FAO/UNEP Workshop on Integrated Planning and Management of Land Resources

30 March – 3 April 1998
in Mbabane, Swaziland

- PROCEEDINGS -

The Kingdom of Swaziland
Food and Agriculture Organization of the United Nations
United Nations Environmental Programme

Mbabane – Rome, 1998

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Edited by

A Kutter
M Coetzee
A Remmelzwaal

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TABLE OF CONTENTS

FOREWORD

These proceedings are the results of a participatory workshop to improve and make more concrete the Guidelines for Integrated Land-use Planning based on the FAO/UNEP approach.

Integrated land-use planning (ILUP) is a prerequisite for the sustainable management and development of land resources. This approach seeks to meet this objective by a better balancing of all relevant aspects (biophysical, technical, socio-economic, legal, institutional and social) in land-use planning. In particular, it stresses the importance of engaging the stakeholders and recognizing their different objectives through a platform for negotiation; outlining the characteristics of an enabling institutional and policy environment at local, sub-national, and national levels; ensuring an accessible knowledge base; and providing a set of planning procedures. The guidelines which were the topic of this workshop are intended to be used by professional and technical practitioners of land-use planning and land resource management at national, sub-national and village levels.

The workshop was held to enable experts associated with the topic from eight countries in southern Africa to review the draft guidelines critically and to offer insights and mechanisms for improving the document including adding case studies to assist future users.

These proceedings first provide the summary report and workshop recommendations, and the objectives, activities and methodology of the workshop. Following these are a review of FAO's activities related to ILUP, a summary of the draft of the Guidelines for Integrated Land-use Planning and a paper concerning the importance of integrating land and water interactions in this work.

The next set of papers represents critical comments and suggestions on the Guidelines as well as country and project reports by country representatives of Botswana, Kenya, Mozambique, Namibia, Lesotho, South Africa and Swaziland, and a project leader.

Each of these papers identifies issues which need to be added or strengthened in the Guidelines. Three working groups addressed these issues in depth and reported.

Finally, this participatory workshop formulated concrete recommendations to improve the Guidelines (detailed in Annex). The Guidelines are currently being edited and are intended for final publication in 1998.

***Noah Nkambule**, Principal Secretary,*
Ministry of Agriculture, Swaziland

***Robert Brinkman**, Director,*
Land and Water Development Division, FAO

ACKNOWLEDGEMENTS

The idea for the publication "Guidelines on integrated land-use planning" has originated with Denis Sims, Land and Water Development Division, who subsequently teamed up with several people in other Divisions of FAO as well as international experts from other organisations to receive a broad input and holistic view on relevant topics related to land.

Later, Andrea Kutter, Land and Water Development Division, continued this work in collaboration with Freddy O. Nachtergaele, coming up with the idea to organise an international workshop in Swaziland. The idea was to receive feedback on the existing draft document from people working in that field, and thus potential users, to make it more practical and useful. She organised the workshop in collaboration with Ms. Constance Neely, Land and Water Development Division, and Dr. Arie Remmelzwaal, FAO Swaziland. As with most efforts like this, many other persons were involved.

The workshop was jointly sponsored by FAO, AGL Regular Programme and by UNEP, which is promoting FAO in its efforts.

Valuable inputs in the form of papers on the basic ideas of land-use planning and land resources management were provided by Willy Verheye, University of Gent, Belgium, David Radcliffe, Consultant, England and Jean-Marc Faures, Land and Water Development Division, FAO. The different country perspectives from Botswana (Mr. Mandevu), Kenya (Mr. Okoth-Ogendo), Lesotho (Mr. Kabi), Mozambique (Mr. Cambule), Namibia (Mrs. Coetzee), South Africa (Mrs. Penny and Mr. Mogoane) and Swaziland (Mr. Vilakati and Mr. Remmelzwaal) were presented in the form of problem-oriented papers. Each has contributed particular experience as an expert in land-use planning or related matters.

Special thanks are due to Jameson Vilakati, the National Workshop Co-ordinator, and Arie Remmelzwaal for organising the workshop (including the field excursion) in Swaziland.

