Financial and technical assistance to the least developed countries.
3. Drought in the Sahelian countries.
4. Effect of weapons of mass destruction on ecosystems.
5. Colonial desertification practices.
6. Namibia: desertification.
7. Associated case study "The Negev: a desert reclaimed".
8. Expression of thanks.

2. The present report also responds to resolution 32/169 of 19 December 1977, in which the General Assembly makes certain recommendations with respect to

financial and technical assistance to the least developed of the developing countries and requested the Secretary-General to report to the Assembly at its thirty-third session on the implementation of the resolution. As Conference resolution 2 on financial and technical assistance to the least developed countries concerns the same subject, the implementation of both resolutions is dealt with together in the present report.

3. Finally, this report also deals with General Assembly resolution 32/170 of 19 December 1977 on measures to be taken for the benefit of the Sudano-Sahelian region, in view of recent developments for increasing assistance to drought stricken countries of the region, which is the subject of Conference resolution 3.

4. In view of the emphasis placed by the General Assembly on Conference resolutions 2 and 4, the reports on these two resolutions have been prepared separately and are presented in annexes I and II of the present report.

Resolution 1. Implementation of General Assembly resolution 3337 (XXIX)

5. In section I of this resolution, the United Nations Conference on Desertification recommended that the General Assembly should request the Secretary-General to transmit the documents prepared for the Conference on the causes and processes of desertification to the organizations and bodies concerned within the United Nations system, as well as to the relevant scientific institutions outside the system, both governmental and non-governmental. In section II, the Conference recommended that the General Assembly should request the Secretary-General to transmit the world map of desertification to Member States and to the above-mentioned organizations, taking into account the technical comments made thereon at the Conference.

6. The distribution of the documents for the Conference, including the world map of desertification (A/CONF.74/2), to Member States and to organizations within and outside the United Nations was undertaken by the Secretary-General of the Conference and Executive Director of the United Nations Environment Programme (UNEP) as part of the preparations for the Conference and during the Conference itself. After the Conference, the Plan of Action to Combat Desertification, as adopted, was circulated as part of the report of the Conference (A/CONF.74/36). It was also published by the Office of Public Information in pamphlet form together with the resolutions adopted by the Conference and a supporting background section (CESI.E52). The background documents, "Desertification: an overview" (A/CONF.74/1/Rev.1) and the four component reviews (Climate and desertification (A/CONF.74/5), Technology and desertification (A/CONF.74/6 and Corr.1-2), Ecological change and desertification (A/CONF.74/7) and Population, society and desertification (A/CONF.74/8)) were published by the Pergamon Press in association with UNEP as a consolidated book, Desertification: Its Causes and Consequences, to make the findings of these background documents more accessible to the international community. Similar arrangements are being made by UNEP and UNESCO for the publication of the six case studies (A/CONF.74/9 and Add.1, 10 and Add.1, 11 and Add.1, 12 and Add.1, 13 and Add.1, and 14 and Add.1) and the associated case studies (A/CONF.74/15, 16, 17, 18, 19 and Add.1, 20, 21, 22 and Add.1, and 23).

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7. In section III of resolution 1, the Conference approved the Plan of Action to Combat Desertification as a whole and strongly urged that the necessary financial and other resources to implement the Plan's recommendations be made available. The financial means recommended by the Conference, as contained in recommendation 28 of the Plan, were (a) subregional co-operation, (b) bilateral, multilateral and multilateral assistance, (c) consultative group-type financing, (d) a special account and (e) additional measures and means of financing.

8. These specific proposals of the Conference were endorsed in General Assembly resolution 32/172. As regards items (a) and (b), the Assembly recommended in that resolution that subregional co-operation should be initiated or strengthened; requested the regional commissions to undertake intensified and sustained action in support of national efforts to combat desertification; requested the organs, organizations and other bodies of the United Nations system to support international action to combat desertification; and called upon all countries, in particular developed countries, as well as multilateral financial institutions and non-governmental donors, to provide and increase their contributions to countries suffering from desertification.

9. To help ensure proper co-ordination of these activities, the General Assembly also decided to entrust the Governing Council and the Executive Director of UNEP, as well as the Environment Co-ordination Board (ECB), with the responsibility of following up and co-ordinating the implementation of the Plan of Action, and requested the Governing Council of UNEP to report, through the Economic and Social Council, to the Assembly at its thirty-third session and thereafter every two years. In accordance with the above, the Executive Director of UNEP has discussed the subject of interagency co-operation at the ECB, and arrangements are being made for a continuation of this co-ordination in the Administrative Committee on Co-ordination (ACC). Arrangements are also being made for the establishment of an interagency working group to combat desertification, as spelled out in paragraph 102 (c)(ii) of the Plan of Action. The Governing Council's report on the implementation of the Plan of Action to Combat Desertification is contained in paragraphs 296 to 323 of its report to the thirty-third session of the General Assembly. 1/

10. As regards the request to all countries, in particular to developed countries, as well as multilateral financial institutions and non-governmental donors, to increase their assistance to countries which suffer from desertification, it is still too early to determine the extent to which this is being implemented. It appears that there is an increased awareness of the plight of countries suffering from desertification, but data are not yet available on the aggregate levels of official development assistance and other support to those countries since the adoption of resolution 1 by the Conference.

11. In line with the Conference recommendation on consultative-group-type financing, the General Assembly, in paragraph 10 of resolution 32/172, authorized

1/ Official Records of the General Assembly, Thirty-third Session, Supplement No. 25 (A/33/25).

the Executive Director to convene immediately a consultative group, comprising organs, organizations and other bodies of the United Nations system, such other organizations as might be required, donor countries, multilateral financial agencies as well as developing countries having a substantial interest in combating desertification, to assist in mobilizing resources for the activities undertaken within the framework of implementing the Plan of Action. The Executive Director, accordingly, convened the Consultative Group for Desertification Control, which held its inaugural meeting at Nairobi from 2 to 5 May 1978. At that meeting, the objectives and organization of the Consultative Group were discussed and six transnational project proposals which had been prepared for the United Nations Conference on Desertification (A/CONF.74/24, 25, 26, 27, 28 and 29) were considered. Some participants expressed interest in the project proposals which had been presented, although none made concrete pledges to assist particular projects. To date, no major donor country has agreed to join the Consultative Group.

