

Consultative Group on International Agricultural Research

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Report on the Desertification Convention

Report by ICRISAT

On behalf of the CGIAR, ICRISAT attended the negotiations leading up to the successful signing of the Desertification Convention.

The attached report is circulated for information and should be considered as background material to the special presentation on the Desertification Convention by the Director General of ICRISAT.

Report on the Desertification Convention By ICRISAT

1. Background Information

Desertification is defined as land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities. It is occurring in all region of the world. More than 25% of the earth's land surface is threatened by Desertification. Over 900 million people in more than 100 countries are affected. Ninety of these countries are in the developing world.

In the past, the problem was seen as a strictly regional one, primarily affecting the dryland areas in parts of Africa, Asia and Latin America. However, studies have shown that land degradation is becoming increasingly widespread. For example, a 1985 estimate by Environment Canada suggested that Canada was losing \$ 1 billion worth of agricultural production per year because of land degradation.

Desertification is spreading at a accelerating pace. It is estimated that during the present decade, more land will be lost to land degradation than during the 20 years between 1960 and 1980. UNEP estimates that about 3.6 billion hectares are currently threatened by various forms of land degradation. This represents 70% of the total 5.2 billion hectares of potentially productive drylands. At present, 40 million people are believed to be suffering from malnutrition in the drylands of Africa alone.

According to the Food and Agriculture Organization of the UN, half of all people directly impacted by desertification live in just 17 of the 90 most affected countries. In these 17 countries, more than 90% of potential cultivable land is already in use. Between 1980 and 2000, the amount of arable land available in these countries will fall from 0.37 to 0.27 hectares per head of population.

Concerned with the situation, the UN General Assembly, by resolution 333(xxix) of December 1974, approved concerted efforts to combat desertification. It culminated in the United Nations Conference on Desertification (UNCOD) in 1977 in Nairobi. UNCOD produced 27 detailed recommendations on how to combat desertification in a 20-year action plan. UNEP's recent reviews leading to UNCED in 1992, reiterated that desertification continues to afflict many millions of people. It also revealed that UNCOD's plan of action had minimal impact for various reasons, including:

- lack of prioritization of Desertification action plans by both donor and recipients;
- lack of emphasis given to the socio-economic and political mechanisms required to solve the problem;
- affected countries were unable to cope with the problem without external support.

This was recognized by UNCED, and accepted as a major program area in Agenda 21. However, the first call for a convention was during the UNCED preparatory process. During the elaboration of chapter 12 of the UNCED's Agenda 21 on combating desertification and drought, the African group, especially the Sudano-Sahelian countries, initiated the concept of a convention to combat desertification as a critical element for strengthening local, national, regional and international cooperation. This was to provide for commitments from all nations, an element that was lacking in the UNCOD plan of action. The Rio conference accepted the suggestion and recognized desertification as a global environmental/developmental problem and recommended to the 47th UN General Assembly to "establish an Inter-governmental Negotiating Committee to elaborate an International Convention to Combat Desertification (INCD) in those countries experiencing serious drought and/or desertification, particularly in Africa".

The UN General Assembly adopted this recommendation by resolution 47/188 of December, 1992. This set into motion the negotiation process for the convention to be concluded by June, 1994. The resolution made provision for the establishment of a Secretariat for organizational and administrative support to the INCD. A multidisciplinary International Panel of Experts on Desertification (IPED) was also established to give the Secretariat and the INCD technical support.

With reference to resolution 47/188 of December 1993 by the UN General Assembly, the rationale for negotiating for an International Convention to Combat Desertification could be summarized as:

- a concerted worldwide effort to support millions of affected populations alleviate their suffering and replace land degradation with sustainable development;
- support other efforts in reversing global climate change;
- support other efforts in the conservation of biodiversity.

The final objectives of the Convention will be defined precisely by the International Negotiations Committee on Desertification (INCD) itself. One tentative suggestion from the INCD Secretariat states:

"The overall objective of the Convention is to marshal effective and specific commitments, actions and cooperation at local, national, regional and global levels to implement a new integrated systems approach to combating desertification and mitigating drought by promoting sustainable development at the local community level according to the real needs local people perceive. This implies long-term focus on both improving living conditions and the quality of life at the community level and simultaneously managing land resources sustainably to maximize dryland productivity."

The organizational session for the INCD was held in January 1993. At that meeting delegates elected Bo Kjellén (Sweden) Chair of the Committee, elected the Bureau, adopted the rules of procedure, set the schedule of meetings and established two working groups.