Andrea Kutter
Soil Resources, Management and Conservation Service
Land and Water Development Division

ACRONYMS

AEZ	Agro-Ecological Zoning
AGL	Land and Water Development Division of FAO
AGLS	Soil Resources, Management and Conservation Service of FAO
CBD	Community Based Development
CBO	Community Based Organizations
CCC	Convention on Climate Change
CCD	Convention for Combating Desertification
CIG	Common Interest Group
DAO	District Authority Officer
DARD	Department for Agriculture and Rural Development
DWA	Department for Water Affairs
ECOCROP 1	FAO Crop Environmental Requirements Database
FAO	Food and Agriculture Organization of the United Nations
FAO Rep.	FAO Representative
GIS	Geographical Information System
GOVT	Government
GP	Growing Period
GPZ	Growing Period Zone
GTZ	Gesellschaft für Technische Zusammenarbeit (Germany)
ha	Hectare
IIMI	International Institute for Management and Irrigation
ILUP	Integrated Land-use Planning
IMSCLUP	Inter-Ministerial Standing Committee for Land-use Planning
INLUP	Indicative National Land-use Plan
ISRIC	International Soil Reference and Information Centre
LRM	Land Resources Management
LRMG	Land Resources Management Group
LSU	Large Stock Unit
LUD	Land-use Database
LUEB	Land-use and Environmental Board
LUP	Land-use Planning
LUPD	Land-use Planning Department
M&E	Monitoring and Evaluation
MAWRD	Ministry of Agriculture, Water and Rural Development
MET	Ministry of Environment and Tourism
MFMR	Ministry of Fisheries and Marine Resources
MLRR	Ministry of Lands, Resettlement and Rehabilitation
MME	Ministry of Mines and Energy
MOAC	Ministry of Agriculture and Co-operatives
MoF	Ministry of Finance
MRLGH	Ministry of Regional and Local Government and Housing
MTI	Ministry of Trade and Industry
MWTC	Ministry of Works, Transport and Communication
NAMPAB	Namibian Planning and Advisory Board
NEAP	National Environmental Action Plan (World Bank)

NGO	Non-Governmental Organisation
NOLIDEP	Northern Livestock Improvement Development Programme
ODA	Overseas Department (United Kingdom)
PRA	Participatory Rural Appraisal
PS	Principal Secretary
RRA	Rapid Rural Appraisal
SARDEP	Sustainable Animal and Rangeland Development Programme
TA	Technical Assistance
UN	United Nations
UNCED	UN Conference on Environment and Development (Rio de Janeiro, 1992)
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFPA	United Nations Population Fund
VDC	Various Districts Committee

SUMMARY REPORT AND RECOMMENDATIONS

INTRODUCTION

In the past two decades FAO has prepared guidelines for land use planning (FAO,1993) and has gained experience in the identification of physical land constraints and remedial land interventions, management of problem soils and land evaluation. Over the same time period, generally there has been a very low success rate associated with development interventions to address sustainable land use. Several aspects of these interventions have been cited as reasons for their failure. These include the fact that interventions were based on a sectoral approach, failed to involve land users, and because the institutional infrastructure was not strengthened in the process.

Building upon the past foundation of proven methods (e.g. land evaluation) and incorporating aspects of successful field experiences, FAO and UNEP, with inputs from several partners, have developed an improved approach to integrated planning and management of land resources. This has led to a draft document on the approach entitled "Integrated Planning and Management of Land Resources in the 21st Century". The approach provides a framework in which the role of technical information and decision support tools for optimizing land use and the crucial importance of institutional, legal and socio-economic considerations are acknowledged equally. In particular, it stresses the need for a more active participation of the stakeholders in planning and decision-making.

Before publication, it should be ensured that these guidelines are realistic, practical and useful. This draft document was submitted to the workshop to be improved through review and discussion of its weaknesses and strengths, and through the participants valued insights and contributions. The participants were requested to thoroughly review the document using their knowledge and experience. It was the basic document for discussion and improvement during the workshop.

RESULTS AND RECOMMENDATIONS

The main objective of the workshop was to improve the present FAO/UNEP approach to integrated planning and management of land resources. This was to be achieved by a critical discussion of the draft guidelines-document and by an exchange of experiences among the participants and various international agencies. As the summarized results and recommendations always refer to the various chapters in the draft-guidelines, a list with the corresponding titles is attached in annex 5.

Editorial Aspects

- The draft-guidelines are logical and easy to understand.
- The draft-guidelines are too long (especially chapters 2, 3 and 4).
- A link to international conventions in chapter 1 is highly recommended to provide a general orientation.
- The executive summary should be reviewed and revised.
- The structure of the chapters should be carefully reconsidered.
- References should be made by chapters.
- The headers should be corrected and be made chapter-specific.

- Each chapter should start with a summary.
- Chapters and subchapters should be numbered to allow cross-referencing.
- The appendices on land tenure and legislation should be included in the main body.
- The document title should be carefully reconsidered.
- The target group for the document should be more mentioned more explicitly.
- There should be more case studies in the document.
- Consider separating the methodology from the tools.

