

# Sustainable Development and Management of Drylands in the Twenty-first Century



International Center for Agricultural Research  
in the Dry Areas (ICARDA)

# **Sustainable Development and Management of Drylands in the Twenty-first Century**

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the Development of Drylands*

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## Foreword

Drylands are home to more than a billion people in some 100 countries. They are rich in agrobiodiversity, which has long provided the basis for the livelihoods of the poor in several developing countries, especially in the Central and West Asia and North Africa (CWANA) region. The dryland areas are, however, characterized not only by low mean annual rainfall and high evaporative demand of the atmosphere but also by high annual and seasonal climatic variability. The natural resource base of land, water and vegetation in these areas is highly fragile and greatly vulnerable to degradation because of the growing population pressure in the developing world. Over-exploitation of the natural resources by human activities, contravening the old traditions of sustainable management, is leading to massive land degradation triggering a chain of disastrous events of loss of livelihood, further degradation, and the loss of the capacity of these lands to sequester carbon to arrest global warming. Halting land degradation and restoring those lands that have already undergone degradation are the matters of primary concern to all those involved in sustainable development of drylands.

The International Dryland Development Commission (IDDC), a non-governmental organization established in 1987 by individuals and institutions interested in sustainable development of dryland areas, is promoting all aspects of dryland studies by fostering cooperation and networking between various international, regional and national organizations. One of the important *modus operandi* of networking has been the holding of a major scientific conference every three to four years to provide opportunity to participants from around the world to exchange research results and experiences in dryland development and combating desertification. The proceedings of these conferences provide valuable reference material for dryland research and development.

In pursuance of this approach of networking, the IDDC organized the 7th International Conference under the theme '*Sustainable Development and Management of Drylands in the 21st Century*' in Tehran, Iran, 4-7 September 2003. The Conference was jointly sponsored by the Ministry of Jihad-e-Agriculture of the Islamic Republic of Iran, and the International Center for Agricultural Research in the Dry Areas (ICARDA). The Food and Agriculture Organization (FAO) of the United Nations and the Standing Committee on Scientific and Technical Cooperation (COMSTEC) of the Organization of Islamic Countries (OIC) provided support to the Conference. I take this opportunity of thanking the Government of the Islamic Republic of Iran for hosting the Conference and acknowledging the support of COMSTEC, FAO and ICARDA that enabled several developing country scientists to participate.

The Conference attracted more than 200 scientists and policy makers from 25 countries and international and regional organizations. It comprised five plenary sessions and 20 concurrent sessions for oral presentation of scientific contributions on 11 themes relevant to the sustainable development of drylands. The topics covered included 'Soil and Water Conservation and Degradation', 'Range Management', 'Forage and Livestock Production', 'Biodiversity Conservation and Utilization', 'Biotechnology', 'Stress Physiology', 'Indigenous Knowledge and Heritage', 'Sustainable Development of Oases', 'Desert Communities', 'Socioeconomics and Role of NGOs', and 'New Technologies and Technology Transfer.' Scientific contributions included some 100 oral presentations and 80 poster displays on these topics. They provided a good forum for participants of different disciplines to exchange research results, experiences and views on various methods and technologies for efficient management and development of dryland areas.

This volume presents the text of presentations made by the participants at the Conference. It represents yet another milestone in the efforts of the International Dryland Development Commission in promoting the awareness about the problems confronted in the sustainable development of dryland areas and in strengthening scientific networks to tackle these problems. We hope the information presented will serve as good resource material for researchers, extension workers, development agencies and NGO, and other members of civil society engaged in the task of environmental protection and promoting sustainable development in dryland areas.



Prof. Dr Adel El-Beltagy  
Chair, IDDC