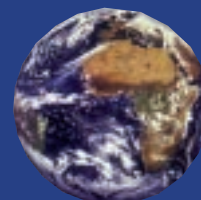


GUIDELINES FOR
INTEGRATED
PLANNING
FOR SUSTAINABLE
MANAGEMENT
OF LAND
RESOURCES

The Future of Our Land

FACING THE CHALLENGE



The Future of Our Land

F A C I N G T H E C H A L L E N G E



FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS



UNITED NATIONS
ENVIRONMENT PROGRAMME

Rome, 1999

Produced by the Land and Water Development Division
of the Food and Agriculture Organization of the United Nations (FAO)
in collaboration with the United Nations Environment Programme (UNEP)

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior permission of the copyright owner. Applications for such permission, with a statement of the purpose and extent of the reproduction, should be addressed to the Director, Information Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, 00100 Rome, Italy.

The designations employed and the presentation of information in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations or the United Nations Environment Programme concerning the legal status of any country, territory, city or area or of its authorities, concerning the delimitation of its frontiers or boundaries. The designations "developed" and "developing" are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country, territory or area in the development process.

Foreword

Continuing land degradation and increasing numbers of people living in poverty are among the symptoms of the current pressure on land resources. To date, the world's response to the two challenges of satisfying human needs and maintaining the integrity of global ecosystems has been less than successful. The lack of an integrated planning framework for land has historically been compounded by poor management strategies, failure to identify stakeholders¹ and involve and empower them in the planning and management process, and weak institutional structures.

These problems were clearly recognized during the United Nations Conference on Environment and Development (UNCED) in 1992 in Rio de Janeiro (Brazil) which called for an integrated approach to the planning and management of land resources. In Agenda 21, the document of the Earth Summit, UNCED proposed a number of policy and strategy measures, which include integration of biophysical, social and economic issues, the active participation of local communities and the strengthening of institutions in order to achieve the objectives of sustainable development.

In collaboration with the United Nations Environment Programme (UNEP) and other national and international institutions, FAO has developed an improved framework for land resources development and management that addresses the evolving nature of integrated land management. The new concepts have been introduced through a series of three publications, starting with *Our Land, Our Future* (1995), which gives a brief introduction to the new planning approach, followed by *Negotiating a Sustainable Future for Land* (1997), which provided structural and institutional guidelines for policy and decision-makers at the national level.

This document, "*The Future of Our Land – Facing the Challenge*" is the third in the series and proposes an integrated planning approach for sustainable management of land resources based on an interactive partnership between governments and people. It is the result of a participatory process to highlight issues, experiences and challenges related to integrated land resources planning and management for the 8th session of the Commission on Sustainable Development (CSD 8) which will examine, among others, the progress in the implementation of chapter 10 of Agenda 21. The approach is centred on the concept of stakeholders and their objectives, and the role of the government in creating the conditions within which rural people can use their land resources productively and sustainably. Integration of grass-roots participation with systematic procedures for evaluation of resources and planning is the key to this approach, and a necessary factor for its success.

This document is targeted primarily at professional and technical practitioners of land-use planning and land resource management at the national, sub-national and community level who want to implement an integrated approach to land resources management. Based on experience using these guidelines, practical manuals on integrated land resources management (ILRM) should be prepared for regions or individual countries.

1 - In the context of land resource management, a stakeholder is any individual or group with a legitimate interest in the land resource, or liable to be affected by changes in the way the resource is managed.

The present document adopts the premise that **integrated land-use planning** is:

- an essential prerequisite to the sustainable management of land resources and considers a production and conservation component. It introduces mechanisms and incentives for changes in the allocation of land to uses for which it is suitable in biophysical and socio-economic terms, and prescribes appropriate management practices and options to ensure that land resources are conserved;
- essentially a mechanism for decision support to guide the stakeholders in selecting the best sustainable land-use options which are consistent with their objectives. This approach is participatory and recognizes the rights of all stakeholders, including those such as indigenous groups or rural women who may be traditionally marginalized in some societies, to negotiate on the use and management of land resources;
- using negotiation as the basis for resolving land-use conflicts and agreeing mutually attainable objectives. Essentially, the approach embodies an interactive partnership between government and people to address their common concern to manage land sustainably for the benefit of present and future generations.