Aspects on Content

The comments related to the content of the draft-guidelines consider what should be found in a document such as the guidelines. The input in this form seems to be very valuable as the comments came from participants who are actively working in the field of land resources management or in related fields. In addition, they will be the potential users of the guidelines on land resources management.

- A land use policy should be inclusive of all land uses. Sectoral policies referring to land should be complementary.
- Policy formulation should be based on an interactive approach, involving all stakeholders.
- Laws should take account of local conditions and allow for different modes of implementation.
- Laws should address means, processes and incentives. The enforcement mechanisms should address incentives, as well as penalties.
- Laws should incorporate some flexibility.
- There is a need for national, sub-national and local Institutions.
- Institutions should have clear mandates, which should include mechanisms for conflict resolution which may arise at meso/local level.
- There should be no overlaps or gaps in responsibility for institutional mandates.
- Authority should be delegated and local institutions should be empowered.
- Stakeholders. should be differentiated according to level (national, meso, local) and affiliated (government, civil society, 'mixed' [including boards and commissions]).
- A figure (graph) should be included showing power and dependence of stakeholders.
- Top-down and bottom-up approaches should be merged to optimize flows of information, demonstrate transparency etc.
- There should be cross representation of stakeholders at different levels.
- There should be emphasis on empowerment at local level, induced by grass-roots participation and assumption of responsibility and 'ownership' of the any development resulting from the plan.
- Community participation should be promoted using an integrated inter-disciplinary approach. The role of supporting agencies should be to coordinate, facilitate and integrate.
- Any planning exercise should understand the structure of the community. Special attention should be given to disadvantaged or vulnerable groups, including (in some cases) women, youth, indigenous groups.

- Emphasis should be given to creation and promotion of land resources management groups (LRMGs) .
- There should be a balance between on-the-spot planning and further analysis (depending on objectives and particular circumstances).
- Types of conflicts should be noted.
- Conflict avoidance measures should be noted.
- Conflict resolution mechanisms should be noted.
- Incentives should be planned and targeted to avoid the dependency syndrome.
- Attention should be paid to recycling locally generated income; including that in wildlife management areas.
- Incentives for small scale investments (e.g. tree nurseries, agri-processing) should be considered.
- Relationship between land-use planning and land resources management should be indicated as well as between planning and management.
- Reconsider steps in planning process. (figure 9). Consider if the process may be better represented as a cycle. Start with identification of the problem or need for change.

WORKSHOP BACKGROUND, OBJECTIVES AND ACTIVITIES

Andrea Kutter
Soil Resources, Conservation and Management Service
Land and Water Development Department
Food and Agriculture Organization of the United Nations

INTRODUCTION

While preparing this event, and especially while thinking how to present to you the workshop frame with its objectives and activities, I remembered a quote by Rollo May, a British psychoanalyst, which I would like to share with you:

'The most effective way to ensure the value of the future is to confront the present courageously and constructively '

For me, and at the end of these 5 days, I hope you will agree with me, it reflects in a very concise way what we have had in mind when planning this workshop.

I would like to develop the workshop frame in more detail and will come back from time to time to this quote. This is why I have it visualised on a board.

BACKGROUND

What has brought us together?
Each of you comes from a country which faces threats to the sustainability of land resources:

- declining crop production,
- increasing soil degradation, or
- increasing competition for land

are common problems with an ever intensifying tendency.

(Reasons are e.g. the use of inappropriate management practices, the increasing population pressure, etc.)

In the past two decades, FAO and other organisations have prepared guidelines for land use planning, resources management, and have gained experience in the identification of physical land constraints. There have been projects in your countries
to address sustainable land use or land management.

But the success rate associated with these development interventions is generally very low and those approaches obviously lack elements which make them successfully applicable and practical.

WORKSHOP ACTIVITIES AND OBJECTIVE

Coming back to the quote. When Rollo May talks about the courageous and constructive confrontation with the present and this in a most effective way, we want to do that during these 5 days. Our main objective is an ambitious one:

By end of this workshop we want to be able to present an improved approach to integrated planning and management of land resources based on