2. Report of the INCD Sessions

2.1. First Session

The first session of the INCD was held in Nairobi, Kenya from 24 May - 3 June 1993. The first week of the session focused on the sharing of technical information and assessments on various aspects of drought and desertification. Divided into seven sections, the information-sharing segment provided an opportunity for scientists, technical experts, delegates and NGOs to share relevant experiences and learn more about the scourge of desertification and its global dimensions. The second week focused on the structure and elements to be contained in the Convention. Delegates also exchanged ideas about the Convention and its objectives.

Negotiations stalled in Nairobi over the issue of related regional instruments, while still giving priority action to Africa. Kjellén proposed that an instrument on Africa, such as an annex, be negotiated once the main structure of the Convention had been defined, and that similar instruments for other regions be negotiated subsequently. This proposal met with resistance from several countries in regions other than Africa. They felt that their own problems with desertification deserved attention and that similar instruments for their regions should be negotiated simultaneously with the instrument for Africa. The decision on this matter was deferred.

2.2. Second Session

The second session of the INCD met in Geneva from 13-24 September 1993. The Committee considered the compilation text of the Convention prepared by the Secretariat and agreed on the future programme of work of the Committee, including the elaboration of regional instruments for Africa, Asia and Latin America. As in Nairobi, the most difficult issue to resolve was the negotiation of regional instruments. At the conclusion of the second session, the two working groups completed their discussion of the Secretariat's compilation text, identifying areas of convergence and divergence. There appeared to be consensus in a number of areas, including the need for: a clear and concise preamble that refers to the history of desertification in the UN system; clear and concise objectives; and implementable commitments that are central to the Convention and articulated at different levels (national, regional and international). Delegates stressed the need for a public awareness strategy, improved education, and increased cooperation and coordination between North and South, South and South, and among donors.

2.3. 48th UN General Assembly

The 48th session of the UN General Assembly adopted a resolution submitted by the INCD that urged the Committee to successfully complete the negotiations by June 1994. The General Assembly also decided that the INCD should hold one session after the adoption of the Convention during the interim period. The objective of this session, to be held in January 1995, will be to review the situation before the Convention enters into force, in particular with regard to the implementation of provisions that are to be adapted to the specific needs of each region.

2.4. Third Session

The third session of the INCD was held at UN Headquarters in New York from 17-28 January 1994. At this session, the two working groups focused on the draft negotiating text of the Convention that was prepared by the Secretariat and contained in document A/AC.241/15. By the end of the two-week session, the working groups were able to complete at least one and sometimes two readings of each draft article. Progress was made in shaping the Convention and in identifying the areas of convergence and divergence. The INCD also discussed the regional instrument for Africa for the first time. After an initial discussion of the nature of this instrument and its relationship to the Convention as a whole, delegates requested the Secretariat to prepare a draft text for consideration at the fourth session.

2.5. Fourth Session

The fourth session of the INCD was held in Geneva from 21-31 March 1994. The two working groups continued negotiating the draft text of the Convention, as contained in document A/AC.241/15/Rev.1. By the conclusion of the session, the substantive problems that remained included: the need for an article on principles in the text; all matters related to financial resources and mechanisms; categories of countries; subsidiary bodies; reservations or exceptions open to the Parties; and the obligations of a withdrawing Party. In order to have a more productive dialogue on the issues of financial resources and mechanisms, the Chair invited Pierre-Marc Johnson (Canada) and Bolong Sonko (The Gambia) to undertake informal consultations among delegations on the provisions of the Convention related to finance. The objective of these consultations was to develop a new negotiating text on finance for the fifth session.

The fourth session was also the first time that delegates formally considered the Regional Implementation Annex for Africa. In general, developed countries thought that the annex was too long and contained a number of articles that were better suited to or already contained in the main Convention. African countries felt that the level of detail was absolutely essential, otherwise the instrument would not achieve its objective of providing priority treatment for Africa. After a series of informal sessions, the unresolved issues in this text included: the mandatory nature of the commitments to be made by Parties; timetable for preparing action programmes; the necessity of regional action programmes; the role of the UN and other international institutions; financial arrangements; and follow-up and coordination.

The Asian and Latin American regional groups also produced their own draft regional implementation instruments. Although these annexes were not negotiated or even discussed in detail, initial reaction was positive. Delegates praised both annexes for their brevity and clarity and supported them as a good basis for further discussion.