12. In response to the Conference's proposal for the establishment of a special account, the General Assembly, in paragraphs 11 and 12 of resolution 32/172, endorsed in principle the creation of a special account within the United Nations for implementing the Plan of Action, and requested the Secretary-General to prepare and submit a study on the establishment and operation of such an account to the Assembly at its thirty-third session, through the Governing Council of UNEP and the Economic and Social Council. This report is before the General Assembly (A/33/117), having been considered and taken note of by the Governing Council and the Economic and Social Council.

13. Finally, in line with the Conference proposal that the Governing Council of UNEP have a study prepared by a small group of high-level specialists of additional measures and means of financing for the implementation of the Plan of Action, the General Assembly, in paragraph 13 of resolution 32/172, invited the Governing Council to have such a study prepared and to submit a final report on the subject to the thirty-third session through the Economic and Social Council. As indicated in the Secretary-General's note on the subject (A/33/260), the study is available to the General Assembly as document UNEP/GC.6/9/Add.1.

14. As can be seen from the above, the requisite initial actions have been taken for organizing and strengthening financial arrangements for implementing the Plan of Action to Combat Desertification. It is still too early to assess the results and to forecast the future. Much will depend on the response of donor Governments and financial institutions and on the action taken by the General Assembly at its thirty-third session.

Resolution 2. Financial and technical assistance
to the least developed countries

15. As indicated above, the report on the implementation of this resolution is presented in annex I below.

Resolution 3. Drought in the Sahelian countries

16. In its resolution 3, the Conference drew the attention of the international community to the critical situation prevailing throughout the Sahelian zone and recommended that increased aid be given to all Sahelian countries, which were once again stricken by drought and, in view of the particular hardships to which those countries were subjected, that everything possible should be done to achieve the immediate implementation of the Plan of Action to Combat Desertification, in order to combat desertification in the subregion.

17. As regards the need for increased aid, a special meeting of the Council of Ministers of the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS) was called in October 1977 in view of the renewed drought. The Council estimated the emergency food needs of the CILSS member States provisionally at 500,000 metric tons for the 1977-1978 agricultural year and appealed for multidonor missions to expedite emergency assistance. Multidonor missions organized by the Food and Agriculture Organization of the United Nations (FAO) visited the region during December 1977. On the basis of their recommendations, various multilateral and bilateral donors pledged 430,325 metric tons by the end of August 1978, of which 326,826 had been delivered and an additional 103,500 was in transit. The World Food Programme played a major role in co-ordinating and guiding the emergency food measures and itself was a major contributor.

18. Emergency non-food aid requirements for animal and plant production and protection and related rehabilitation activities were estimated at \$26 million by FAO. In response, emergency non-food assistance was provided by various donors amounting to \$17.1 million by August 1978, with FAO's Office of Special Relief Operations (OSRO) acting as a focal point. This included increased assistance by the United Nations Sahelian Office (UNSO) through 10 projects totalling \$1.6 million having medium-term implications for sustaining the productive and developmental potential of the region in the face of the consequences of the drought.

19. In addition to the emergency assistance described above, programmes aimed at providing the Sahelian countries with long-term assurances of adequate and sustained agricultural and other output are under way. This assistance seeks to resolve the basic, structural economic problems of the region and is being provided and co-ordinated on behalf of the United Nations by UNSO. A detailed report on this and the emergency assistance to the Sahelian countries is contained in document A/33/267, prepared in accordance with General Assembly resolution 32/159 on the implementation of the medium-term and long-term recovery and rehabilitation programme in the Sudano-Sahelian region and urgent measures to be taken on behalf of the region.

20. In line with the Conference recommendation that everything possible should be done to achieve the immediate implementation of the Plan of Action in the region, the General Assembly adopted resolution 32/170 on measures to be taken for the benefit of the Sudano-Sahelian region. In that resolution, the Assembly requested the Governing Council of UNEP to consider at its sixth session, on the basis of a

report by the Executive Director, ways to improve institutional arrangements for the purpose of supporting, encouraging and co-ordinating efforts to combat desertification and the necessary measures and modes of action for implementing projects and programmes to combat desertification in the region. The Governing Council of UNEP, at its sixth session, considered the Executive Director's report (UNEP/GC.6/9/Add.2), which presented three alternative proposals, and, by its decision 6/11 B of 24 May 1978, opted for the alternative of strengthening the organization and functions of UNSO, including its regional office at Ouagadougou, as a joint UNDP/UNEP venture to expedite the implementation of the Plan of Action to Combat Desertification in the region.

21. In response to the UNEP Governing Council's invitation that this proposal be given favourable attention, by decision 25/10 of 27 June 1978, the Governing Council of UNDP designated UNSO, in addition to its present responsibilities, as the mechanism to co-ordinate the United Nations efforts to assist in the implementation of the Plan of Action to Combat Desertification in the 15 countries of the Sudano-Sahelian region south of the Sahara and north of the equator, this enterprise to be carried out jointly by UNEP and UNDP and requested the Administrator of the UNDP to enlarge the organization and functions of UNSO and of its regional office at Ouagadougou and to develop modalities for this purpose with the Executive Director of UNEP. Subsequently, the Economic and Social Council noted with satisfaction and endorsed the decisions of the Governing Council of UNEP and of UNDP, recommended to the General Assembly that it enlarge the organization and functions of UNSO and its regional office at Ouagadougou and invited the specialized agencies and other organizations and programmes of the United Nations system concerned to co-operate fully with UNSO in assisting the 15 countries of the Sudano-Sahelian region in implementing the Plan of Action to Combat Desertification.