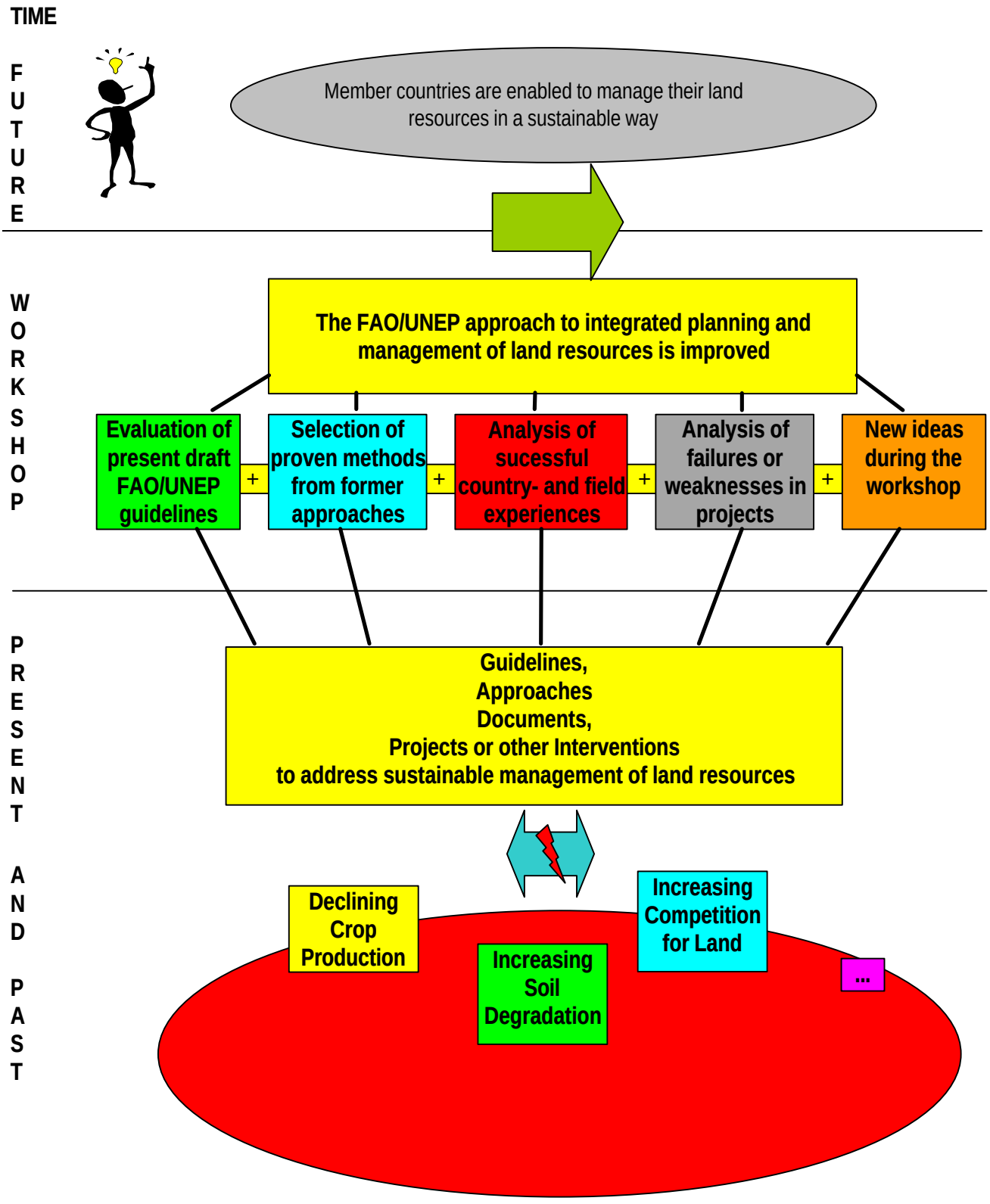
- evaluation of the present approach (see distributed document)
- proven methods from former approaches,
- aspects of successful country- and field experiences,
- evaluation of failures in projects, and
- new ideas coming up during the workshop.

The countries' specific application of this improved approach will enable member countries to manage their land resources in a sustainable way, and to use Rollo May's words, 'to ensure the value of the future'.

Coming back to the main objective of the workshop, I would like to outline the activities which will help us to reach the objective:

- The FAO/UNEP approach will be presented and analysed.
- The editorial review of the participants will be presented.
- The draft version will be commented upon and project and country experiences related to land use will be highlighted.
- Discussions will be initiated on land and water actions and their implications in terms of planning and management of land resources.
- Working group discussions on identified problem areas related to the present approach will be initiated and recommendations will be presented to the auditorium.
- General conclusions are drawn for inclusion into the guidelines.
- Discussions will be started on how the workshop results and a follow-up will be discussed.

I hope with the presentation of this framework, you now have a clear picture of what will happen over the next days. I also hope that we will have constructive discussions and finally come up with a common document which we can present to our member countries.


