CIHEAM Briefing notes

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The MEDROPLAN Project on Drought Management

1. Drought as a natural and social hazard

Like other natural hazards, drought has both a natural and social component. The risk associated with drought for any region is a product of both the region's exposure to the event and the vulnerability of society to the event. Vulnerability, on the other hand, is determined by social factors such as population changes, population shifts (regional and rural to urban), demographic characteristics, technology, government policies, environmental awareness, water use trends, social behaviour, level of water development and/or exploitation, and water availability in general.

These factors change over time and thus vulnerability is likely to increase or decrease in response to these changes. Subsequent droughts in the same region will have different effects, even if they are identical in intensity, duration, and spatial characteristics, because societal characteristics evolve through time.

Drought is a natural hazard that differs from other hazards in that it has a slow onset, evolves over months or even years, affects a large spatial region, and causes little structural damage. Its onset and end, and the severity of drought are often difficult to determine. Like other hazards, the impacts of drought span economic, environmental, and social sectors and can be reduced through mitigation and preparedness. Because droughts are a normal part of climate variability for virtually all regions, it is important to develop plans to deal with these extended periods of water shortage in a timely, systematic manner as they evolve. To be effective, these plans must evaluate both a region's exposure and vulnerability to the hazard and incorporate these elements into a drought preparedness plan that is dynamic, evolving with societal changes.

Droughts as natural hazards are characterized by three essential features : intensity, duration, and spatial coverage. Intensity refers to the degree of the precipitation shortfall and/or the severity of impacts associated with the shortfall. It is generally measured by the departure of some climatic index from normal and is closely linked to duration in the determination of impact. Another distinguishing feature of drought is its duration. Droughts also differ in terms of their spatial characteristics. Drought impacts are closely related not only to the magnitude of the event, but also the timing of the onset, duration, and spatial extent. The spatial and temporal characteristics of drought affect the planning and responses.

2. Drought challenges

Water resources in the semi-arid countries and particularly in the Mediterranean region are limited, scarce, and difficult to predict from year to year. With limited and scarce water resources and demand rising due to population growth and improving standard of living, water management problems are tremendous even without drought events, due to the imbalance between availability and demand.

Drought, being a normal recurrent feature of every climate, combined with water scarcity, has dramatic effects on the economy and the environment of the Mediterranean countries, on the people themselves and the population's well being. In many cases, Mediterranean countries react to a drought by responding to immediate needs since there are no efficient structures and plans to cope with drought.

3. The Drought Management guidelines

The Drought Management guidelines have been published in 2007 as a result of the MEDROPLAN project, coordinated by IAMZ and financed by the MEDAWater Programme of the European Commission. The project involves partners from seven Mediterranean countries: Cyprus, Greece, Italy, Morocco, Spain and Tunisia.

4. What are the Guidelines ?

The Drought Management Guidelines are a "manual" that provide an effective and systematic approach to the development of drought management plans based on the existing scientific and technical knowledge and adapted to the socio-economic, political and environmental conditions. The proposed approach can be applied in the Mediterranean region but also in other regions of the world affected by drought. The Guidelines are based on successful experiences in coping with drought risk in many regions and they are a product addressed to a broad audience: policy decision-makers, technicians, scientists and stakeholders related to the water, agricultural and environmental sectors.

Objectives of the Guideline

- Moving from a reactive to a proactive approach to fighting drought (preparedness and risk-based management
- Placing emphasis on the institutional and legal framework and on stakeholder participation
- Introducing a wide range of methodologies to cope with drought.
- Reaching the broadest audience of decision makers and stakeholders, technical and non-technical
- Introducing the framework of drought management and describing the required elements of drought management plans
- Providing scientific and detailed methodology for drought analysis and management

The MEDROPLAN Drought Management Guidelines are structured in three printed documents and a website:

- The Drought Management Guidelines, which are a summary of all the components developed within the framework of the project. Published in 6 languages (Arabic, English, French, Greek, Italian and Spanish)
- Examples of drought management experiences in the 6 countries participating in the MEDROPLAN consortium. Published in English and French, they complement the previous document.
- The Technical Annex to the Drought Management Guidelines, which is published in English as a special issue of the CIHEAM journal "Options Méditerranéennes". The Technical Annex contains a deeper development of the issues dealt with in Drought Management.
- The MEDROPLAN website (www.iamz.ciheam.org/medroplan) that contains all the information of the documents mentioned previously and also provides a tutorial that guides the user in developing a drought management plan (CD version).