22. The modalities of the joint venture have been agreed upon by the Executive Director of UNEP and the Administrator of UNDP, and all necessary steps have been taken for the strengthening of UNSO's operational capacity to handle its enlarged tasks.

Resolution 4. Effect of weapons of mass destruction on ecosystems

23. As indicated above, the report on the implementation of Conference resolution 4 is presented in annex II below.

Resolution 5. Colonial desertification practices

24. By this resolution, the Conference condemned the policy of bantustanization, requested the States members of the organizations of the United Nations system to undertake international action in the immediate future with a view to prohibiting the continuation of this policy and appealed to those States to refrain from recognizing the bantustans. At its thirty-second session, the General Assembly adopted resolutions 32/105 A to O, on the policies of apartheid of the Government of South Africa. In resolution 32/105 N, the Assembly denounced the establishment of bantustans and again called upon all Governments not to recognize them. To date, no country, except South Africa, has extended recognition to any bantustan.

Resolution 6. Namibia: desertification

25. In this resolution, the Conference condemned the continued illegal occupation of the territory by South Africa and recognized that proper implementation of the Plan of Action would not be possible until the illegal occupation had been terminated and Namibia had achieved independence. In connexion with the circulation of the report of the Conference (A/CONF.74/36), the resolution has been drawn to the attention of the Council for Namibia, which is responsible for the preparation of a nationhood programme for the Territory.

Resolution 7. Associated case study "The Negev: a desert reclaimed"

26. This resolution, by which the Conference denounced the associated case study, did not require specific action beyond the circulation of the report of the Conference containing the resolution, which has been done.

Resolution 8. Expression of thanks

27. This resolution, which expressed the Conference's profound appreciation to the President, the Government and the people of Kenya, did not require specific action beyond the circulation of the report of the Conference (A/CONF.74/36), which has been done.

ANNEX I

Report on resolution 2 adopted by the United Nations Conference on
Desertification, concerning financial and technical assistance to
the least developed countries

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I. INTRODUCTION

1. In resolution 32/172, the Secretary-General was requested to report to the General Assembly at its thirty-third session on the implementation of the resolutions adopted by the United Nations Conference on Desertification, especially resolution 2 on financial and technical assistance to the least developed countries and resolution 4 on the effect of weapons of mass destruction on ecosystems. The present annex contains the Secretary-General's report on Conference resolution 2, which urged the United Nations, the specialized agencies and international and regional financial institutions to extend additional assistance to the least developed countries to enable them to combat desertification effectively.

2. This report also responds to General Assembly resolution 32/169 of 19 December 1977, on the implementation of the recommendations of the United Nations Conference on Desertification with respect to financial and technical assistance to the least developed among the developing countries paragraphs 1 to 3 of which read as follows:

"The General Assembly,

...

"1. Recommends the speedy implementation of recommendation 28 of the United Nations Conference on Desertification with respect to financial and technical assistance to the least developed countries; 1/

"2. Urges the United Nations and its Member States, the specialized agencies and international and regional financial institutions to ensure the implementation of the recommendations of the United Nations Conference on Desertification in favour of those countries by extending additional international and bilateral assistance;

"3. Requests the Secretary-General to report to the General Assembly at its thirty-third session on the implementation of the present resolution."

1/ See A/CONF.74/36, chap. I.

3. Pursuant to the above-noted resolutions, Governments and international and regional organizations concerned were requested to provide relevant information. The present report, prepared by the secretariat of the United Nations Environment Programme in accordance with its mandate of following up and co-ordinating the implementation of the Plan of Action to Combat Desertification, is based on the replies received.

4. For the reasons discussed below (see para. 8), no additional information relating to individual countries was received to supplement that contained in the Secretary-General's report, "Review of Progress in the Implementation of Special Measures in Favour of the Least Developed Among the Developing Countries"

(E/1978/86, parts I and II). Accordingly, section III of the present report relates only to the implementation of General Assembly resolution 32/169 and of Conference resolution 2 by the organizations of the United Nations system.

II. BACKGROUND

5. Of the group of 31 countries presently identified by the General Assembly as the least developed among the developing countries (see E/1978/86, Part I, para. 5), 14 are strongly affected by desertification (Afghanistan, Botswana, Cape Verde, Chad, Democratic Yemen, Ethiopia, Mali, Niger, Somalia, Sudan, Uganda, United Republic of Tanzania, Upper Volta, Yemen), six (Bangladesh, Burundi, Lesotho, Malawi, Nepal, Rwanda) are appreciably affected, and a number of the remaining countries are slightly or indirectly affected.

6. The United Nations Conference on Desertification recognized that, because of their limited resources, a number of developing countries, in particular the least developed countries, face special economic and social problems in countering the threat of desertification. A similar recognition underlay the provisions of General Assembly resolution 32/169. Clearly, the feeling of the international community is that the recommendations for financing the totality of the Plan of Action to Combat Desertification, as well as the existing measures undertaken by various organs and specialized agencies of the United Nations system, will not alone suffice to overcome the difficulties facing the least developed countries in combating desertification.

III. IMPLEMENTATION OF GENERAL ASSEMBLY RESOLUTION 32/169 AND UNITED NATIONS CONFERENCE ON DESERTIFICATION RESOLUTION 2

7. While much has been done to draw the world's attention to the problems of desertification in the least developed countries, progress towards implementation of the above resolutions has been slow. The call of the General Assembly has so far led only to very limited action, or no action at all. Many of the Governments and international and regional organizations requested to provide relevant information for the present report stated that the countries concerned had not as yet requested specific assistance in combating desertification. This may be explained by the fact that the relatively brief period since the Conference and since the adoption of General Assembly resolution 32/169, has afforded affected countries little time to prepare and submit relevant project proposals.