TIME
FUTURE
Member countries are enabled to manage their land resources in a sustainable way
WORKSHOP
The FAO/UNEP approach to integrated planning and management of land resources is improved
Evaluation of present draft FAO/UNEP guidelines
+
Selection of proven methods from former approaches
+
Analysis of sucessful country- and field experiences
+
Analysis of failures or weaknesses in projects
+
New ideas during the workshop
PRESENT AND PAST
Guidelines,
Approaches
Documents,
Projects or other Interventions
to address sustainable management of land resources
Declining Crop Production
Increasing Soil Degradation
Increasing Competition for Land
...

WORKSHOP METHODOLOGY

PROGRAMME AND DESIGN

The programme of the workshop was structured in three major parts:

- formal presentations and papers
- working sessions in 3 groups
- field excursion

The workshop was framed by the formal opening and closing session with representatives from the Government of Swaziland, UNDP and the FAO Representative Mozambique. (The detailed Agenda is attached as Annex 2)

Formal presentations

Three papers on general aspects of integrated land-use planning (ILUP) introduced the formal presentation session. A review of FAO's activities in LUP was given and the draft guidelines for ILUP were presented. In addition, a paper on land and water interactions was proposed.

Nine issue-oriented presentations from 7 south-African countries were given including an editorial review of the draft guidelines and a critical review on the country-specific relevance of the ILUP approach as proposed by FAO and UNEP. These presentations were based upon the draft document sent to the participants four-six weeks prior to the workshop.

Working Sessions

During the presentations, relevant issues were identified and subsequently discussed for two days by three separate working group sessions.

Working group 1:

- Policies
- Laws
- Institutions

Working group 2:

- Land-use planning vs. land resources management
- Methodology in land-use planning/land resources management
- Information for decision-making

Working group 3:

- Stakeholders and Community
- Top-down/Bottom-up approaches
- Conflicts

In the final session, results of the working group discussions were presented and recommendations were given related to the structure and content of the guidelines to make them more practical (see Annexes 5/1, 5/2, 5/3).

The working group sessions were lead by moderators. The process was facilitated by the FAO staff.

Field Excursion

Between the two days dedicated to the working group sessions, a one-day field excursion to the project area of a FAO/UNDP project was conducted. This activity confronted the participants with the reality concerning the complexity of land resources management in Swaziland and gave valuable input for further discussions in the working groups.

During the workshop several participatory methods were used. This included feedback sessions after each day which allowed the participants and facilitators to monitor and evaluate the working process and progress on a daily basis. Focus points were the working atmosphere as well as the objective-oriented working process. At the last day, a final evaluation of the workshop was conducted in a participatory way. Results of this evaluation are attached in Annex 7.

During the working sessions, the main ideas in contributions were visualised on pin-boards using cards and markers. In addition, the positions as moderator and visualiser were changed after each half day to encourage the participation of all group members and to avoid dominance effects.

PARTICIPANTS

Representatives working in the field of land-use planning/ land resources management or related matters were invited from seven south-African countries: Botswana, Kenya, Lesotho, Mozambique, Namibia, South Africa and Swaziland and from three international organisations: UNDP Swaziland, UNEP and GTZ. In addition, two experienced international land-use planning consultants participated. The list of participants is detailed in Annex 1.

OFFICIAL OPENING OF WORKSHOP

Noah Nkambule
Principal Secretary,
Ministry of Agriculture and Co-operatives, Swaziland

Mr. Chairman,
Course Co-ordinator,
Participants,
Ladies and Gentlemen.

I feel honoured and privileged to welcome you all on behalf of his Majesty's Government and the people of Swaziland to this important workshop on integrated planning and management of land resources. I urge in particular those who are visiting us for the first time to find time to explore the countryside and discover the real Swaziland in our rural areas.

Mr. Chairman, this workshop is held at an opportune time when the world at large is grappling with land use and land degradation problems. Since the turn of the century, the human population on the surface of this planet has been increasing at an alarming rate. Motivated by a host of scientific advancements, man has been exerting an excessive demand on natural resources and the products of the land in particular. Over-exploitation of land resources has resulted in widespread land degradation particularly in countries of the developing world.

Overgrazing of natural pastures and over-exploitation of indigenous forests for quick economic gains are practices that continue to work against the natural ecological balance between man and his environment, especially in sub-Saharan Africa. We are witnessing widespread soil erosion as the natural soil cover continues to dwindle on the surface of the earth. Our sister countries to the north of us are faced with an enormous problem of desert encroachment on agricultural land. Under these prevailing circumstances, can we really talk of sustainable development of land resources in our part of the world?

Nevertheless, Mr. Chairman, it is encouraging to note that the African countries have not set on their laurels and did not allow the land management problems confronting them to remain unchallenged. At the 1992 United Nations Conference on Environment and Development, it was the African block of countries who lobbied and succeeded in convincing the World Community of Nations of an urgent need for a Convention to Combat Desertification. Today this Convention has become a reality and a driving force in worldwide programmes that are addressing the problem of land degradation. Here in Swaziland, a National Action Program under this Convention is at an advanced stage of development.