Successful integrated planning of land resources includes seven key elements:

- ✓ a clearly formulated objective and/or problem to be solved
- ✓ an enabling policy and regulatory environment
- ✓ effective institutions at local, sub-national, and national level
- ✓ an accessible knowledge base of the physical conditions including alternative land use, the socio-economic conditions and legal framework
- ✓ a recognition of stakeholders and their often differing objectives
- ✓ a platform for negotiation
- ✓ a set of planning procedures

The enabling environment comprises policy, regulatory and institutional aspects. A national land-use policy is the first and most important instrument; it controls land tenure and land use to provide an environment which is conducive to the implementation of sustainable and productive land-use practices, and to the realization of fora for free and effective negotiation among stakeholders. Planning that comes from the local or district level should provide the basis for national policy, which in turn would facilitate local initiatives.

Legislation translates policy into a framework for decision making, and creates institutions to administer the decisions. There is a need for institutions at the local, sub-national and national level, which facilitate the integration of disciplines and the access to information required for land-use planning. The national institutions – usually ministries - must have clear mandates to solve conflicts. At national level a task force should be created as a “neutral” institution (a committee or board) composed of the relevant land-related ministries and representatives of other institutions from civil society. It should have facilitating, monitoring and conflict-resolving functions, based on technical advice. At the village or community level, local resource management groups (LRMGs), representing all local stakeholders, should be established.

Knowledge provides the basis on which to plan and negotiate. It is also the key to the empowerment of local stakeholders, particularly those disadvantaged groups which may otherwise be excluded from the negotiating process. There should be an adequate flow of information on resources, technologies, rights and regulations to the village level, but also local and traditional information and knowledge on land and land use need to be mobilized. Participatory land-use planning then becomes a mutual learning process, based on a fusion of technical knowledge from government or other agents of change and the experience and indigenous knowledge of local land users. There should also be a flow of information from the local level to the national level to ensure that any land programme or decision is formulated to reflect the needs and demands of the land users at the bottom.

The principle platform for negotiation will be the LRMGs operating at the village or community level. Decision making will be devolved as far as possible to this level, partly as a means of engendering responsibility among the villagers for the resources under their control, and partly to reduce the burden on government by mobilizing the people and their energy and enthusiasm. It is a government responsibility, however, to ensure that all stakeholder groups, including the disadvantaged, are fairly represented in the negotiating process.

The procedures used in integrated land-use planning and management comprise the identification of the problems, the stakeholders involved and their objectives, the collection of data necessary for planning, the evaluation of land resources in relation to the requirements of land use, and the ranking of options in terms of economic, social and environmental impacts through a participatory approach involving all stakeholders. These procedures should be applied by the stakeholder representatives, adapting, as far as possible, the technical procedures to a level at which they can be carried out by trained technicians at the village level. More sophisticated procedures may be appropriate at the national and sub-national level.

The approach presented here should be tried, tested and validated in several pilot areas, and the lessons learned from these studies should be used to adapt integrated land-use planning to the particular conditions of the country, and to promote and guide its widespread adoption. Sustainable management of land resources is in the interests of both the government and the people, and policies which devolve decision making and empower land users should enjoy popular support. At the same time, the interactive character of land-use planning will support the commitments made by governments to the UN Conference on Environment and Development in 1992, and to the post-summit conventions to combat desertification (UNCCD), climate change (UNFCCC) and preservation of biodiversity (UNCBD).

The attached CD-ROM is the result of a joint effort by FAO and the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) and contains a list of complementary documents related to land-use planning and land resources management. It comprises guiding documents, case studies, working papers, workshop proceedings and other publications, mainly published by FAO and GTZ.

Contents

The Challenge	1
The Approach - Facing the Challenge	5
1. Land Resources and People: Dependence and Interaction	7
Definition of Land and Land-use	7
Functions of Land	8
The Basic Relationship: Land, Population and Management Strategies	8
Land Resources under Stress	8
Availability of Land	9
Pressure of Population	9
Symptoms of the Problem	10
The Cause of the Problem	10
The Point of Intervention	11
References and Further Recommended Literature	12
2. The Need for an Integrated Approach	13
Planning and Management of Land Resources in the Rural Development Context	13
Constraints Associated with Previous Approaches	14
Needed: An Improved Approach to Integrated Planning for Sustainable Management of Land Resources	15
References and Further Recommended Literature	16
3. The Key Factors Necessary for Implementing an Integrated Approach	17
The Framework for an Integrated Approach	17
A Clearly Formulated Objective	19
Recognition of Stakeholders and Their Differing Objectives	19
An Enabling Environment and Regulatory Policy	20
Land-use Policy	20
Regulation of Land-use and Land Tenure	21
Effective Institutions	22
Platform for Negotiation	23
Efficient and Accessible Knowledge Base	23
Land-use Planning Procedures	24
References and Further Recommended Literature	25