2.6. Fifth session

The fifth session of the INCD was held from 6-17 June 1994 at UNESCO Headquarters in Paris. The Committee first dealt with certain procedural matters, including the adoption of the agenda

(A/AC.241/22) and the accreditation of seven more NGOs to the negotiating process (A/A.241/A/Add.7). INCD Chair Bo Kjellén emphasized the importance of negotiating an effective Convention and announced the flexible work schedule for the session. At the Plenary held on 17 June, the Convention was adopted along with the Regional Implementation Annexes on Africa, Asia, Latin America and the Caribbean, and the Northern Mediterranean. A resolution on interim arrangements was adopted. It calls on States and regional economic integration organizations to sign the Convention in Paris. It also requests the Secretary-General to make appropriate arrangements for the continuation of the signing period in New York during and after the 49th session of the General Assembly and make the necessary arrangements to convene a session of the Committee from 9-20 January 1995 in New York.

The Committee then adopted a resolution on urgent action for Africa. The resolution recommended that affected African countries should designate coordinating bodies at the national and subregional levels.

2.7 The Signing Ceremony

The Government of France hosted the signing ceremony at UNESCO Headquarters in Paris on October 14 and 15, 1994. More than 80 signatories were recorded, well in excess of the number required of course. Of course ratification cannot occur until at least 50 of the signatories are confirmed by the respective governments.

ICRISAT made a statement at the signing ceremony on behalf of the CGIAR. A copy is included as Appendix I.

3. Accomplishments of the Convention

Perhaps the most important accomplishment of the INCD process is the international attention that has been mobilized around the problem of desertification. Many have argued that regardless of the specificities in the final Convention, the process itself has been a success in providing a networking forum for those affected by desertification, with donors, affected developing countries, UN agencies, intergovernmental organizations and NGOs. These numerous contacts have already laid the groundwork for future partnership arrangements to combat desertification.

Another critical achievement is the acceptance by many governments of the importance of the participatory approach in the development of the national action programmes and, indeed, the recognition that this element is a pre-condition to successful results.

NGOs were extremely positive about the openness of the negotiating process and the extent to which they were able to influence decision-making, especially around such issues as national desertification trust funds and NGO participation in the development of national action programmes. At the first INCD session in Nairobi there were only 15 NGOs represented. By INCD-5 there were over 50 NGOs actively participating, with over 230 accredited. The impact

these NGOs had on the Convention and the role they are preparing to play in its implementation have set an important precedent.

There has been an important change in the attitude of policy-makers regarding the socio-economic dimensions of the desertification problem and the need for incorporating these factors into action programmes.

This process has stimulated a new awareness on the need to coordinate action and aid programmes. There has been a heightened awareness of the problems in national and regional resource management and the need to build on the very concrete successes and to avoid replication of the failures of the 1977 Plan of Action. This process not only addressed the issue of the orientation of development aid, but has prompted the need for pointed efficiency in aid spending through the increased coordination and cooperation that will be catalyzed by a new Global Funding Mechanism.

4. Salient aspects of the convention

The Convention consists of the following sections:

1. The Main Convention

Part I: Introduction

Preamble

Article 1: Use of terms

Article 2: Objective

Article 3: Principles

Part II: General provisions

Article 4: General obligations

Article 5: Obligations of affected country parties

Article 6: Obligations of developed country parties

Article 7: Priority for Africa

Part III: Action programmes, scientific and technical cooperation and supporting measures

Section 1: Action programmes

Article 9: Basic approach

Article 10: National action programmes

Article 11: Subregional and regional action programmes

- Article 12: International cooperation
- Article 13: Support for the elaboration and implementation of action programmes.
- Article 14: Coordination in the elaboration and implementation of action programmes.
- Article 15: Regional implementation annexes.

Section 2: Scientific and technical cooperation

- Article 16: Information collection, analysis and exchange.
- Article 17: Research and development
- Article 18: Transfer, acquisition, adaptation and development of technology.