Mr. Chairman, the problem of land administration and land use conflicts continues to escalate in many of our countries. Here in Swaziland poorly defined boundaries between chiefdoms is causing problems on the general administration of Swazi Nation Land, which is the land block administered under customary land law. Some of these problems have had a negative impact on development programmes on the ground. Furthermore, as the

population continues to increase we are witnessing haphazard land use practices on a large portion of the Swazi landscape. Towns and urban structures are being established on prime arable land.

Meanwhile this irrational land use development is taking place in a country that is small in size and dominated by a rugged terrain. It is unbearable to witness this precious land being taken up by irrational land uses such as rural homestead development and other concrete structures. These are real problems which need real solutions if we are to embark in earnest on a path towards sustainable utilization of our God-given natural resources.

Nevertheless, on the local front, we are delighted to observe some tangible efforts being made towards resolving some of these formidable land management problems. A National Land Policy initiative is at an advanced stage of development. The policy seeks *inter alia* to address the administrative, tenurial, legislative and institutional problems pertaining to the utilization of the country's land resources. Furthermore, we are also developing the country's resettlement policy which seeks (among other things) to rationalize the legal and institutional framework under which the resettlement programme will be administered.

Mr. Chairman, in addition to the above initiatives, the Ministry of Agriculture and Cooperatives, with the support of FAO has succeeded in implementing a Project on Land Use Planning for Rational Utilization of Soil and Water Resources. The project has equipped our land use planners with scientific tools for executing land use planning projects using methodologies that are strongly anchored on ecological principles. A follow-up Project on Improving Land Use on Swazi Nation Land is currently being executed in collaboration with UNDP.

Mr. Chairman, your workshop on integrated planning and management of land resources represents a step in the right direction that (hopefully) will give birth to clear guidelines for planning and implementation of land management projects in many of our countries. We commend FAO and UNEP for jointly undertaking this noble exercise. This is a shining example of a co-operative effort by UN Agencies aimed at achieving a common objective for the benefit of mankind.

We in Swaziland are proud of our long association with FAO in particular. The Organization continues to be an engine of professional excellence that has had a positive impact on many of our agricultural development programmes in this country. We also note with delight the involvement of land management experts from different parts of the subcontinent in the refinement of the manual on integrated planning and management of land resources. This participatory approach can only reinforce the effort to improve the end product of this exercise.

Mr. Chairman, in conclusion allow me to thank the sponsors and the co-ordinators of the Workshop for all the resources they have provided to make this workshop the success that it will be. I would also like to thank the facilitators for availing themselves for a worthy cause during the entire duration of this seminar. I hope the expectations of the participants will be fully met. With these remarks, it is now my honour and privilege to declare this workshop officially open.

May God Bless You.

OFFICIAL CLOSING OF WORKSHOP

H. Mamba
Under Secretary,
Ministry of Agriculture and Cooperatives, Swaziland.

Mr. Chairman,
FAO Representative in the Country,
Distinguished Participants,
Ladies and Gentlemen.

I am pleased and find it a privilege for me to have the opportunity to come and address a group dealing with such an important subject like the one you have been deliberating on.

As you know Mr. Chairman, land is a key to survival of mankind. Thus the way we use it will determine the fate of those coming after us, thus we have a responsibility to safeguard their survival.

I have been told that the workshop was mainly forecast on an integrated approached in Land Use Planning. This workshop has come at the right time for Swaziland as we are experiencing the problems caused by sectoral planning. I would therefore urge that the process be speeded up as the problems are speeding at an alarming rate. I'm sure the field-trip which you took on Wednesday enabled you to see for ourselves the problems I'm talking about. I am also positive that you have given a solution to our local participants as to how we should solve such problems.

Mr. Chairman, let me take this opportunity to encourage the participants here to get back to their respective countries and consider implementing the recommendations of the workshop. Furthermore, I'm sure the exercise is not over, further consultation will still be necessary, I therefore urge that consultation should not end here but should continue until we are satisfied with the final product.

Mr. Chairman, distinguished participants, ladies and gentlemen, may I on behalf of the Government of Swaziland thank FAO and UNEP for organizing and supporting this important workshop. I am positive that this is not the end, but the two organizations will continue supporting our efforts of survival in the region.

Finally Mr. Chairman I would like to turn to our guest of the Kingdom. I am sure you have had a pleasant stay in the country and hope to see you soon. I am sure our officials have taken good care of you. I now wish you all a safe journey to your respective countries.

