- The type of information to be disseminated needs to be well defined. It is also important to ensure that the information be conveyed to communities rather than to individuals. The information also needs to be relayed with proposals for action to local communities.

- Vulnerability analysis provides an effective tool to disseminate information contained in early warning systems

  - Vulnerability analysis combines historical series of bio-physical and socio-economic data

  - For desertification carrying capacity analysis can indicate populations at risk

  - Vulnerability mapping assists in priority setting in natural resources management policies in time and space

  - Integration of vulnerability assessments at various spatial and temporal scales can assist in rational distribution of scarce resources.

Guiding principles

- The guiding principles for information dissemination include the following:

  - Use of local languages
  - Set priorities in information and response
  - Adapt scale of information to users
  - Monitor the impact of information
  - Let users define information needs and adapt time, place and means of communication to local use
  - Relate drought warning information to support options for the populations concerned

B. Strengthening of appropriate response mechanisms within NAPs

- NAPs need to identify key decision-making authorities at national and local level for issuing warning and coordinating response.

- The information must be streamlined and the information flow needs to be both vertical and horizontal. It is always important to target high-risk areas that are more prone to desertification. Telecommunication infrastructure also needs to be in place particularly in high-risk areas.

- Response to desertification and drought will be different. It is necessary to look at the response at the three levels listed below. It is important to stress that response mechanisms must be able to meet the needs of the local populations, so as to enable them to use the information effectively.

  - Response mechanisms to drought

    - Short-term response measures have embedded crisis management elements such as water and food and supply

    - Medium- and long-term gradual and broadening mechanisms cited below for desertification also serve as medium- and long-term mechanisms for the mitigation of the effects of drought

    - Utilize existing tools of other early warning systems and test them at local level

- Response mechanisms to desertification
  - short term response measure are mostly technical measures
  - gradual response mechanisms: change of behaviour, production patterns, agricultural systems and consumption patterns at local level
  - Broader measures: overall sustainable development strategies, change of agricultural policies,
  - Utilize tools existing in other early warning systems and test them at local level
- Response mechanisms to both drought and desertification
  - at local, subnational, national, subregional, regional and global levels
  - defining which response has to come from which level
  - non-governmental organizations, with assistance from the Government, have responsibility at the local level
  - Assess land capability criteria: soil, slope, microclimate etc.

Implementation of the response measures within NAP

- Include responses in the NAPs
- Establish multidisciplinary national expert networks for drought early warning systems and monitoring and assessment of desertification
- Promote structured international exchanges on drought early warning systems and the monitoring and assessment of desertification

Concluding recommendations

Concluding, the Panel makes the observation that further work is needed in order to elaborate on pending questions on early warning systems and monitoring and assessment of desertification. Whereas ISDR already is in charge of an ad hoc group for disaster reduction including drought as a natural disaster, there is not such a platform regarding the monitoring and assessment of desertification.

With regard to the pending questions.

- Critical analysis of the performance of early warning and monitoring, and assessment systems;
- Open questions on methods and approaches for the prediction of drought and monitoring desertification;
- Mechanisms to facilitate exchange between scientific and technical institutions
- More detailed measures for drought preparedness

The Panel recommends to the COP to reappoint the present Panel on drought early warning systems and monitoring and assessment of desertification to keep the actual members in order to assure continuity and to ask the Panel to elaborate in depth on the above-mentioned questions.

Annex I

PARTICIPANTS TO THE AD HOC PANEL MEETING ON EARLY WARNING SYSTEMS

MEMBERS OF THE AD HOC PANEL ON EARLY WARNING SYSTEMS

Mr. Patricio Aceituno	Chile
Mr Abdellah Ghebalou	Algeria
Dr. Ali Umran Komuscu	Turkey
Mr. Zengyuan Li	China
Mr Richard Muyungi	United Republic of Tanzania
Mr. Octavio Perez Pardo	Argentina
Dr. Valentin Sofroni	Republic of Moldova
Dr. Kazuhiko Takeuchi	Japan
Dr Anneke Trux	Germany

Consultant

Dr. Ajai	Department of Space, Space Applications, ISSRO, India

Experts of relevant institutions

Mr. Alhassane Adama Diallo	Centre Regional AGRHYMET, Niger
Mr. Andrea de Vecchia	Centro Studi per l'applicazione dell'Informatica in Agricultura (CeSIA), Italy
Dr. Patrick Gonzalez	United States Agency for International Development (USAID), United States of America
Mr. Richard Masundire	Southern African Development Community (SADC), Zimbabwe
Mr. Haruo Miyata	Global Environmental Forum, Japan
Mr. Mauro Pedalino	Ministry of Foreign Affairs, Italy
Dr. M.V.K. Sivakumar	World Meteorological Organization (WMO), Switzerland
Mr. Papa Boubacar Soumare	Centre de Suivi Ecologique (CSE), Senegal

Annex II

DOCUMENTS SUBMITTED TO THE AD HOC PANEL ON EARLY WARNING SYSTEMS

Background documents

1. Decision 14/COP.3 (Early Warning Systems)

2. Document ICCD/COP(3)/CST/6 (Early Warning Systems: existing experiences of Early Warning Systems and specialized institutions operating in this field)

3. Document ICCD/COP(3)/CRP.1 (Early Warning Systems and Desertification: report of the workshop held in Niamey, Niger, from 25 to 28 October 1999)

4. Document ICCD/COP(3)/CRP.2 (Asia-Africa technical workshop on Early Warning Systems: report of the workshop held in Beijing, China, from 22 to 23 July 1999)

5. Early Warning Systems and Desertification. Paper presented to the workshop held in Niamey, Niger, from 25 to 28 October 1999. CeSIA, Florence, Italy.