Section 3: Supporting measures

- Article 19: Capacity building, education and public awareness
- Article 20: Financial resources
- Article 21: Financial mechanisms

Part IV: Institutions

- Article 22: Conference of the parties
- Article 23: Permanent secretariat
- Article 24: Committee on science and technology
- Article 25: Networking and existing institutions, agencies and bodies

Part V: Procedures

- Article 26: Communication and information
- Article 27: Measures to resolve questions on implementation
- Article 28: Settlement of disputes
- Article 29: Status of annexes
- Article 30: Amendments to the Convention
- Article 31: Adoption and amendment of annexes
- Article 32: Right to vote
- Article 33: Signature
- Article 34: Ratification, acceptance, approval and accession
- Article 35: Interim arrangements
- Article 36: Entry into force
- Article 37: Reservations
- Article 38: Withdrawal

Article 39: Depository
Article 40: Authentic texts

Regional implementation annexes

Africa
Asia
Latin American and the Caribbean
Northern Mediterranean

Of the above, Article 16 (Information collection, analysis and exchange), Article 17 (Research and development) and Article 18 (Transfer, acquisition, adaptation and development of technology) in Section 2 on Scientific and Technical Cooperation; Article 19 (Capacity building, education and public awareness) in Section 3 on Supporting measures and Article 24 (Committee on science and technology) and Article 25 (Networking of institutions, agencies and bodies) could be of special interest to the CGIAR. These articles are reproduced in Appendix II. Copies of the Convention document will be available at ICW.

4. CGIAR participation in the INCD

The CGIAR was accredited as an intergovernmental organization to the Convention and at the request of the Chairman of CGIAR, ICRISAT agreed to represent the System during the negotiation process. The first invitation to ICRISAT to participate in the INCD deliberations was received for the Geneva session in September 1993 and Dr. M.V.K. Sivakumar, Director of the Soils and Agroclimatology Division represented ICRISAT for the first three days of this meeting. One important observation from this meeting was that many participants in the INCD, including NGOs, were not aware of the CGIAR or its activities in research and development, technology transfer and information exchange that are relevant to the Convention.

In order to inform the INCD at the New York session of the full range of CGIAR activities in the area of Desertification, ICRISAT took the leadership in preparing the following publications on behalf of CGIAR:

- a) Challenging Hunger - The Role of the CGIAR
- b) Living at the Edge.

In addition, the CGIAR Secretariat prepared a Greenfile newsfeature on the CGIAR. ILCA and other Centers sent some selected publications. Several hundred copies of the above publications were distributed. The CGIAR was represented at both the New York and Paris sessions by Drs. J.G. Ryan and M.V.K. Sivakumar, and by Dr. Sivakumar in the 1993 Geneva session. In addition, Mr. Heinrich von Loesch of CGIAR Secretariat assisted Dr. Sivakumar in New York in setting up the publications display for CGIAR.

5. Developments in CGIAR related to INCD

When world leaders agreed on Agenda 21 at the UNCED meeting in Rio de Janeiro in June 1992, they requested the international research community to consider specific contributions that it could make towards implementing Agenda 21. Based on Agenda 21, three international conventions regulating government activities have emerged: on biodiversity, climate change and desertification.

A CGIAR Task Force headed by Dr. Stein Bie was appointed to prepare a report on the CGIAR Response to UNCED's Agenda 21. The Task Force report was discussed during desirable International Centers Week in October 1993. Agenda 21 has three most relevant items to the CGIAR:

1. Poverty alleviation
2. Increased agricultural productivity
3. Environmental protection.

The Task Force recommended that the CGIAR should profile itself as a responsible entity contributing towards fulfilling ambitions of Agenda 21 within the above three fields.

In response to the recommendations of the Task Force for a Global Marginal Soils Initiative, ICRISAT has proposed a Desert Margins Initiative (DMI) which brings together six IARCs (ICRISAT, ICRAF, ILCA, IFPRI, ICARDA, and IPGRI), six NARSs (Botswana, Burkina Faso, Kenya, Mali, Namibia and Niger), three international agencies (IBSRAM, IFDC, and CIRAD), two mentor institutes (USDA-WSR and UK-NERC) and three regional institutions (CILSS/INSAH, IGADD and SADC/SACCAR).

5.1. Objectives of DMI

The overall objective of this initiative is:

To arrest land degradation by promoting improved and innovative technologies that integrate effective nutrient management strategies with improved soil and water conservation techniques that are ecologically sound, economically viable and socially acceptable to farmers in the dryland areas of sub-Saharan Africa.

The specific objectives are:

1. To develop a better understanding of the extent of land degradation through water and wind erosion and through mining of soil nutrients in the traditional crop and livestock production systems in the desert margins and the impact of and distinction between causal factors, both natural and human, with a view to combat land degradation and achieve improved productivity as well as sustainable use and management of soil resources.

