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Chapter 1. The Medroplan project: Process and key lessons

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Background

MEDROPLAN (Mediterranean Drought Preparedness and Mitigation Planning) is a project funded through the Euro-Mediterranean Regional Programme for Local Water Management (Meda Water Programme) whose first Call for Proposals was launched in January 2002.

The specific objective of this call was to enhance regional co-operation in the areas of sustainable and integrated management of water resources through institutional strengthening, raising the awareness of society, capacity building and participation. The Call for Proposals included six areas of action and four horizontal themes. The Areas of Action were: (i) Integrated management of local drinking water supply, sanitation and sewage; (ii) Local water resources and water demand management (quantity and quality) within catchment areas and islands; (iii) Prevention and mitigation of the negative effects of drought and equitable management of water scarcity; (iv) Irrigation water management; (v) Use of non-conventional water resources; and (vi) Preparation of national and local scenarios for the period until 2025 that enable precise objectives to be set and actions to be taken for sustainable water management. The Call also included four Horizontal Themes: (i) Strengthening institutional capacities and training; (ii) Exchange of information and know-how; (iii) Transfer of know-how and technology; and (iv) Awareness raising, mobilisation and promotion of commitment from the population.

The area of action "Prevention and mitigation of the negative effects of drought and equitable management of water scarcity" underlined the major interest of drought monitoring both to enable adoption of policies for appropriate response and to study the causes and possible evolution of this phenomenon with a view to developing methods for forecasting drought, including the effects of possible climate change. Other important facts included the appropriate early response to prolonged periods of drought –that is often not integrated into water management– and the fact that drought episodes are most often managed as crisis or emergencies without the proper overall adjustments in basic water management and in the agricultural systems. These facts, underly the importantce of changing current drought management practices and ensuring that water management and agricultural systems, in areas with recurrent droughts, fully integrate long term sustainable responses, as well as coherent emergency responses that are planned in advance.

The Mediterranean Agronomic Institute of Zaragoza (IAMZ-CIHEAM) had already initiated activities in this area by the time of the call for proposals. A training course on "Management strategies to mitigate drought in the Mediterranean: Monitoring, risk analysis and contingency planning" was organised in Rabat, Morocco, 21-26 May 2001, jointly organised by the CIHEAM, through the Mediterranean Agronomic Institute of Zaragoza and the Institut Agronomique et Vétérinaire Hassan II of Morocco, with the contribution of the European Commission (DG I). The goal of the course was to provide participants with methodologies and technical tools to develop and implement a comprehensive drought preparedness plan. The programme included an analysis of drought and future prospects for water supply and demand in the Mediterranean region, the methodologies for drought monitoring, risk assessment and the strategies for planning and policy development. The course was followed by 26 participants from universities, research centres and public administrations of 10 countries: Algeria, Egypt, Jordan, Malta, Morocco, Portugal, Spain, Syria, Tunisia and Turkey. During the course, a proposal to set up a network activity on drought strategies between Mediterranean countries and international organisations (FAO, ICARDA, UN Convention to Combat Desertification) was discussed and the need for international cooperation in this field was highlighted.

During 2001, the "FAO-ICARDA-EU Expert Consultation and Workshop on Drought Mitigation in the Near East and the Mediterranean" took place in Aleppo, (Syria (27-31 May 2001). Participants from 12 countries in WANA Region (West Asia and North Africa), along with specialists from the EU INCO-DC Project "A Decision Support System for the Mitigation of Drought Impacts in the Mediterranean Regions" and invited keynote speakers presented their experiences and discussed necessary future action and follow-up. The meeting concluded that due to the recurrence of drought waves with their detrimental socio-economic and environmental and socio-economic consequences to communities, serious and concerted efforts are to be exerted from all stakeholders in the Region to adopt and implement long-term preparedness and mitigation plans. Among the main recommendations made at the Meeting were the need to establish a Network on Drought for the WANA Region (which includes FAO Near East countries) and interested member countries of the European Union (EU), for facilitating the exchange of knowledge and experience relevant to the aspects of drought, including: early warning, drought characterisation, agro-meteorological and hydrological data and analysis, methodologies, impact assessment, evaluation and monitoring.