I now take this opportunity to declare the FAO/UNEP workshop on planning and management of Land Resource officially closed.

Thank you all.

THE FAO-UNEP APPROACH TO LAND USE PLANNING
A Review

Willy H. Verheye
Research Director,
National Science Foundation,
Belgium

1. INTRODUCTION

Worldwide, soils are being used with increasing intensity to meet the needs of a continuously growing population. Such demands have to some extent been met through major progress in plant breeding, fertilizer application and soil management, or by opening up new land for agriculture. Unfortunately, such solutions can not continue indefinitely.

From an estimated 427 million in 1500, world population has increased to 1650 million in 1900, 3600 million in 1970 and 5.2 billion in 1990 (table 1). Recent projections point to a figure of around 10 billion by the year 2050 (UNFPA, 1992). This corresponds to a growth rate of approximately 85 million per year, and the doubling of the present population within the next half century. Almost all of this increase has occurred and will continue to take place in the developing world where the need for extra food supply will be most acute.

The amount of potentially available land in the world, estimated at 3030 million ha (FAO, 1991) is finite. The amount of effectively cultivated land in the world has almost stabilised (table 2). The increase is hardly 5% at world level; in Europe the arable land surface has even gone down. The increase is highest in South America, where also the largest land reserves are located (Yudelman, 1994). Comparatively, the amount of people involved in agriculture has not increased accordingly as well, and in Europe and South America it has even seriously decreased (table 3), indicating a continuous intensification and higher production output per ha. At present, almost half of the potentially arable land, e.g. 1475 million ha, are under cultivation. The remainder is either difficult in access, marginal in suitability or occupied by cities, mines, infrastructures,...

This situation is exacerbated by the fact that about 15% of all arable land (approximately 200 million ha) is under degradation, mainly as a result of human interventions related to deforestation, erosion, overgrazing, desertification, pollution, nutrient depletion or species impoverishment (Oldeman et al., 1990).

The combination of population increase, limited expansion of arable land and intensification of cropping systems will result in a significant decrease of available land per household, and in an obvious competition for land and related primary food supply. Per caput available arable land is already very low in some countries of the Far East (table 4), and is expected to nearly halve again in the next 15 years (FAO,1995).

Being aware of this rather explosive situation, international organizations like FAO and UNEP have for many years focused on a more rational land use, and have urged for national soils policies aimed at conserving the precious natural soil resources and optimizing (food) production. In this context the World Soil Charter (FAO, 1981) was drafted, and UNEP issued its World Conservation Strategy (UNEP,1981) and its Environmental Guidelines for the Formulation of National Soils Policies (UNEP, 1983). The UNCED Conference in Rio de Janeiro (1992) reiterated this concern through the resolutions of Agenda 21. For a number of countries a national soils policy has been drafted already (FAO-UNEP, 1994a and 1994b).

All these documents draw attention to the importance of soil as a natural and almost non-renewable resource for agriculture, forestry and other rural uses. They stress two major principles : one, of avoiding soil loss and degradation; and two, of utilizing soils to their maxi-mum potential, but within the context of sustainability. The second principle focuses in particular on a more rational and optimized use of soils and other land resources to meet present needs, whilst at the same time conserving the basic soil resource for populations of the future.

Table 1. Regional and worldwide increase in population (Clark, 1967; UN, 1958-1970; FAO Statistical Yearbooks 1963-1996).

Year	Population (in millions)				
	World	Europe	Africa	Asia	South America
600	237	24	37	166	-
1000	280	44	50	172	-
1500	427	82	85	223	40
1700	641	112	99	414	12
1800	890	179	100	594	19
1900	1651	430	133	926	74
1950	2486	-	217	1355	162
1970	3632	459	344	2056	191
1980	4449	484	479	2583	239
1990	5295	498	642	3120	293
1991	5387	500	661	3173	298
1992	5479	501	681	3027	303
1993	5544	503	688	3280	309
1994	5629	504	708	3333	314
1995	5716	505	728	3386	319

Table 2. Distribution of available land over the world (FAO Statistical Yearbooks, 1970-1996).

Year	Available land (in million ha)				
	World	Europe	Africa	Asia	South America
1965	1399	152	190	447	82
1970	1408	146	169	438	110
1980	1427	140	175	449	101
1990	1463	138	186	-	110
1991	1441	138	181	457	115
1992	1443	136	182	459	113
1993	1447	136	187	468	102
1994	1450	135	185	472	105
1995	1476	134	192	516	120

Table 3. Population active in agriculture (FAO Statistical Yearbooks, 1970-1996).