8. Moreover, with a few notable exceptions, there has to date been little in the way of express programmes to combat desertification, either at the national level in the countries concerned or in international and regional organizations, both within and outside the United Nations system. Both Governments and organizations reflected this when reporting on the implementation of General Assembly resolution 32/169 and Conference resolution 2. The fact that little has been reported need not mean that nothing has been done, but rather that assessment of

the real situation was extremely difficult because of the lack of information on programmes and projects which may have clearly identifiable objectives to combat desertification. This in turn appears to be due to the fact that many Governments and organizations still do not recognize desertification as a specific sector of concern in their over-all programmes and plans - a situation, however, which is changing as a result of the attention focused on this problem by the United Nations Conference on Desertification.

9. The two above constraints, i.e., the time element and the difficulty of assessing the situation, no doubt explain why almost all the Governments, and many of the organizations, were unable to provide relevant information for the present report, and why no additional information relating to individual countries is available apart from that contained in the Secretary-General's review of progress in the implementation of special measures in favour of the least developed among the developing countries (E/1978/86, part I).

10. Bearing in mind the above considerations, the following information gives a general picture of the existing situation as far as the organizations and other bodies of the United Nations system are concerned.

11. The Department of Technical Co-operation for Development provides ongoing and increasingly active assistance to the least developed countries in the area of development planning and water resources development. In many cases this may include the planning of activities or projects aimed at combating desertification, although not under the specific heading of a programme to combat desertification. No special increase in assistance, however, has been reported by the Department in connexion with the implementation of General Assembly resolution 32/169 or Conference resolution 2.

12. The Department of International Economic and Social Affairs is engaged in research and analysis on development problems of the least developed countries. In many cases this may include the examination of policies and programmes aimed at combating desertification, although not under that specific heading.

13. At its thirty-fourth session in 1978, the Economic and Social Commission for Asia and the Pacific (ESCAP) took note of the recommendations and resolutions of the United Nations Conference on Desertification, and expressed its intention to implement the recommendations made therein at the regional level, subject to the availability of extrabudgetary assistance. It is assisting in the implementation of a transnational project on monitoring of desertification processes that will involve some least developed countries in the region.

14. The Economic Commission for Latin America (ECLA) has not considered any special assistance to the least developed countries apart from the general follow-up activities concerning the implementation of the Plan of Action to Combat Desertification at the regional level.

15. The Economic Commission for Africa (ECA) has established a special programme for the least developed countries of Africa which provides priority for those

countries within a large and wide-ranging number of projects in the regular ECA work programme. No increase in assistance to the least developed countries has been reported, however, in connexion with combating desertification.

16. The Economic Commission for Western Asia (ECWA) regularly provides assistance to the least developed countries of the region, but no increase in connexion with the problems of desertification was reported.

17. The United Nations Conference on Trade and Development (UNCTAD) has an ongoing and increasingly active programme of technical assistance for the least developed countries. However, no special activities have been undertaken or plans made for the implementation of the specific recommendations referred to in General Assembly resolution 32/169 or Conference resolution 2. As of now, UNCTAD has received no requests from least developed countries for assistance in combating desertification. However, UNCTAD would be ready, to the extent that resources can be made available, to assist in the analysis of the implications for foreign trade policies and foreign trade strategies of changes in the basic economic structures of countries suffering from desertification.

18. The Governing Council and the Executive Director of the United Nations Environment Programme (UNEP), as well as the Environment Co-ordination Board (whose functions have been assumed by the Administrative Committee on Co-ordination), were entrusted by the General Assembly (resolution 32/172, para. 8) with the responsibility of following up and co-ordinating the implementation of the Plan of Action to Combat Desertification. A detailed account of activities undertaken by UNEP in accordance with this mandate, including those relevant to assistance to the least developed countries, is given in the report of the Executive Director to the Governing Council at its sixth session (UNEP/GC.6/9 and Add.1-4).

19. With respect to the measures to be taken for the benefit of the Sudano-Sahelian region, which were called for by General Assembly resolution 32/170, the Governing Council of UNEP endorsed the definition of the region as a band south of the Sahara and north of the equator consisting of 15 countries, nine of which are least developed countries and an additional two (Mauritania and Senegal) are being accorded the benefits of least developed countries by UNDP (DP/L.326) until the consequences of the drought are eliminated. It also endorsed a set of principal measures and modes of action to combat desertification in the region and opted for a proposal that the organization and functions of the United Nations Sahelian Office (UNSO), as well as its regional office at Ouagadougou, be enlarged as the mechanism to combat desertification in the region, this enterprise to be carried out as a joint UNEP/UNDP venture. This option was subsequently endorsed by the Governing Council of UNDP in its decision 25/10 of 27 June 1978 and by the Economic and Social Council in its resolution 1978/37. This institutional arrangement should facilitate the co-ordination of assistance to the least developed countries of the Sudano-Sahelian region in implementing the Plan of Action to Combat Desertification.

20. In response to paragraph 10 of General Assembly resolution 32/172, authorizing the Executive Director of UNEP to convene a consultative group for desertification control, UNEP, in co-operation with UNDP, UNFPA, UNESCO, UNIDO, WFC and WMO, is

co-sponsoring the Consultative Group for Desertification Control, which will mobilize support for projects and programmes to combat desertification, especially in the least developed countries. Several transnational projects to combat desertification are now being considered by the Group for possible financial and technical support, most of them having one or several least developed countries as the participants, particularly in the Sudano-Sahelian region.

21. The United Nations Industrial Development Organization (UNIDO) provides each year increasing assistance to the least developed countries in the area of industrial development. UNIDO is now in the process of reviewing its activities in the countries affected by desertification and is willing to co-operate in meaningful contributions in certain areas directly related to combating desertification, particularly in the environmental aspects of existing and new industries.