4. The Methodology	27
The Decision Sequence	27
Problem Identification and Formulation of the Objective	29
Identifying Stakeholders and their Goals, Needs and Stakes	30
Identifying Stakeholders	30
Defining Goals, Needs and Stakes	30
Establishment of Multidisciplinary Task Forces	32
Basic Principles	32
Task Force at the Community Level: LOCAL RESOURCE MANAGEMENT GROUPS	32
Task Force at Sub-national Level: LAND-USE PLANNING GROUPS	34
Task Force at National Level: NATIONAL LAND-USE COMMITTEE	35
Collecting Data and Information	36
Basic Principles	36
Nature and Scale of Data and Information	36
Data on Land Resources	37
Land-use Related Data and Information	38
Socio-Economic Data and Information	41
How to Collect the Data and Information	41
Data and Information Storage, Retrieval and Accessibility	42
Preliminary Identification and Screening of Options	43
Evaluating Resources for the Identified Options	45
Basic Principles	45
Land Evaluation Procedure	46
Presenting Evaluation Results	47
Appraisal of Identified Options	48
Financial and Economic Viability	48
Social Impact	50
Environmental Impact	50
Negotiating and Deciding upon Options - Set Up the Plan	51
The Negotiation Process	51
Supporting Tools in Assisting the Selection of Options	53
Conflicts between Stakeholders and Conflict Resolution	53
Setting up the Plan	54
Legislation and Enforcement for the Plan	55
Incentives	55
Legislation	56
Monitoring and Evaluation (M&E)	61
References and Further Recommended Literature	62

5. How to Get Started	65
Initiating the Approach	65
Time frame	66
Introductory Workshops	66
A Campaign of Information and Education	67
Select Pilot Area	68
Countrywide Application	70
References and Further Recommended Literature	71

Boxes

Box 1	Buthanese Definition of Land-use Planning	13
Box 2	Some Reasons for Less than Successful Outcomes of Previous Rural Development Programmes	14
Box 3	Characteristics of Stakeholders	20
Box 4	Typologies of Participation	20
Box 5	National Goal of Land-use Policy	21
Box 6	The Eritrean Land Proclamation	21
Box 7	Civic Action Groups: Armenia	22
Box 8	Objectives of the Doon-Valley Watershed Management Project	29
Box 9	Types of Stakeholders	30
Box 10	Common RRA/PRA Techniques	31
Box 11	A Meso-level group: the Guelderlan Commission	34
Box 12	The Agricultural Resources Board, Botswana	35
Box 13	Nature of Data and Information	36
Box 14	Data Requirements on Land Resources for Land Evaluation	38
Box 15	Example of a Land Utilization Types Definition	39
Box 16	Example of a Production System	40
Box 17	Checklist of Requirements for Crop Based Production System	40
Box 18	Socio-economic Data and Information Requirements	41
Box 19	Physiographic Approach to Land Resource Survey: The SOTER Example	42
Box 20	Selected FAO Databases and Programs	42
Box 21	FAO Guidelines on Land Evaluation	46
Box 22	Possible Origins of Land Conflicts	53
Box 23	Extract from Community Action Plan	55
Box 24	Conceptual Goals of SARD	55
Box 25	Role of Law in Water Management	57
Box 26	Regulations Governing the Use of Fire on the Rangelands for Mbume Silalanda Committee	59
Box 27	Local and Provincial Groups Working Together in the Philippines	60
Box 28	Land Consolidation and Land Readjustment	60
Box 29	Learning by Doing	65
Box 30	Formulating National Strategies for Production	69
Box 31	Guidelines for Action	70

Figures

Figure 1	Trends in Rural and Urban Population	9
Figure 2	Symptoms of the Problem on Pressure on Land Resources	10
Figure 3	Cause - Problem - Symptom Relationship	10
Figure 4	The Spiral: Land Resources and Peoples Activities	11
Figure 5	Interactive Rural Development	18
Figure 6	Key Factors in Integrated Planning for Sustainable Management of Land Resources	19
Figure 7	Institutional Framework of Local Management Groups	22
Figure 8	The Planning Method	28
Figure 9	Preliminary Identification and Screening of Options	44
Figure 10	Land Evaluation Rationale	45
Figure 11	Applications of Agro-Ecological Zoning (AEZ)	47
Figure 12	Appraisal of Sustainability Factors of Land Use Options	48
Figure 13	The Negotiation Process	52
Figure 14	Introducing Integrated Planning	66
Figure 15	Timeframe for Planning and Implementation	67

