



ECOSYSTEMS AND HUMAN WELL-BEING

Desertification Synthesis



MILLENNIUM ECOSYSTEM ASSESSMENT



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ECOSYSTEMS AND HUMAN WELL-BEING

Desertification Synthesis

A Report of the Millennium Ecosystem Assessment

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FOREWORD

Desertification is a concept used to grasp the more acute forms of the degradation of land-based ecosystems and the consequences of the loss of their services. Drought is the silent killer—the natural catastrophe that is only too easily forgotten. Experience shows that awareness of the implications of desertification and drought must be expanded and that policy orientation must be backed by robust monitoring systems and related findings.

The Millennium Ecosystem Assessment has made a significant and much appreciated contribution to this end. It carefully presents the critical importance of functional ecosystems for human well-being and sustainable economic growth. The case is particularly powerful for the drylands of the world. Populations in arid, semiarid, and dry subhumid climatic zones, which define the field of intervention of the UNCCD, are greatly affected by environmental vulnerability and poverty.

The Desertification Synthesis, based on a sound summary of scientific evidence, states that desertification must imperatively be addressed to meet the Millennium Development Goals of the United Nations. Desertification must be fought at all levels, but this battle must ultimately be won at the local level. There is evidence that success is possible. All the while, this report makes it now clearer that this phenomenon is embedded in a global chain of causality and that its impact is felt far beyond the boundaries of affected areas. Desertification contributes significantly to climate change and biodiversity loss.

Diverse views exist on the complex relationship between climatic and anthropogenic causal factors of desertification. Work remains to be done in order to enhance the knowledge base that should produce policy-relevant findings and facilitate informed decision-making. The Committee on Science and Technology of the UNCCD should be able to contribute in this respect. In the meantime, this assessment portrays the magnitude of the challenge and invites the international community to focus on needed action.

Bonn, 19 February 2005

HAMA ARBA DIALLO

Executive Secretary of the United Nations Convention to Combat Desertification

PREFACE

The Millennium Ecosystem Assessment was called for by United Nations Secretary-General Kofi Annan in 2000 in his report to the U.N. General Assembly, *We the Peoples: The Role of the United Nations in the 21st Century*. Governments subsequently supported the establishment of the assessment through decisions taken by four multilateral environmental conventions. The MA was initiated in 2002 under the auspices of the United Nations, with the secretariat coordinated by the United Nations Environment Programme, and governed by a multistakeholder board involving international institutions and representatives of governments, business, NGOs, and indigenous peoples.

The MA responds to governments' requests for information received through four multilateral conventions—the Convention on Biological Diversity, the U.N. Convention to Combat Desertification, the Ramsar Convention on Wetlands, and the Convention on Migratory Species—and is designed to also meet needs of other stakeholders, including business, the health sector, NGOs, and indigenous peoples. The objective of the MA was to assess the consequences of ecosystem change for human well-being and to establish the scientific basis for actions needed to enhance the conservation and sustainable use of ecosystems and their contributions to human well-being.

This synthesis report was developed during the period 2003–05. The preparatory work for the report and selection of a writing team was initiated in Tashkent, Uzbekistan, in August 2003, during a joint international workshop organized by the United Nations University, the International Center for Agricultural Research in the Dry Areas, and the MA Secretariat. Production of the report was made possible through a team effort by a diverse group of experts, backstopped with logistical support by the MA Secretariat. The full writing team convened in Hamilton, Canada, in August 2004 and in Scheveningen, the Netherlands, in January 2005. An extensive external review was undertaken in coordination with the MA Board of Review Editors, which engaged external reviewers, government representatives, and the secretariats of key multilateral environmental conventions. The report was formally approved by the MA Board in March 2005.

The Desertification Synthesis is underpinned by the conceptual framework for the MA, which assumes that people are integral parts of ecosystems and that a dynamic interaction exists between people and other parts of ecosystems. The changing human condition drives—both directly and indirectly—changes in ecosystems, thereby causing changes in human well-being. At the same time, social, economic, and cultural factors unrelated to ecosystems change the human condition, and many natural forces influence ecosystems. Although the MA emphasizes the linkages between ecosystems and human well-being, it recognizes that people's actions stem also from considerations of the intrinsic value of species and ecosystems, irrespective of their utility for someone else.

This report presents a synthesis and integration of the findings of the four MA Working Groups (Condition and Trends, Scenarios, Responses, and Sub-global Assessments). It does not, however, provide a comprehensive summary of each of those Working Group reports, and readers are encouraged to also review those findings. It is organized around the core questions originally posed to the MA: How has desertification affected ecosystems and human well-being? What are the main causes of desertification? Who is affected by desertification? How might desertification affect human well-being in the future? What options exist to avoid or reverse the negative impacts of desertification? And how can we improve our understanding of desertification and its impacts?

31 March 2005

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READER'S GUIDE

This report synthesizes findings from the MA global and sub-global assessments on desertification and human well-being. All the MA authors and Review Editors have contributed to this draft through their contributions to the underlying assessment chapters on which this material is based.

Five additional synthesis reports were prepared for ease of use by other audiences: general overview, Ramsar Convention (wetlands), CBD (biodiversity), business, and the health sector. Each MA sub-global assessment will also produce additional reports to meet the needs of its own audience. The full technical assessment reports of the four MA Working Groups will be published in mid-2005 by Island Press. All printed materials of the assessment, along with core data and a glossary of terminology used in the technical reports, will be available on the Internet at www.MAweb.org. Appendix B lists the acronyms and abbreviations used in this report. Throughout this report, dollar signs indicate U.S. dollars and tons mean metric tons.

References that appear in parentheses in the body of this report are to the underlying chapters in the full technical assessment reports of each Working Group. Please see Appendix C for the tables of contents of those reports. To assist the reader, citations to the technical volumes generally specify sections of chapters or specific Boxes, Tables, or Figures, based on final drafts of the chapter. Some chapter subsection numbers may change during final copyediting, however, after this report has been printed.

In this report, the following words have been used where appropriate to indicate judgmental estimates of certainty, based on the collective judgment of the authors, using the observational evidence, modeling results, and theory that they have examined: *very certain* (98% or greater probability), *high certainty* (85–98% probability), *medium certainty* (65–85% probability), *low certainty* (52–65% probability), and *very uncertain* (50–52% probability). In other instances, a qualitative scale to gauge the level of scientific understanding is used: *well established*, *established but incomplete*, *competing explanations*, and *speculative*. Each time these terms are used they appear in italics.

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