22. The World Food Council (WFC) has not reported any special increase of assistance in response to the resolutions under consideration, although the Council's approach, concentrating on the "food priority countries", is focused on the food and nutrition problems of specific developing countries, the list of which includes the majority of the least developed countries affected by desertification.

23. The United Nations Development Programme (UNDP) provides ongoing and increasingly active assistance to the least developed countries in the area of economic development, including combating desertification. Many of the ongoing and planned projects of UNDP have a direct bearing on solving the problems of desertification. The annual report of the Administrator of UNDP for 1977 on assistance to drought-stricken areas of Africa and adjacent areas (DP/339) and the report of the Secretary-General on the implementation of the medium-term and long-term recovery and rehabilitation programme in the Sudano-Sahelian region (DP/326) include detailed information on the activities of UNDP and UNSO, respectively, relating to the provision of financial and technical assistance to the least developed countries suffering from desertification. As reported in the above documents, increased food assistance was provided to the drought-stricken countries of Africa during the 1977-1978 agricultural year as well as financial and technical assistance relevant to combating desertification. The Governing Council of UNDP, at its twenty-fifth session in June 1978, supported the decision of UNEP concerning the measures to be taken for the benefit of the Sudano-Sahelian region and agreed with the proposal that the organization and functions of UNSO, as well as of its regional office at Ouagadougou, should be enlarged, and that this enterprise should be carried out as a joint UNEP/UNDP venture on a cost-sharing basis.

24. The International Labour Organisation (ILO) has an increasingly active programme for development of the least developed countries, supported in particular by UNDP as well as by several donor countries. No further information was reported by the ILO in addition to that contained in the Secretary-General's report referred to in paragraph 4 above.

25. The Food and Agriculture Organization of the United Nations (FAO) continues to pay particular attention to the problems in the least developed countries.

Within FAO's regular programme of work, priority attention is focused on the needs of least developed countries. Many of its special programmes and schemes also assign due priority to these countries. At the country level, it has a great number of ongoing and planned activities, many of which are in the least developed countries: out of 183 approved projects under FAO's Technical Co-operation Programme, 62 were for the least developed countries. The activities of FAO in assistance to the least developed countries embrace a wide field of anti-desertification measures, including: assessment of soil degradation with a view to controlling the loss of productive soil; appraisal of land resources potential by major agro-ecological zones; water management for the prevention and control of waterlogging and salinity; water supply and management for rural areas for irrigation, livestock and settlements; ecological management of arid and semi-arid rangelands; livestock development; watershed stabilization and management; re-establishment of vegetation cover; problems of land tenure, settlement, demographic and social systems. FAO has been particularly involved with the CILSS country dialogue missions with a view to defining needs and formulating integrated programmes for the restoration of drought-affected areas in the Sahel.

26. The Executive Board of the United Nations Educational, Scientific and Cultural Organization (UNESCO), after considering follow-up activities to the United Nations Conference on Desertification based on a report by the Director-General (104 EX/35, paras. 88-117), expressed its awareness of the paramount importance of the problem of desertification in several regions of the world, particularly the arid and semi-arid regions. The Executive Board requested the Director-General to continue, within the framework of the activities foreseen in UNESCO's present programme, his efforts to give full effect to the relevant resolutions of the Conference, especially those concerning the countries of the Sahel and the least developed countries. Under UNESCO's medium-term plan for 1977-1982 and its programme budget for 1977-1978, a series of specific activities are envisaged in response to the particular needs of the least developed countries. The General Conference of UNESCO, at its nineteenth session, adopted a special resolution in which it invited the Director-General to give higher priority to requests from the least developed countries and to provide increased aid to them.

27. The World Health Organization (WHO) regularly provides, through its regional offices, assistance to the least developed countries in coping with health problems and the organization of primary health care in areas affected by desertification. A survey as to how these activities could be best oriented for the implementation of the Plan of Action to Combat Desertification is currently under way, and its results will be used to improve the programme.

28. The World Bank and its concessionary lending affiliate, the International Development Association (IDA), provide loans and credits to Governments, or with government guarantees, for development projects. Bank lending and technical assistance covers such sectors and subsectors as agriculture, education, industry, transportation, power, urbanization and family planning. Of these, the single most important area is agriculture and rural development, comprising the full spectrum of crop and livestock production as appropriate to the needs of individual member countries. A substantial portion of loans for the least developed

of the developing countries are channelled through IDA, interest-free and with repayment normally scheduled over 50 years. The criteria for Bank lending in agriculture and rural development have a substantial built-in bias, in areas which are at risk or in the course of desertification, to promoting measures which will avert, combat or seek to remedy this hazard. Indeed, every project which is submitted to the Bank's Board for approval is required to provide an explicit statement of its environmental impact. The Bank is deeply committed to providing expertise and advice, alone and in many country consultative groups with bilateral and other multinational aid agencies, for the formulation and financing of technically, financially and economically viable projects which address the problem of desertification. The Bank is heavily involved, through its association with and contribution to the Consultative Group for International Agricultural Research, in promoting the extension of knowledge, among other things, of how to tackle the problems of designing viable systems of production to combat desertification in all environments of the developing world, including, on a priority basis, the least developed countries. Recently approved projects in the forestry sector contain direct desertification control components such as provision for the establishment of fuelwood plantations to halt the progressive destruction of natural forest cover. In the livestock sector, projects aimed at protecting and improving natural pastures are being implemented. Many other projects, being premised on rational land use, address the problem less obviously but also effectively via properly designed irrigation works, soil and water conservation measures, promotion of ecologically appropriate cropping systems and the like. The Bank's Annual Reports over recent years provide ample evidence of the type and volume of lending in these fields to the least developed countries. There has been a substantial increase in IBRD/IDA lending to this group of countries, from \$354 million in financial year 1974 to \$456 in financial year 1977. The Bank believes this trend will continue, depending on the continued availability of the resources.