When the Meda Water call was launched, the IAMZ-CIHEAM took the lead to prepare a proposal, counting on some of the participants in the two previously mentioned initiatives. A meeting was organised at IAMZ in April 2002 in order to form the consortium and to discuss and write the proposal, that was finally submitted at the call deadline, at the end of May 2002. The consortium was constituted by two teams from MEDA countries, Morocco (Institut Agronomique et Vétérinaire Hassan II) and Tunisia (Direction Générale des Barrages et des Grands Travaux Hydrauliques, Ministère de l'Agriculture) and eight teams from UE: from Italy (Department of Civil and Environmental Engineering, University of Catania), Greece (National Technical University of Athens), Cyprus (University of Cyprus) and from Spain (Universidad Politécnica de Madrid, Confederación Hidrográfica del Tajo, Canal de Isabel II, Fundación Ecología y Desarrollo). The appointed project coordinator was IAMZ-CIHEAM. The consortium was to cover most of the needed expertise on the different matters to be dealt with in drought plans: meteorology, hydrology and water management, agriculture, urban water supply, environment and societal communication.

The project was approved and started on 15 June 2003.

Objectives, expected results and workplan of the project

The main final objective of the Project has been to provide Guidelines for Drought Preparedness Plans, adapted to the physical and socio-economic environment of the Mediterranean countries, and elaborated following a common methodology. It is expected that the Guidelines will provide partner countries with a logical and integrated approach to minimise the impacts of drought on their people and resources, and to change the way of facing drought from the present "Crisis Management" approach to proactive "Risk Management".

Another important objective of the project was to provide the framework for the setting up of a Drought Preparedness Network for the Mediterranean countries.

The Workplan of the project included the following main activities:

(i) Map the organisations and institutions working on meteorological data, hydrological data and those working on water resources management and drought mitigation. Collection, review, study and analysis of existing information on drought and drought mitigation plans in the Mediterranean countries and in the World.

(ii) Prepare Terms of Reference for Risk Analysis, a study on Drought Identification and Best Practices Report.

(iii) Educate and train partner countries participants in drought and risk analysis.

(iv) Carry out drought risk analysis and collect information on drought mitigation practices in the partner countries.

(v) Produce draft Guidelines for Drought Preparedness Plans.

(vi) Disseminate know-how and draft guidelines.

(vii) Verify and test Drought Guidelines in the member countries.

(viii) Prepare and propose a framework for the setting up of Drought Preparedness Network for the Mediterranean countries.

(ix) Present, analyse and disseminate the Guidelines in Mediterranean countries for formulating their own plans.

Project development and outputs

The project has been following the designed workplan quite accurately, although the precise definition of the methodologies to be used to carry out some parts of the project (risk analysis and testing of the guidelines, for example) that were not exhaustively described in the proposal have needed long and deep discussions. The decision on the different outputs derived from the project has been another issue which has also needed concertation and balanced efforts in order to reach an equilibrium between ambition and realism. The final agreement is that the outputs are structured into three main elements:

(i) The Drought Management Guidelines, which is a summary of the five components developed within the framework of the project: the planning framework, the organisational, methodological, operational and public review components. A compendium of examples of application to different case studies from Mediterranean countries is likewise included. The Guidelines are designed to appeal to a broad audience, with special reference to policy makers. Each component includes information that can be understood by a non-technical user and academic, technical and operational issues are also included, therefore linking scientific and policy communities. The document has been published in 6 languages (Arabic, English, French, Greek, Italian and Spanish) and is followed by examples in English and French of drought management experiences in the 6 countries participating in the MEDROPLAN consortium: Cyprus, Greece, Italy, Morocco, Spain and Tunisia.

(ii) The Technical Annex to the Drought Management Guidelines (this book), which is published as a special issue of the CIHEAM journal "Options Méditerranéennes". A CD version of the Technical Annex is included in a sleeve inside the back cover of the Drought Management Guidelines. The Technical Annex contains a deeper development of the issues dealt with in the Drought Management Guidelines and is aimed at specialists and experts in drought.