2. To evaluate with the participation of farmers, NGOs, and NARSs, past and current indigenous and improved soil management programs for arresting land degradation to identify the causes of misuse and design effective strategies and elaborate activities to test options to enhance soil resilience in the desert margins.
3. To overcome negative nutrient balances and increase biomass at the farm level by developing integrated systems of nutrient management incorporating use of locally available agrominerals combined with recycling of manure/urine from livestock, crop residues, city wastes, farmer acceptable agroforestry systems and crop rotations involving the use of legumes to improve biological nitrogen fixation.
4. To combine improved, farmer-acceptable, soil and water conservation techniques such as stone bunds, wind breaks, hedge rows, field ridges etc., with the integrated nutrient management systems to enhance soil resilience.
5. To evaluate the role of livestock in the ecological and economic linkages between arid and semi-arid zones to control land degradation and loss of vegetation biodiversity in the arid zone.
6. To identify, evaluate and assist in the design of policies that will enhance the adoption of improved soil management options for arresting land degradation.
7. To enhance the institutional capacity of the participating countries in the project for land degradation research and extension of the improved technologies, with particular attention to multidisciplinary and participative socio-economic research.

5.2. Description of activities under Desert Margins Initiative

Activities proposed under DMI fall into the following major categories:

1. Characterization and analysis of land use systems.
2. Household and community resource management and investment decisions and the impact of policy.
3. Ecological and economic linkages between arid/semi-arid zones: the role of livestock.
4. Development of management techniques to enhance soil resilience and arrest land degradation.
5. Selection of multipurpose forages, legumes and tree species.
6. Strategic research on component interactions.
7. Development and evaluation of improved technologies.
8. Institution building and enhancement of human resource capacity.

5.3. International Workshop on the Desert Margins Initiative:

To facilitate an effective dialogue between all interested parties in the DMI, the Consortium is holding an "International Planning Workshop on a Desert Margins Initiative" from 23-26 January 1995 at ICRAF in Nairobi, Kenya with the following objectives:

To assemble those institutions and individuals interested in collaboration in a Desert Margins Initiative.

To more precisely define and characterize the "Desert Margins" for the purpose of the Initiative.

To design an effective experimental approach and research agenda tailored to the target agroecological zones of the desert margins and to the socio-economic conditions of the participating countries.

To discuss the proposed Initiative and develop effective collaborative arrangements that includes interested NARSSs, NGOs, Regional Institutes, IARCs, and other institutions;

To formulate work plans leading to specific project proposals that can be used to solicit appropriate funding.

To establish a Steering Committee to provide policy guidelines and to set priorities.

To identify the training needs and support required for the enhancement of human resource and institutional capacity in the NARSSs.

APPENDIX I

Statement by James G. Ryan
Director General
International Crops Research Institute
for the Semi-arid Tropics (ICRISAT)

On the Occasion of the Signing Ceremony
for the International Convention to Combat Desertification
in those Countries experiencing Serious Drought
and/or Desertification, particularly in Africa

Paris, France
October 14-15, 1994

Madame Chair, Honorable Ministers, your Excellencies, ladies and gentlemen.

The Consultative Group on International Agricultural Research (CGIAR), which I am representing here today in my capacity as Director General of one of the 17 International Agricultural Research Centers (IARC's) which come under the CGIAR umbrella, is pleased to be associated with this important event. ICRISAT has attended most of the negotiating sessions as an interested scientific observer, and trusts that the Parties to the Convention will regard it and the other 10 Centers of the CGIAR who conduct research and related activities in arid, semi-arid and dry sub-humid regions of the developing world, as prospective partners in the implementation process.

ICARDA, the International Center for Agricultural Research in Dry Areas, works on the crops and agricultural systems of the arid zones of West Asia and North Africa; ILCA, the International Livestock Center for Africa works on livestock husbandry, forages and policies in Africa; ICRAF, the International Center for Research on Agroforestry conducts research on the interface between agriculture and forestry in a systems approach; IPGRI, the International Plant Genetic Resources Institute focusses on the assembly, conservation, management, exchange and utilization of genetic resources; IFPRI, the International Food Policy Research Institute examines macro-economic policy environments conducive to sustainable agricultural growth and food security; and ICRISAT, the International Crops Research Institute for the Semi-arid Tropics, researches the crops and the soil, water, nutrient and socioeconomic challenges facing the poorest of the poor in the semi-arid desert margins of Asia, Africa and Latin America.