29. The Executive Committee of the World Meteorological Organization (WMO), at its thirtieth session in June 1978, considered the report of the Conference and the relevant General Assembly resolutions and adopted a resolution on WMO activities in contribution to combat desertification and a WMO Plan of Action in the Meteorological, Climatological and Hydrological Aspects of the Combat Against Desertification (EC-XXX/PINK 26, APPENDIX B). No special measures are foreseen by WMO for the least developed countries. On the other hand, the assistance provided by WMO with UNDP and its own Voluntary Assistance Programme and regular budget is oriented towards building up technology and science capacity in the developing countries including the least developed ones, as for example in case of the AGRHYMET project in the Sahel.

30. The total volume of technical assistance from the regular programme of the International Atomic Energy Agency (IAEA) for eight of the least developed countries affected by desertification (Afghanistan, Bangladesh, Ethiopia, Mali, Niger, Sudan, Uganda and the United Republic of Tanzania) rose from \$184,000 in 1976 to \$468,000 in 1977. However, the increase was not primarily connected with activities to combat desertification.

IV. CONCLUSION

31. In view of the short time that has elapsed since the adoption by the United Nations Conference on Desertification of resolution 2 on financial and technical assistance to the least developed countries (9 September 1977) and by the General Assembly of resolution 32/169 (19 December 1977), the least developed countries themselves have not yet been able to put forward specific substantial requests for additional assistance in combating desertification, nor have the donor countries and organizations within and outside the United Nations system been in a position to make substantial increases or even to identify areas for such increases in their assistance to the least developed countries. These constraints, which were already referred to in paragraphs 7 and 8 above, suggest that more information and useful reporting could only be available to the General Assembly at least two years after the adoption of its resolutions. It would therefore be more appropriate that such information be included in the report of the UNEP Governing Council to the General Assembly at its thirty-fifth session on the implementation of the Plan of Action to Combat Desertification.

ANNEX II

Report on resolution 4 adopted by the United Nations
Conference on Desertification, concerning the effect
of weapons of mass destruction on ecosystems

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I. INTRODUCTION

1. In resolution 32/172, the Secretary-General was requested to report to the General Assembly at its thirty-third session on the implementation of the resolutions adopted by the United Nations Conference on Desertification especially resolution 2 on financial and technical assistance to the least developed countries and resolution 4 on the effect of weapons of mass destruction on ecosystems. The present annex contains the Secretary-General's report on the latter resolution.

2. In resolution 4, the Conference expressed deep concern over the harmful effects of the use of weapons of mass destruction, including chemical and biological weapons, on ecosystems. It particularly condemned the use of any techniques that caused the destruction of the environment and which destroy or diminish the potential of ecosystems and were conducive to desertification. With these considerations in mind, the Conference, in paragraph 5 of that resolution, appealed to all States members of the organizations of the United Nations system to refrain from using or supplying to those who supported the policy of destruction, arms or chemical products for military use that have a widespread, long-lasting or severe effect on the environment.

3. The Secretary-General has received no evidence of the use or supply of materials as referred to above since the adoption of the resolution in September 1977. Since uncertainties exist, however, as to the nature of the arms or chemical products that could have a widespread, long-lasting or severe effect on the environment, and in view of the deep concern expressed by the Conference and by the General Assembly about the effect of weapons of mass destruction on ecosystems, the Executive Director of the United Nations Environment Programme commissioned a study of the matter, in consultation with the Centre for Disarmament. A brief summary of the approach and broad findings of the study now follows.

II. BACKGROUND

4. Since the 1972 United Nations Conference on the Human Environment, awareness has steadily increased of the importance of protecting the environment against degradation. New measures of environmental protection have been developed, including those applicable during armed conflict. The measures of the latter type at present provided for or treated by international law are of two broad categories. One prohibits acts of war that cause certain specified forms of environmental damage or have other such effects. The other prohibits the use or possession of certain specified types of weapon. These prohibitions are, however, limited in scope, and not all States are yet parties to the Convention.

5. In the first category is the 1977 Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques. The prohibited uses are those having "widespread, long-lasting or severe effects", and are understood to include the use of chemical herbicides having such effects. Also in

the first category, and likewise opened for signature in 1977, is Protocol I Additional to the Geneva Conventions of 12 August 1949 and Relating to the Protection of Victims of International Armed Conflicts. Article 35 (3) of the Protocol prohibits "methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment", and Article 55 (2) prohibits attacks against the natural environment by way of reprisals.

6. Of particular relevance within the second category is the 1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons, and on Their Destruction (resolution 2826 (XXVI)). A corresponding convention on chemical weapons is currently under consideration. The use of these weapons is proscribed by the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925. a/ Varying understandings exist, however, as to the precise scope of the prohibition of chemical warfare, particularly as regards the use of chemical herbicides. The General Assembly last addressed this matter at its twenty-fourth session, during which it adopted resolution 2603 A (XXIV), declaring as contrary to the generally recognized rules of international law the use in international armed conflicts of any chemical agents of warfare which might be employed because of their direct toxic effects on man, animals or plants. Article 23 (a) of the 1907 Hague Regulations respecting the Laws and Customs of War on Land forbids the employment of poison or poisoned weapons; this rule has customarily been interpreted as prohibiting, inter alia, the poisoning of wells and other water supplies.