Tables

Table 1	An Example of Stakeholders and Their Objectives	31
Table 2	Planning Levels and Recommended Map Scales	37
Table 3	Extract of Land Evaluation Based on Qualitative Matching	48

Acknowledgements

Editors:

A. Kutter and C.L. Neely

Contributors:

J. Antoine, R. Brinkman, A. Cambule, M. Coetzee, D. Dent, J.M. Faures, S.N. Kabi, P. Koohafkan, C. Leutner, J. Lindsay, I. Mandevu, G. Mogoane, F.O. Nachtergaele, H.W.O. Okoth-Ogendo, R. Penny, M.F. Purnell, D. Radcliffe, A. Remmelzwaal, J. Riddel, D. Sims, W. Verheye, J.D. Vilakati, W. Zimmermann

Institutional support:

FAO (Document and CD-ROM)

UNEP (Financial Support)

GTZ (CD-ROM)

Cover photo:

Traditional rice terraces in Bali, courtesy of Hanspeter Liniger, Centre for Development and Environment (CDE), University of Berne, Switzerland

Photo credits:

footer: *FAO / 1996 / R. Faidutti*

page 5: *FAO / 1993 / A. Odoul*

page 24: *FAO / 1995 / G. Bizzarri*

page 27: *FAO / 1994 / A. Conti*

page 33: *FAO / 1996 / P. Lowrey*

page 49: *FAO / 1974 / F. Botts*

page 51: *FAO / 1991 / S. Jayaraj*

page 61: *FAO / 1986 / J. Hartley*

page 68: *FAO / 1993 / G. Bizzarri*

Design & layout:

Simone Morini, Rome

Acronyms / Abbreviations

AEZ	Agro-ecological Zoning
ALES	Automated Land Evaluation System
CAG	Civic Action Group
CSD	Commission for Sustainable Development
CYSLAMB	Crop Yield Simulation and Land Assessment Model for Botswana
FAO	Food and Agriculture Organization of the United Nations
GIS	Geographic Information System
GO	Government Organization
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
IIED	International Institute for Environment and Development
ILRM	Integrated Land Resources Management
IPSMRLR	Integrated Approach to Planning for Sustainable Management of Land Resources
LRMG	Land Resources Management Group
LMU	Land Management Unit
LUD	Land Use Database
LUP	Land-use Planning
LUT	Land Utilization Type
M&E	Monitoring and Evaluation
NGO	Non-governmental Organization
PRA	Participatory Rural Appraisal
RRA	Rapid Rural Appraisal
SARD	Sustainable Agriculture and Rural Development
SDBm	Multilingual Soil Database
SEAGA	Socio-Economic and Gender Analysis
SOTER	Global and National Soils and Terrain Digital Database
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WB	World Bank

The Challenge

About this document. In collaboration with UNEP, FAO has developed an improved framework for land resources development and management that addresses the evolving nature of integrated land resources management (ILRM). The new concepts have been introduced through a series of three publications.



Our Land, Our Future,
published in 1995,
which briefly introduces
the new planning approach



Negotiating a Sustainable Future for Land
(Structural and Institutional Guidelines for
Land Resources Management in the 21st Century)
published in 1997, which is aimed primarily at
policy- and decision-makers at the national level

This document, **“The Future of Our Land – Facing the Challenge”** is the third in the series and proposes an integrated planning approach for sustainable management of land resources based on an interactive partnership between governments and people. The approach is centred on the concept of stakeholders and their objectives, and the role of the government in creating the conditions within which rural people can use their land resources productively and sustainably. Integration of grass-roots participation with systematic procedures for evaluation of resources and planning is the key to this approach, and is necessary for its success.

This document is targeted primarily at professional and technical practitioners of land-use planning and land resource management at the national, sub-national and community level who want to implement an integrated approach to land resources management. Using these guidelines as a basis will facilitate the preparation of practical manuals on ILRM adapted to specific regions or individual countries.

What is next for land resources management in preparation for the 21st Century? Planning approaches must now evolve to meet the issues, trends and threats that are being faced, to take advantage of opportunities and build upon experience of what has worked in the past. There is an immediate need to understand better the interactions among different land uses and land users, to address issues of conflicting stakeholder objectives, and to capitalize on and improve linkages of information flow within and across political hierarchies through participatory mechanisms.