(iii) The MEDROPLAN website that contains all the information contained in the two documents mentioned previously also provides a tutorial that guides the user to finding and selecting the relevant information on the different aspects of developing a drought management plan, and provides examples of application of the proposed methods and models.

In addition to that, the book "Coping with drought risk in agriculture and water supply systems" will be published by Springer. This book will collect the most relevant scientific contributions obtained through the project.

Lessons learned

Regarding the first component of the elaboration of the Drought Guidelines, the Planning Framework, the first important issue is to have the certainty that the target country or region is in a real drought situation. **Drought** is a natural casual (random) temporary condition of consistent reduction in precipitation and water availability with respect to normal values, spanning a significant period of time and covering a wide region. Drought is not a permanent situation as for example **water scarcity** which indicates a permanent condition of unbalance between water resources and water demands in a region or in a water supply system, or **water shortage**, which is a man-induced temporary water imbalance.

For the organisational component, we have learned that the decision-making instances and the implication of stakeholders in drought plans is very diverse in the different countries, even in the EU

countries where the Water Framework Directive (WFD) indicates that water management plans have to be elaborated at the level of the river basin and where "drought management (sub) plans" should also be elaborated at this level. For this reason, it is important to be sure that in the elaboration of a drought plan for a given country or region all relevant decision making instances and stakeholders are adequately represented, their relations and linkages are well known, as well as the legal framework is taken into account.

The methodological component implies drought characterisation, evaluation of possible impacts, risk analysis and evaluation of vulnerability to drought of different societal and economic sectors. Here the key aspect is to construct a system that provides and elaborates all the data needed in order to reliably inform decision makers and stakeholders of the overcoming of a drought and what level of impacts can be expected in the water systems, agriculture, economy and society in general. This component, is the one which probably needs greater and more stable collaboration between scientists and technical experts from various fields of knowledge (meteorology, hydrology, agriculture, etc.) and decision makers and stakeholders from different administrations and types of organisations. In this respect it is important that the person or institution which has the ultimate responsability in the elaboration of the drought plan is able to attract all the people and institutions mentioned and to create structures that allow them to work in a stable manner for the drought management plan.

The operational component, which has to identify both the long and short term actions to prevent and mitigate drought impacts, as well as the procedure to implement them, is the component of the plan which affects directly the whole or important parts of society and which has a higher economic, social and political impact. This component is directly linked with the previous one that provides the information to declare accurately and objectively the situation of drought and the corresponding level of emergency, that triggers the actions to be carried out to prepare and mitigate the situation. The specific actions or measures taken may depend very much on the approach, reactive or proactive, to cope with drought. Proactive measures are taken before the initiation of a drought event and aim to reduce the vulnerability to drought or improve drought preparedness. They are long-term measures oriented to increase the reliability of water supply systems to meet future demands under drought conditions through a set of appropriate structural and institutional measures. The reactive measures taken after the start of a drought are short-term measures which attempt to mitigate the impacts of the particular drought event within the existing framework of infrastructures and management policies, on the basis of a plan developed in advance and adapted to the ongoing drought, if necessary. Both types of measures are necessary and are in fact adopted in all MEDROPLAN partner countries, but the challenge rises after the adoption of the MEDROPLAN Guidelines, when Mediterranean countries will adopt more proactive measures in order to prepare them to face drought episodes in such a way that society in general is protected from the most negative effects of this natural event.

Challenges for the future

The methodology proposed by MEDROPLAN to produce Drought Management Plans can be applied throughout the Mediterranean region and most probably in other regions of the world that have to face drought episodes. The need for Drought Management Plans is increasing, given the recent drought episodes in most of Mediterranean countries and the projections of the effects of climate change, where recent reports, such as for example the IPCC WGII Fourth Assessment Report, predict worse climatic conditions for the Mediterranean area, with high temperatures and droughts and a general reduction in water availability and crop productivity, with other important sectors such as hydropower production and tourism also affected. With this background, we expect that the MEDROPLAN Guidelines will be useful as a tool to prevent and mitigate the effects of drought in the Mediterranean region and that the proposed Mediterranean Network on Drought Management may constitute the framework in which the Guidelines will be disseminated and utilised.