III. APPROACH

7. Progress in ecology is rapidly revealing more about the complexities of man's relationship with the natural environment. Of fundamental importance is that the animate and inanimate components of the biosphere - the former comprising the myriad different populations of living organism of which the human population is one - are intimately linked together in a fabric of interactions and interdependencies. Much remains to be discovered about the full subtleties of these functional relationships, but it is now becoming increasingly clear that the destructiveness of weapons may threaten the human inhabitants of a region not only directly but also indirectly, through the harm resulting from damage to the fabric. The possibility of such ecologically mediated harm reaching catastrophic proportions cannot be discounted. The harm might comprise, for example, a decreased productivity of the land, desertification in the extreme case. Several trains of events having such an outcome can be envisaged which might be set in motion by certain forms of environmental damage caused by weapons. The consequences might then range from a growing threat to survival in regions of subsistence agriculture to an insidious deterioration of the prospects for development. It is this type of consideration perhaps more than any other which

a/ League of Nations, Treaty Series, vol. XCIV, No. 2138, p. 65.

should order priorities in the quest for further measures of environmental protection. It follows, then, that attention should be directed not so much towards the effect of weapons on the natural environment as towards their effect on the total system of which man and his environment are part: their effect, in other words, on ecosystems.

8. The biosphere may be thought of as a single large ecosystem or as an aggregate of smaller ones. However broadly or narrowly ecosystems are delimited, they all have features in common. Their structural components can be grouped into common categories: producer organisms, micro- and macroconsumer organisms, cycling inorganic substances, climate régime, etc. The functional relationships between the structural components can also be grouped into common categories: food-chains, energy circuits, nutrient cycles, etc. Feedback loops operating within the networks of functional process impart stability to the over-all system, apparent in, for example, the familiar "balance of nature". A change in a particular structural component will thus perturb the entire ecosystem, stability not returning until other structural components have undergone compensatory change. A sudden heavy mortality within a particular population, for example, may so deplete a food-chain as to jeopardize other populations further along it. If that mortality occurs within a dominant population of producer organism - i.e. green plants - the ecosystem will have lost, at least temporarily, a major part of its capacity for assimilating the solar energy which powers all of its functions. Such effects are becoming increasingly well understood in general terms. But in specific terms, only very rarely is enough known about the details of structure and function in individual ecosystems for the outcome of particular perturbations to be predictable. This is as true for perturbations originating in the action of weapons as for any other. The possibilities for predicting the impacts of weapons on ecosystems with much precision are therefore limited.

9. The immediate impact of a weapon on an ecosystem will be to damage parts of certain of its structural components: soil, vegetation, etc. Such damage will constitute stress upon the ecosystem. Strain will thereupon be created within the ecosystem as its functional processes adjust to the imbalances imposed by the original damage. Some types of weapon will be capable of stressing ecosystems more than others. Some ecosystems will be able to bear more strain than others. Crude though these concepts may be, they offer an analytical framework from which at least tentative conclusions may be drawn about relative ecosystemic impacts of different weapons.

IV. WEAPONS

10. Within the United Nations disarmament machinery, a broad distinction has long been made between "conventional armaments" and "weapons of mass destruction". The latter expression, though used in two recent treaties, was last formally defined in August 1948, in a resolution adopted by the Commission for Conventional Armaments with two opposing votes: "atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons, and any weapons developed in the future which have characteristics comparable in destructive

effect to those of the atomic bomb or other weapons mentioned above" (S/C.3/SR.13). The possibility cannot be excluded that certain types of weapon falling outside this definition may impose at least as great a stress on ecosystems as some of those falling within it. Herbicidal chemical weapons are one example. Also cause for particular concern are certain other recent weapons developments such as the thickened pyrophoric agents that are beginning to supplant napalm, and the fuel-air explosives. The properties and effects of some of these weapons have been reviewed in previous reports by the Secretary-General, in particular those dealing with nuclear weapons (A/6858 and Corr.1), chemical and biological weapons, b/ and Napalm and Other Incendiary Weapons and All Aspects of Their Possible Use. c/

11. A weapon may inflict damage through one or more of several agencies: blast, high kinetic-energy projectiles or fragments, flame, heat flux, toxic or radiotoxic substances, pathogenic microbes, ionizing radiation, etc. The many different varieties of damage that may thus be done by weapons to individual subcomponents of ecosystems may be grouped into a few broad categories of aggregate stress factor acting upon the over-all ecosystem. Soil damage, plant-cover destruction and biocide are three such categories whose differentiation facilitates comparative impact assessment. A very rough idea of the magnitudes of each type of stress that might occur during actual military operations can be gained from quantitative data on the areas of effectiveness and other performance characteristics of individual weapons. However, much of the information about the biological and physical effects of weapons that would be needed to do this fully remains unpublished, and probably also undiscovered.

V. ECOSYSTEMS

12. Since ecosystems may be delimited on scales ranging from, say, individual ponds or meadows up to whole continents or even the biosphere itself, the choice of scale determines the practical value of assessing possible impacts upon them. That choice also strongly influences practical feasibility, since much more is known about relationships between structure and function in small ecosystems than in large ones. It is important that the scale be large enough to subsume man within the macroconsumer component. All these considerations can perhaps best be satisfied - though it is not an easy compromise - by classifying ecosystems according to a climatic-geomorphic differentiation of habitats: arctic, arid, temperate, tropical, insular and oceanic. The broad features of each such class of ecosystem can be analysed in terms of functional strengths and weaknesses. These are the properties of ecosystems that will determine the strain experienced from stress imposed by weapons.

b/ Chemical and Bacteriological (Biological) Weapons and the Effects of Their Possible Uses, A/7575/Rev.1 (United Nations publication, Sales No. E.69.I.24).

c/ A/8803/Rev.1 (United Nations publication, Sales No. E.73.I.3).

13. The breaking-point of an ecosystem, such as the concept of strain used here implies, can be defined only by reference to a particular functional or structural subcomponent: the over-all ecosystem will simply move towards some new state of equilibrium in its response to the impact of weapons, albeit a more volatile equilibrium if the impact has been severe. A value-judgement therefore has to be made. The most obvious criterion of "breaking-point" is an adverse change in the immediate circumstances of the human population of the ecosystem. As noted in paragraph 2 above, Conference resolution 4 indicates two of the many possibilities: significant decline in productivity, or desertification. Either one points to two particular categories of weakness in ecosystems which may determine breaking-points thus defined: lack of species-diversity; and thinness, or poor nutrient- or water-holding capacity, of soil. One or the other or both of these commonly occur in tropical, arid and arctic regions. These ecosystems therefore appear to be especially vulnerable.