What is the current situation? Over the last ten years, major international fora such as the UNCED in Rio de Janeiro, Brazil (1992) and the World Food Summit in Rome, Italy (1996) have clearly established the need to alleviate poverty, ensure food security and maintain natural resources for future generations. In spite of being conceptually well prepared, the world continues to face the challenge of implementation. To reach the identified goals related to natural resources management, it must be recognized that there are interrelationships among natural resources, land use and people. Therefore implementing sustainable land management will be an integral part of achieving these goals.

The future trends associated with factors which greatly influence sustainable land management look somewhat less than promising. The world population will reach 8 thousand million by 2020. Population movements are increasing, from poorer to richer countries, from rural areas to urban centres, and from peripheral regions of low investment and growth to more dynamic ones. Half of the world population will be living in urban areas and vast numbers will be living in poverty. Rural populations will continue to be significant and will remain vulnerable and subject to a decline in social capital (education and institutional or social networks).

As a result, there will be far greater demand on land, water and biological resources, many of which are already degraded (16 percent of the total arable land area), with the degraded proportion tending to increase. Globally, conflicts over access and rights to resources are expected to be exacerbated. There will be increasingly severe environmental pressure from efforts to increase the use of land resources, water resources, animal and labour productivity. The dominant trend will be intensification of use of natural resources and the emergence of new intensifying technologies will expose social, ethical, cultural and environmental issues. Differences in access to and use of resources, technology and information will become greater.

Trade liberalization and globalization of markets may be the most important challenge for attempts to make land use sustainable. Reforms in agricultural support policies worldwide will have a profound impact on rural areas. Higher efficiency and economic growth of market-based agriculture will not eliminate rural poverty in marginal areas. Changes in trade regimes will influence incentives to produce sustainably, while globalization of markets and uniformity of consumption patterns will tend to reduce the diversity of agricultural systems and their adaptation to varied land conditions.

The resilience of land is further threatened by an increased incidence of human-made and natural disasters. Global conventions including the UN Convention to Combat Desertification (UNCCD) and the UN Convention on Biological Diversity (UNCBD) as well as a growing array of regulatory frameworks will be of increasing importance in directing use of land resources. Governments, farmer organizations and other stakeholder groups will need to engage in dialogue to understand their implications and respond accordingly. Decentralization and privatization will modify how and at what levels well-informed decisions will be taken.

What are the necessary consequences for which preparations should be made? It is necessary that a process be put in place for achieving an environment (of policies, incentives, regulations, etc.) enabling a move from the current state toward the perceived goals of the UNCED with regard to planning and management of land resources. Within this context, information exchange mechanisms (including networking and international fora), guidelines, tools and policy recommendations are needed for more broadly informed decision making about land resources.

An integrated approach requires improved coordination of planning and management of land and other resources. Agenda 21, Chapter 10, calls for reorganizing and, where necessary, strengthening decision-making structures, including policy, planning and management procedures. This approach recognizes the need for participation of all stakeholders in land-use decision making, and bridges the gap between the production and income objectives of land users and society's long-term objective of preserving natural resources. Of crucial importance are economic and legal conditions that encourage and reward sustainable land-use practices - inappropriate land tenure systems are one of the chief disincentives. Linkages are needed between, on the one hand, traditional land management systems and, on the other, the application of new technologies.

What is proposed in this document? In 1997, the Commission for Sustainable Development (CSD), in a special session convened to assess progress towards sustainable development (Earth Summit + 5), reiterated the needs and recommended that, at the international level, priority should go to developing and disseminating a new approach to land resources conservation and development. It specified that this approach should create social, economic and legal conditions that encourage sustainable development, meet the information needs of governments and land users, and involve all relevant institutions.

This document proposes an integrated approach to planning for sustainable management of land resources (IPSMLR). This is in accordance with FAO's responsibility as Task Manager for Chapter 10 of Agenda 21, which resulted from UNCED. Production of the document is financed by the United Nations Environment Programme (UNEP).

In relation to land resources, Agenda 21 states:

The broad objective is to facilitate allocation of land to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resources. Protected areas, private property rights, the rights of indigenous peoples and their communities and other local communities and the economic role of women in agriculture and rural development, among other issues, should be taken into account.

The following specific needs are identified:

- ✓ The need to develop policies which will result in the best use and sustainable management of land.
- ✓ The need to improve and strengthen planning, management monitoring and evaluation systems.
- ✓ The need to strengthen institutions and coordinating mechanisms.
- ✓ The need to create mechanisms to facilitate the active involvement and participation of communities and people at local level.