All of these and the other Centers operate in the collaborative partnership mode with national research systems, and increasingly with non-governmental organizations. This will be strengthened in the future in a series of ecoregional initiatives aimed at natural resource management research and related activities in the major agroecological zones. This is seen as an effective way of addressing the nexus between the concerns about the environment, and those related to poverty, food security, malnutrition, biodiversity and population growth.

ICRISAT has been designated by the CGIAR as the convener of the Desert Margins Ecoregional Initiative. The objective in this initiative is to help arrest land degradation, primarily in Sub-Saharan Africa, by promoting improved and innovative technologies that integrate effective soil nutrient management strategies with improved soil and water conservation techniques that are ecologically sound, economically viable and socially acceptable to farmers in the marginal rainfed areas of sub-Saharan Africa.

A Workshop to plan the Desert Margins Initiative is scheduled in Nairobi in late January, 1995. It will involve NGO's, national research and development agencies, regional and international organizations.

Other ecoregional initiatives of relevance to the Desertification Convention convened by CGIAR Centers include Alternatives to Slash and Burn in the more humid tropical environments, convened by ICRAF, and that aimed at developing improved and sustainable natural resource management options in the arid ecologies of the North African Sahel, where ICARDA is convener.

These ecoregional initiatives involve the international research centers as catalysts in facilitating scientific synergies and spillovers among local, national, regional and international agencies. This indeed is one of the primary *raison d'etres* of the Convention. The CGIAR Centers stand ready to continue to catalyze and participate in these and other initiatives that emerge from the successful negotiation of the Convention.

Thank you.

APPENDIX II

Section 2: Scientific and technical cooperation

Article 16

Information collection, analysis and exchange

The parties agree, according to their respective capabilities, to integrate and coordinate the collection, analysis and exchange of relevant short term and long term data and information to ensure systematic observation of land degradation in affected areas and to understand better and assess the processes and effects of drought and desertification. This would help accomplish, inter alia, early warning and advance planning for periods of adverse climatic variation in a form suited for practical application by users at all levels, including especially local populations. To this end, they shall, as appropriate:

- (a) Facilitate and strengthen the functioning of the global network of institutions and facilities for the collection, analysis and exchange of information, as well as for systematic observation at all levels, which shall, inter alia:
 - (i) aim to use compatible standards and systems;
 - (ii) encompass relevant data and stations, including in remote areas;
 - (iii) use and disseminate modern technology for data collection, transmission and assessment on land degradation; and
 - (iv) link national, subregional and regional data and information centres more closely with global information sources;
- (b) ensure that the collection, analysis and exchange of information address the needs of local communities and those of decision makers, with a view to resolving specific problems, and that local communities are involved in these activities;
- (c) support and further develop bilateral and multilateral programmes and projects aimed at defining, conducting, assessing and financing the collection, analysis and exchange of data and information, including, inter alia, integrated sets of physical, biological, social and economic indicators;
- (d) make full use of the expertise of competent intergovernmental and non-governmental organizations, particularly to disseminate relevant information and experiences among groups in different regions;

- (e) give full weight to the collection, analysis and exchange of socio-economic data, and their integration with physical and biological data;
- (f) exchange and make fully, openly and promptly available information from all publicly available sources relevant to combatting desertification and mitigating the effects of drought; and
- (g) subject to their respective national legislation and/or policies, exchange information on local and traditional knowledge, ensuring adequate protection for it and providing appropriate return from the benefits derived from it, on an equitable basis and on mutually agreed terms, to the local populations concerned.

Article 17

Research and development

1. The Parties undertake, according to their respective capabilities, to promote technical and scientific cooperation in the fields of combatting desertification and mitigating the effects of drought through appropriate national, subregional, regional and international institutions. To this end, they shall support research activities that:

- (a) contribute to increased knowledge of the processes leading to desertification and drought and the impact of, and distinction between, causal factors, both natural and human, with a view to combatting desertification and mitigating the effects of drought, and achieving improved productivity as well as sustainable use and management of resources;
- (b) respond to well defined objectives, address the specific needs of local populations and lead to the identification and implementation of solutions that improve the living standards of people in affected areas;
- (c) protect, integrate, enhance and validate traditional and local knowledge, know-how and practices, ensuring, subject to their respective national legislation and/or policies, that the owners of that knowledge will directly benefit on an equitable basis and on mutually agreed terms from any commercial utilization of it or from any technological development derived from that knowledge;
- (d) develop and strengthen national, subregional and regional research capacities in affected developing country Parties, particularly in Africa, including the development of local skills and the strengthening of appropriate capacities, especially in countries with a weak research base, giving particular attention to multidisciplinary and participative socio-economic research;
- (e) take into account, where relevant, the relationship between poverty, migration caused by environmental factors, and desertification;

- (f) promote the conduct of joint research programmes between national, subregional, regional and international research organizations, in both the public and private sectors, for the development of improved, affordable and accessible technologies for sustainable development through effective participation of local populations and communities; and
- (g) enhance the availability of water resources in affected areas, by means of, inter alia, cloud-seeding.

