

WMO/UNISDR Expert Meeting on Agricultural Drought Indices

**2-4 June
2010 Murcia,
Spain**

Summary and Recommendations of the Meeting

To meet the increasing global demand for cereals to feed the growing populations, the world's farmers will have to produce 40 percent more grain in 2020. The challenge is to revive agricultural growth at the global level and extend it to those left behind. The causes for the current food crisis are varied but civil strife and adverse weather predominate. In the developing countries, where adoption of improved technologies is too slow to counteract the adverse effects of varying environmental conditions, climate fluctuations, especially droughts, are indeed the main factors which prevent a regular supply and availability of food, the key to food security.

There is an urgent need to develop better drought monitoring and early warning systems. Hence the WMO/UNISDR Expert Meeting on Agricultural Drought Indices was organized from 2 to 4 June 2010 in Murcia, Spain. Nineteen experts from eight countries participated in the meeting. The meeting, hosted by the Hydrographic Confederation of Segura, reviewed drought indices currently used around the world for agricultural drought and assessed the capability of these indices to accurately characterize the severity of drought and its impact on agriculture. The meeting also reviewed and provided a detailed description of the strengths, weaknesses and limitations of the primary agricultural drought indices. The main objective was to examine the options for consensus standard indices for agricultural drought that take into account soil, climatic, and cropping factors; and develop guidelines for Members in implementing the recommended indices including a description of the indices, the computation methods, specific examples of where they are currently being used, the strengths and limitations, mapping capabilities, and how they can be used.

Recommendations

- 1) Given the enhanced availability and access to data, tools and guidance materials, the meeting recommends that countries around the world should move beyond the use of just rainfall data in the computation of indices for the description of agricultural droughts and their impacts.
- 2) This issue becomes very relevant, especially in the context of climate change, water scarcity and food security and hence it is important to use more comprehensive data on rainfall, temperature and soils in computing drought indices. Hence greater cooperation is required between different ministries and agencies responsible for addressing drought issues at the sub-national, national and regional levels.
- 3) Recognizing that diverse data and information are required for the use of a composite approach (such as the U.S. Drought Monitor), the meeting recommends that all countries examine this option.
- 4) Given the urgency to address drought monitoring and early warning in a comprehensive manner, there is a need to increase the efficiency in maintaining and enhancing weather data collection networks.
- 5) There is a strong need for better soils information and establishment of soil moisture monitoring networks where they do not currently exist.

- 6) Closer cooperation in data sharing and applications between meteorological, agricultural, hydrological and remote sensing agencies and institutions is required for drought monitoring and impact assessment.
- 7) The systematic collection and archiving of drought impacts on agriculture is imperative and more efforts should be made in this area.
- 8) There is a universal interest in understanding and reducing drought risk and impacts on agriculture. In this context, the effective communication of drought information to policy makers, managers, user community and media is essential.
- 9) Deliverables such as maps, reports, press advisories need to be produced at regular intervals and disseminated in a timely manner.
- 10) Realizing the need for easy exchange of data coming from different sources and institutions, enhanced access to a wide range of weather and soils data for drought monitoring is recommended.
- 11) Taking into account the increasing importance of applications of GIS, there is a need to explore existing capabilities of such systems and enhance the interoperability between different data platforms, particularly at the regional level.
- 12) In order to encourage the use of common agricultural drought Indices around the world, there is an urgent need to develop common frameworks for drought monitoring/early warning.
- 13) In order to achieve this goal, an inventory of operational capabilities in the areas of data networks, deliverables, Indices used/calculated and dissemination along with an assessment of user needs should be prepared.
- 14) To this end, the meeting recommends that the WMO conduct a survey to compile and assess the capacities and future needs of National Meteorological and Hydrological Services around the world in building such common frameworks for national agricultural drought early warning systems.