VI. IMPACT ASSESSMENT

14. In principle, differentiation of the likely ecosystemic impacts of weapons is possible by correlating the stresses and strains identifiable in the foregoing fashion. In fact, the present state of knowledge in key areas is such that any attempt to do so must deal in hypotheses which will rarely, on the data at present available, be either substantiable or refutable. Empirical evidence from past theatres of war or from weapon proving grounds is slight. Only in the case of the Viet Nam conflict has anything approaching an ecosystemic impact assessment been tried, but here the absence of adequate baseline data has proved a severe limitation. Moreover, as is observed in the report of the most recent United Nations special mission on international assistance for the reconstruction of Viet Nam, it may be a matter of decades before the full impact becomes manifest. In addition to massive environmental damage caused by the craters and fragments of high-explosive weapons, the report of the special mission records damage by chemical herbicides to some 17,000 square kilometres of south Viet Nam, including 1,510 square kilometres of completely destroyed mangrove forest. Natural recolonization of the latter, which is the first step towards recovery, appears to be proceeding at a considerably slower rate than has been observed in the devastated areas of certain nuclear weapon test sites.

15. Subject to the caveat above, stress-strain correlation indicates several conceivable mechanisms whereby impacts of weapons on ecosystems might lead to the desertification of particular regions. The danger of this happening appears by far the greatest with nuclear weapons. In the most vulnerable regions the danger may also arise with several other classes of weapon, including those not customarily classified as weapons of mass destruction.

16. The risk is at its most grave with nuclear weapons both because of the greatness of the area over which such weapons may exert their effects and because the nature of these effects might trigger any one of several of the conceivable desertification mechanisms. The latter include: nutrient dumping, which appears to be a possibility in tropical ecosystems of high primary productivity should

heavy mortality in the biomass be coupled with soil denudation; soil induration, which might be induced by destruction of plant cover in those tropical regions where lateritic soils occur; and accelerating soil erosion which, in arid or sparse regions, might be induced by weapons in several ways, such as by mechanical or thermal damage to the soil that reduces moisture retention or, indirectly, by species-selective mortality that overloads food-chains. Most of these are mechanisms which any type of weapon that has a strong biospecific action might set in motion in vulnerable ecosystems, particularly weapons having a biospecificity for the plant species that dominate primary production in a region and therefore also soil cover. This is a circumstance which, as regards desertification, seems to justify particular concern about some forms of chemical and biological weapons and about deforestation.

17. In the more vulnerable regions, forests may play an especially important role within the larger ecosystems of which they form parts. Their importance for the nutrient cycling, hydrology and meteorology of the region, and its stability in the face of natural erosive forces, may be such that deforestation could, in the worst case, precipitate desertification. In less vulnerable regions, the ecosystemic effects of deforestation might still be strongly felt, for example, as reduced net productivity in adjacent unforested areas. It is important to appreciate, also, that the management of ecosystems by man, as in agriculture, may have the effect of increasing their vulnerability, for land given over to crop-plants grown in monoculture is, in ecological terms, very nearly bare. Agriculture in forested regions necessitates some deforestation, and, when the demands on agriculture are large, the situation is usually reached in which deforestation has been pushed to the limits that agriculture can tolerate. Any further deforestation could therefore have a sharply adverse impact on the human population. Agricultural communities in tropical areas, and wider economies dependent upon them, could be especially endangered. Deforestation may be brought about by the action of most types of weapon if used in large enough quantities. The quantities of herbicidal chemical weapons or incendiary weapons which would bring about deforestation may be less than if other weapons, excepting nuclear weapons, were used.

18. The foregoing are assessments of what conceivably might happen, not predictions of what would happen. If the preliminary survey on which they are based is followed by a more thorough investigation, several additional matters should be taken into consideration. One is the need to set impact assessments of weapons on ecosystems within a perspective broad enough to accommodate other adverse impacts of man's activities on the environment. There may be important synergies that would otherwise escape attention: between, for example, war and environmental pollution or depletion of non-renewable resources. A second consideration is that of military necessity, for if realistic guidance for action at the international level is to result, legitimate security cannot be ignored. A third consideration is the need for more basic descriptive information about the ecological profiles of the more vulnerable regions.

VII. CONCLUSIONS

19. In summary, there are two broad conclusions to be drawn. The first is that, while modern weapons are capable of causing enormous environmental damage anywhere in the world, some parts of the global ecosystem appear to be considerably more vulnerable than others. In such regions this lack of resilience in the fabric of interactions and interdependencies which links human societies to one another and to their natural environment may greatly magnify the damaging effects of weapons. It is conceivable, therefore, that military operations within these regions might, through inadvertence or design, trigger ecosystemic effects whose damaging consequences could far exceed any legitimate military purpose. The magnitude and precise character of this risk cannot be specified without more detailed study. But it seems clear that the risk exists; that it may introduce dangerous asymmetries into a world where conflicts continue; and that, because the component ecosystems of the biosphere are all closely interdependent, it represents a danger to the entire world against which there is scant protection or remedy.

20. The second broad conclusion follows from the first. If additional safeguards are to be developed against the danger, there must first be greater awareness within the international community of its existence, and its character must be more fully investigated. It is therefore recommended that action should be taken to implement both objectives. There is now extensive concern in public opinion which may strongly favour initiatives on safeguards for man and his environment in times of military conflict. But whether the initiatives are taken within the disarmament negotiating machinery, as most properly they might, or in any other international forum, the necessary preparatory work for establishing such safeguards must be undertaken before the present timeliness passes.
