Desert and Dryland Development: Challenges and Potential in the New Millennium

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

Desert and Dryland Development: Challenges and Potential in the New Millennium

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FOREWORD

As we enter the Third Millennium, few issues have captivated the public attention more than "desertification" — the notion that the very dry areas of the globe, which support little plant, animal, or human life, are increasing in extent. While degraded dry lands and deserts have always been a feature of the world's landscape, their expansion into agricultural land, with inevitable reduction in production potential, is alarming. Degradation of the resource base is an associated outcome of this insidious and unrelenting trend.

The characteristic of dry lands is scarcity of water, or more specifically, situations where there is a deficit of precipitation relative to evaporation, and limited sources of surface water and groundwater to compensate for this deficit. Today, over one-third of the world's land area is dry, being either arid, where no cropping is possible without irrigation, or where only the most drought-tolerant species grow; or semi-arid where cropping is only possible during the "rainy" season. The extent of semi-arid areas fluctuates with climatic cycles of drought. With global warming now perceived as a reality, the problems of dry lands will become exacerbated.

Given the sizeable percentage of the world's population whose livelihoods are impinged upon by drought, the issue is what we have done and what we can do about it. Much faith has been pinned on research — learning about dry lands and how we can best manage such fragile ecosystems. In the past, dry lands were the "poor relation" of agricultural research. At the international level, this imbalance is partly redressed by centers such as the International Center for Agricultural Research in the Dry Areas (ICARDA), whose research focuses on dryland agriculture.

The International Desert Development Commission — now transformed to "The International Dry Lands Development Commission (IDDC)" — was established in 1978 to promote research and education aimed at sustainable use of dry areas of the world. A major focus has been the rehabilitation of degraded lands and mitigating future damage. The deliberations of dryland researchers and the knowledge accumulated have been documented in the proceedings of previous meetings held in Egypt, China, Mexico, and Texas, USA. This volume of proceedings is the outcome of the most recent meeting organized by the IDDC, in Cairo, Egypt, in August 1999, in collaboration with the United Nations Environment Program (UNEP) and ICARDA, and hosted by the Ministry of Agriculture and Land Reclamation, Egypt.

On behalf of the IDDC, I would like to express our gratitude to the members of the International Organizing Committee - Drs H. E. Dregne, M. Kassas, R.G. Wyn-Jones, Adli Bishay, Manual Anayo Garduno, T. Darnhofer and J. Venkateswarlu, for their help in the development of the technical program of the Conference. We thank the Chairman of the Local Organizing Committee — Dr Saad Nassar, former Director General of Agricultural Research Center, Egypt, and members — Drs Nabil El-Mowehli, Fadia Nosseir, Magdy Madkour, Adli Bishay, Ayman Abou Hadid and Nasri Haddad for their painstaking efforts in making all the local arrangements for the Conference. Dr Mohan Saxena served the IDDC as the honorary secretary for facilitating overall coordination of the Conference.

The staff of the Nile Valley and Red Sea Regional Program of ICARDA in Cairo, under the guidance of Dr Nasri Haddad, made special efforts in ensuring that the needs of the Conference were promptly and adequately met. Miss Rima El-Khatib provided major help to the editor in the preparation of the proceedings. Ms Noura Makhoul did the typesetting and Joyce Bendki did the proofreading. Dr Surendra Varma and his staff at the Communication, Documentation and Information Services of ICARDA oversaw the printing and production. The IDDC records its grateful thanks to all these persons.

This volume covers a wide range of topics of concern to scientists and decision-makers involved with dry areas: soil conservation and degradation, water management and conservation, range management, biodiversity conservation, combating desertification, stress physiology, expert systems and models, biotechnology, socio-economics, anthropology, renewable energy, applications of new technology, and indigenous knowledge. The volume is an important landmark in our efforts to exploit harsh dryland environments for the good of mankind.

Adel El-Beltagy
Chairman, IDDC &
Director General
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