6. Early Warning Systems in the context of Drought and Desertification. A background working paper for the UNCCD Ad Hoc Panel of Experts' Meeting to be held in May, 2000. Ajai, ISRO, Ahmedabad, India.

Conference room documents

1. Comments on the background paper to be discussed at the UNCCD ad hoc Panel Meeting on Early Warning Systems. Food and Agriculture Organization of the United Nations (FAO), Rome, Italy.

2. Desertification Status and Trends in China. Zengyuan Li, Institute of Forest Resources Information Technique, Chinese Academy of Forestry.

3. Early Warning Systems in the Context of the UNCCD. Haruo Miyata, Committee for Research on Combating Desertification and Land Degradation in Asia and Africa, Global Environmental Forum.

4. Overall Assessment of Desertification (OAD). Background document aiming to support discussions to be held at an expert consultation on the OAD, foreseen to be held end 1999, at the UNCCD secretariat headquarters. FAO, Rome, Italy.

5. Preliminary plan for monitoring the impacts of desertification and climate change. Famine Early Warning System Network (FEWS NET), United States Agency for International Development (USAID). Patrick Gonzalez, USAID, Washington, D.C , 29 May 2000.

6. Report on National and Local Capabilities for Early Warning. Andrew Maskrey, first author, Convener of International Working Group, Member of the IDNDR Scientific and Technical Committee, and General Coordinator of LA RED (Network for Social Studies on Disaster Prevention in Latin America). IDNDR Secretariat, Geneva, Switzerland, October 1997.

7. UNCCD ad hoc Panel on Early Warning Systems. Andrea Di Vecchia, CeSIA-Accademia dei Georgofili, Florence, Italy.

8. Views on early warning systems Prof. Takashi Kosaki, Kyoto University and Prof. Masato Shinoda, Tokyo Metropolitan University. Excerpts from the Report on the study for promotion of the measures to combat

desertification, FY 1999. Edited and published by the Global Environmental Forum of Japan for the Environment Agency, Japan, March 2000.

Annex III

AGENDA OF THE AD HOC PANEL MEETING ON EARLY WARNING SYSTEMS

Wednesday, 31 May 2000

0930 - 1000	Registration
1000 - 1030	Welcoming statement by Representatives of the Arbeitnehmer-Zentrum Konigswinter (AZK), Dr. Eberhard Pies, Director and Ms. Mary Nisa Punnamparambil, Education & Training Officer
1030 - 1100	Remarks by the Representative of CCD Secretariat
1100 - 1130	Appointment of the Chairman of AHP/EWS, of topic Chairs and *Rapporteurs*
1130 - 1200	Statement by the Chairman of AHP/EWS

Topic 1: Data collection, accessibility and integration

1400 - 1430	Presentation of Topic 1
1430 - 1615	Discussion of Topic 1
1630 - 1730	Discussion of Topic 1

Thursday, 1 June 2000

0900 - 1045	Conclusion of Topic 1

Topic 2: Evaluation and prediction of drought and desertification, and measures for preparedness, in cooperation with the follow-up to the International Decade for Natural Disaster Reduction

1100 - 1130	Presentation of Topic 2
1130 - 1230	Discussion of Topic 2
1430 - 1615	Discussion of Topic 2
1630 - 1730	Conclusion of Topic 2

Friday, 2 June 2000

Topic 3: Dissemination of information to end users on the applications of early warning systems and desertification monitoring and assessment, and strengthening of appropriate response mechanisms, particularly in the National Action Programmes to combat desertification

0900 - 0930	Presentation of Topic 3
0930 - 1045	Discussion of Topic 3
1100 - 1230	Discussion of Topic 3

1430 - 1615	Conclusion of Topic 3
1630 - 1800	Discussion on the conclusions and recommendations of the AHP/EWS

Saturday, 3 June 2000

0930 - 1230	Drafting of report by the *Rapporteurs* of AHP/EWS
1430 - 1830	Adoption of the report
1830 - 1900	Closing Ceremony

Decision 14/COP.4

Early warning systems

The Conference of the Parties,

Recalling decision 14/COP.3 to appoint an ad hoc panel on early warning systems,

Recalling also the follow-up to the International Decade for Natural Disaster Reduction,

Taking note of the report of the ad hoc panel on Early Warning Systems1/, and the recommendations of the Bureau of the Committee on Science and Technology on this subject2/,

Taking note also of the existence of networks of early warning systems and desertification monitoring and assessment at the national, subregional and regional levels,

1. *Re-appoints* an ad hoc panel on early warning systems to be composed of 10 experts in order to examine further the following:

(a) Critical analysis of the performance of early warning and monitoring and assessment systems, linking traditional knowledge and early warning systems, especially in the areas of the collection of data, dissemination of information and measuring for drought preparedness;

(b) Methods for and approaches to the prediction of drought and monitoring of desertification, particularly the method of analysing vulnerability to drought and desertification, especially at the local, subnational and national levels, with special regard to new technological developments;

(c) Mechanisms to facilitate an exchange of information between scientific and technological institutions, in particular focusing on national and subregional networks on the prediction of drought and monitoring of desertification;

(d) More detailed measures for drought and desertification preparedness, in cooperation with the approaches, from hazard protection to risk management, adopted by the International Strategy for Disaster Reduction;

2. *Requests* the secretariat to make the necessary arrangements for the functioning of the ad hoc panel, including the provision of additional expertise, particularly in the area of participatory planning and legal advice.

12th Plenary
22 December 2000

E

Other Documents on UN Conferences