



KOBE REPORT draft
Report of Session 2.2, Thematic Cluster 2

A Seamless Approach to the Global Problem of Drought

1. Summary of the session's presentations and discussions

Drought is a normal part of climate for virtually all climate regimes. It is a complex and widespread natural hazard, and affects many parts of the world with a substantial impact on water resources, agriculture, hydroelectric power, and many other sectors. For example, annual losses associated with drought are estimated at \$6 to \$8 billion alone in the US. In China, the averaged economic loss associated with drought is about one fifth of the Gross Domestic Product (GDP), and drought ranks the most severe natural disaster. In Africa, drought contributes to loss of life, poor crop yields, food shortages, famine, malnutrition, mass migration of people and animals and many other socio-economic miseries. Drought impacts are known to develop slowly and methods for assessing impacts are poorly developed

Also, to better address the risks associated with drought and society's vulnerability to it, we need to shift from following the hydro-illogical cycle and reacting to drought in the post-drought period to risk-based drought mitigation planning. Improved early warning through a comprehensive, integrated approach to drought monitoring, assessment and prediction is a key component of drought mitigation planning. This session highlights current efforts being made to address drought in China, Africa and United States.

One of the challenges of addressing risks associated with drought is raising the awareness of drought to the public, decision makers, and policy makers. The U.S. Drought Monitor, a weekly web-based product, relies on multiple indicators and climate indices and has greatly increased public awareness of drought in the United States. This product is currently being used to track drought status and severity, and is used as a key policy decision on eligibility for disaster assistance programs. In addition, the implementation of a National Integrated Drought Information System (NIDIS) is currently being considered. The NIDIS system is designed to provide accurate, timely and integrated information on drought conditions through interactive delivery systems. It also provides a framework for interacting with and educating those affected by drought.

Meteorological parameters and soil moistures are routinely monitored using the meteorological network in China to detect the occurrence, and to detect drought development. In addition to in-situ observations, remote sensing techniques have been widely applied in drought monitoring. Specifically, the use of satellite data from polar orbiting meteorological satellites became operational in 2002. The thermal inertia method is used in spring and fall, and a water supply vegetation index method is used in summer. Risk assessment of agricultural drought including risk identification, drought intensity, capability of combating drought and a comprehensive risk zoning is also in place. Agricultural drought prediction is necessary for disaster reduction planning. A new multi-scale prediction model of drought intensity (i.e. the difference between monthly precipitation and evaporation) is being developed.

International cooperation is vital in dealing with regional drought so as to save lives and eradicate poverty, ensure sustained food security, and promote sustainable development. The climate communities under the auspices of the World Meteorological Organization (WMO), and the National Meteorological and Hydrological Services (NMHSs) provides daily, weekly, monthly, seasonal and long term information that are critical for drought hazard mapping in Africa. Centres in Africa, such as African Centre for Meteorological Applications for Development (ACMAD), Drought Monitoring Centre – Nairobi (DMCN), Drought Monitoring Centre-Harare (DMCH) and AGRHYMET, were established to support the NMHS activities. The main objective of these centres is to provide early warning of drought, and applications for the mitigation of adverse

impacts of drought. For example, the AGRHYMET Regional Centre provides meteorological, hydrological, crops and pasture conditions during the rainy season to 9 west African NMHS. These centres are also actively involved in capacity building. Regional drought preparedness networks, currently being promoted by ISDR, WMO, UNESCAP, FAO, and the U.S. National Drought Mitigation Centre, is also aimed at improving the capacity of nations to prepare for drought using a more risk-based management approach.

2. Primary issues (Please Review)

- ✓ Drought is a slow onset and widespread natural disaster. Its impacts creep on the society, and affect many parts of the world with a substantial impact on water resources, agriculture, and hydroelectric power supply. One of the major challenges of addressing risks associated with drought is raising the awareness of drought and its impacts to the public, decision makers, and policy makers.
- ✓ Societies currently react to drought in the post-drought period rather than to risk-based drought mitigation planning.
- ✓ Lack of a comprehensive and integrated approach to monitor, assess and predict drought, which is the key for drought mitigation planning.
- ✓ Insufficient drought reduction and relief strategies at local levels to save lives, eradicate poverty, and to ensure sustained food security.
- ✓ Insufficient data for assessing the impacts of human actions on drought risk (e.g. grazing, forestry and ground water management).
- ✓ Inadequate capacity building, education, communication, training are critical to drought mitigation and reduction.

Inadequate international and regional cooperation and coordination for sharing information, knowledge and experiences.

3. Suggested targets and indicators to measure accomplishments

- ✓ Improve global drought monitoring network capacity by 30% in 2015.
- ✓ Complete the implementation of the U.S. National Integrated Drought Information System, and 3 major drought prone nations/regions (e.g. China and Africa) by 2010.
- ✓ Establish regional networks on drought preparedness in Asia, Africa, North America, and Latin America by 2015.
- ✓ Develop a comprehensive international drought information clearinghouse that emphasises public education (e.g. human action impacts), drought monitoring, preparedness, and mitigation tools by 2010.
- ✓ Reduce regional drought induced agricultural loss by 10% in 2010.

4. Partnerships

- ✓ National Drought Mitigation Centre, U.S. National Oceanic and Atmospheric Administration, U.S. National Integrated Drought Information System, Chinese Meteorological Administration, Chinese Academy of Agricultural Science, IGAD Climate Prediction and Applications Centre, AGRHYMET, Drought Monitoring Centre – Harare, African Center for Meteorological Applications for Development, U.S. International Research Institute, World Meteorological Organization, UNDP, FAO, UNESCAP, UNEP