2. Research priorities for particular regions and subregions, reflecting different local conditions, should be included in action programmes. The Conference of the Parties shall review research priorities periodically on the advice of the Committee on Science and Technology.

Article 18

Transfer, acquisition, adaptation and development of technology

1. The Parties undertake, as mutually agreed and in accordance with their respective national legislation and/or policies, to promote, finance and/or facilitate the financing of the transfer, acquisition, adaptation and development of environmentally sound, economically viable and socially acceptable technologies relevant to combatting desertification and/or mitigating the effects of drought, with a view to contributing to the achievement of sustainable development in affected areas. Such cooperation shall be conducted bilaterally or multilaterally, as appropriate, making full use of the expertise of intergovernmental and non-governmental organizations. The Parties shall, in particular:

- (a) fully utilize relevant existing national, subregional, regional and international information systems and clearing-houses for the dissemination of information on available technologies, their sources, their environmental risks and the broad terms under which they may be acquired;
- (b) facilitate access, in particular by affected developing country Parties, on favourable terms, including on concessional and preferential terms, as mutually agreed, taking into account the need to protect intellectual property rights, to technologies most suitable to practical application for specific needs of local populations, paying special attention to the social, cultural, economic and environmental impact of such technology;
- (c) facilitate technology cooperation among affected country Parties through financial assistance or other appropriate means;
- (d) extend technology cooperation with affected developing country Parties, including, where relevant, joint ventures, especially to sectors which foster alternative livelihoods; and

- (e) take appropriate measures to create domestic market conditions and incentives, fiscal or otherwise, conducive to the development, transfer, acquisition and adaptation of suitable technology, knowledge, know-how and practices, including measures to ensure adequate and effective protection of intellectual property rights.

2. The Parties shall, according to their respective capabilities, and subject to their respective national legislation and/or policies, project, promote and use in particular relevant traditional and local technology, knowledge, know-how and practices and, to that end, they undertake to:

- (a) make inventories of such technology, knowledge, know-how and practices and their potential uses with the participation of local populations, and disseminate such information, where appropriate, in cooperation with relevant intergovernmental and non-governmental organizations;
- (b) ensure that such technology, knowledge, know-how and practices are adequately protected and that local populations benefit directly, on an equitable basis and as mutually agreed, from any commercial utilization of them or from any technological development derived therefrom;
- (c) encourage and actively support the improvement and dissemination of such technology, knowledge, know-how and practices or of the development of new technology based on them; and
- (d) facilitate, as appropriate, the adaptation of such technology, knowledge, know-how and practices to wide use and integrate them with modern technology, as appropriate.

Section 3: Supporting measures

Article 19

Capacity building, education and public awareness

1. The Parties recognize the significance of capacity building-that is to say, institution building, training and development of relevant local and national capacities-in efforts to combat desertification and mitigate the effects of drought. They shall promote, as appropriate, capacity-building:

- (a) through the full participation at all levels of local people, particularly at the local levels, especially women and youth, with the cooperation of non-governmental and local organization;
- (b) by strengthening training and research capacity at the national level in the field of desertification and drought;

- (c) by establishing and/or strengthening support and extension services to disseminate relevant technology methods and techniques more effectively, and by training field agents and members of rural organizations in participatory approaches for the conservation and sustainable use of natural resources;
- (d) by fostering the use and dissemination of the knowledge, know-how and practices of local people in technical cooperation programmes, wherever possible;
- (e) by adapting, where necessary, relevant environmentally sound technology and traditional methods of agriculture and pastoralism to modern socio-economic conditions;
- (f) by providing appropriate training and technology in the use of alternative energy sources, particularly renewable energy resources, aimed particularly at reducing dependence on wood for fuel;
- (g) through cooperation, as mutually agreed, to strengthen the capacity of affected developing country Parties to develop and implement programmes in the field of collection, analysis and exchange of information pursuant to Article 16;
- (h) through innovative ways of promoting alternative livelihoods, including training in new skills;
- (i) by training of decision makers, managers, and personnel who are responsible for the collection and analysis of data for the dissemination and use of early warning information on drought conditions and for food production;
- (j) through more effective operation of existing national institutions and legal frameworks and, where necessary, creation of new ones, along with strengthening of strategic planning and management; and
- (k) by means of exchange visits programmes to enhance capacity building in affected country Parties through a long-term, interactive process of learning and study.

2. Affected developing country Parties shall conduct, in cooperation with other Parties and competent intergovernmental and non-governmental organizations, as appropriate, an interdisciplinary review of available capacity and facilities at the local and national levels, and the potential for strengthening them.

3. The Parties shall cooperate with each other and through competent intergovernmental organizations, as well as with non-governmental organizations, in undertaking and supporting public awareness and educational programmes in both affected and, where relevant, unaffected country Parties to promote understanding of the causes and effects of desertification and drought and of the importance of meeting the objective of this Convention. To that end, they shall;

- (a) organize awareness campaigns for the general public;
- (b) promote, on a permanent basis, access by the public to relevant information, and wide public participation in education and awareness activities;
- (c) encourage the establishment of association that contribute to public awareness;
- (d) develop and exchange educational and public awareness material, where possible in local languages, exchange and second experts to train personnel of affected developing country Parties in carrying out relevant education and awareness programmes and fully utilize relevant educational material available in competent international bodies;
- (e) assess education needs in affected areas, elaborate appropriate school curricula and expand, as needed, educational and adult literacy programmes and opportunities for all, in particular for girls and women, on the identification, conservation and sustainable use and management of the natural resources of affected areas; and
- (f) develop interdisciplinary participatory programs integrating desertification and drought awareness into educational systems and in non-formal, adult, distance and practical educational programmes.

4. The Conference of the Parties shall establish and/or strengthen networks of regional education and training centers to combat desertification and mitigate the effects of drought. These networks shall be coordinated by an institution created or designated for that purpose, in order to train scientific, technical and management personnel and to strengthen existing institutions responsible for education and training in affected country Parties, where appropriate, with a view to harmonizing programmes and to organizing exchanges of experience among them. These networks shall cooperate closely with relevant intergovernmental and non-governmental organizations to avoid duplication of effort.

Article 24 Committee on Science and Technology

1. A Committee on Science and Technology is hereby established as a subsidiary body of the Conference of the Parties to provide it with information and advice on scientific and technological matters relating to combatting desertification and mitigating the effects of drought. The Committee shall meet in conjunction with the ordinary sessions of the Conference of the Parties and shall be multidisciplinary and open to the participation of all Parties. It shall be composed of government representatives competent in the relevant fields on the terms of reference of the Committee.

2. The Conference of the Parties shall establish and maintain a roster of independent experts with expertise and experience in the relevant fields. The roster shall be based on nominations received

in writing from the Parties, taking into account the need for a multidisciplinary approach and broad geographical representation.

3. The Conference of the Parties may, as necessary, appoint ad hoc panels to provide it, through the Committee, with information and advice on specific issues regarding the state of the art in fields of science and technology relevant to combatting desertification and mitigating the effects of drought. These panels shall be composed of experts whose names are taken from the roster, taking into account the need for a multidisciplinary approach and broad geographical representation. These experts shall have scientific backgrounds and field experience and shall be appointed by the Conference of the Parties on the recommendation of the Committee. The Conference of the Parties shall decide on the terms of reference and the modalities of work of these panels.

Article 25

Networking of institutions, agencies and bodies

1. The Committee on Science and Technology shall, under the supervision of the Conference of the Parties, make provision for the undertaking of a survey and evaluation of the relevant existing networks, institutions, agencies and bodies willing to become units of a network. Such a network shall support the implementation of the Convention.

2. On the basis of the results of the survey and evaluation referred to in paragraph 1, the Committee on Science and Technology shall make recommendations to the Conference of the Parties on ways and means to facilitate and strengthen networking of the units at the local, national and other levels, with a view to ensuring that the thematic needs set out in Articles 16 to 19 are addressed.

3. Taking into account these recommendations, the Conference of the Parties shall:

- (a) identify those national, subregional, regional and international units that are most appropriate for networking, and recommend operational procedures, and a time frame, for them; and
- (b) identify the units best suited to facilitating and strengthening such networking at all levels.