Year	Population active in agriculture (in millions)				
	World	Europe	Africa	Asia	South America
1965	1775	107	222	1241	70
1970	1970	92	257	1435	73
1980	2194	60	310	1640	69
1990	2476	48	381	1864	69
1991	2449	46	388	1883	68
1992	2522	45	396	1901	67
1993	2544	43	403	1919	66
1994	2567	42	411	1936	65
1995	2590	41	419	1955	64

Table 4. Land/man ratio evolution between 1965 and 1995 in various parts of the world (FAO Statistical Yearbook, 1970-1996).

	1965	1970	1975	1980	1985	1990	1992	1995
World	0.42	0.38	0.28	0.32	0.29	0.27	0.26	0.23
Europe	0.34	0.32	0.30	0.29	0.28	0.28	0.27	0.26
Africa	0.62	0.58	0.52	0.36	0.32	0.28	0.26	0.26
South America	0.49	0.49	0.47	0.41	0.39	0.37	0.38	0.37
Asia	0.25	0.23	0.21	0.17	0.16	0.15	0.14	0.15
Nigeria	0.61	0.54	0.48	0.38	0.33	0.30	0.28	0.29
Senegal	-	-	0.44	0.41	0.37	0.32	0.30	0.27
Kenya	0.17	0.15	0.13	0.17	-	0.19	0.18	0.16
Lesotho	0.38	0.35	0.30	0.22	0.20	0.18	0.17	0.16
Malawi	0.51	0.48	0.43	0.22	0.20	0.19	0.17	0.15
Mozambique	0.36	0.36	0.29	0.25	0.23	0.22	0.22	0.20
Namibia	0.98	0.85	0.57	0.50	0.44	0.49	0.46	0.53
South Africa	0.70	0.66	0.57	0.47	0.42	0.41	0.34	0.38
Swaziland	0.42	0.37	0.35	0.34	0.26	0.26	0.24	0.22
Zambia	1.31	1.15	1.03	0.89	0.74	0.65	0.61	0.56
Tanzania	0.37	0.38	-	0.15	0.13	0.14	0.13	0.12
Zimbabwe	0.49	0.44	0.40	0.36	0.34	0.29	0.28	0.28
China	0.16	0.13	0.12	0.10	0.09	0.08	0.08	0.08
Indonesia	0.16	0.15	0.15	0.13	0.13	0.12	0.12	0.11
Pakistan	0.34	0.32	0.27	0.24	0.20	0.17	0.17	0.15

At the end of 1993 FAO was appointed UN Task Manager for the implementation of Chapter 10 "Integrated Approach to the Planning and Management of Land Resources" within Agenda 21 (UNCED, 1992). This chapter emphasizes on the development of policies, the improvement of planning and management systems, the strengthening of institutions, and a closer involvement of land users.

2. EVALUATING THE LAND USE POTENTIAL AND LAND USE OPTIONS

Over the past decades FAO has been instrumental in developing methodologies and databases for determining the land use potential in various parts of the world, dealing systematically and in a logical sequence with soil and other natural resource mapping and data collection, land evaluation, land management and reclamation, and land use planning.

In 1976 the FAO Framework for Land Evaluation (FAO, 1976) was developed, introducing the concept of matching land use requirements with land attributes. The principles outlined in this framework have been widely applied in rural development and land assessment studies all over the world, not only by FAO but also by many other institutions or individuals.

Over the past 20 years FAO has gained experience in the identification of physical land constraints and remedial land interventions for rainfed (FAO, 1983) and irrigated agriculture (FAO, 1985), and for extensive grazing (FAO, 1988a). It has provided guidelines for the management of problem soils (FAO, 1974, 1988b, 1988c, 1990) and for data collection and retrieval for land evaluation and land use/land cover. The concept of agro-ecological zoning as a basis for resource mapping and data collection was developed (FAO, 1996) and guidelines for land use planning were prepared (FAO, 1993). In this process, data collection and interpretation have advanced beyond the narrow bounds of soil science, focusing on the broader land requirements of specific crops and cropping systems.

Notwithstanding these efforts the problem of forthcoming food shortages and conflict resolution over land issues is still not satisfactorily solved. Many projects have remained in the study phase and did not have the practical impact they deserved. Studies of ODA (1983), World Bank (1986) and FAO (Hudson, 1991) have shown that the results and benefits of development and conservation programmes are often quite meagre in relation to the funds and efforts spent, and are not keeping pace with the increasing severity of the problems. Common reasons for this refer to: the failure to involve sufficiently the land users and the inability to address and integrate all relevant issues.

All of the above are symptoms and results of our current inability to manage success-fully and sustainably our natural resources in the face of a rapidly changing society. After more than 20 years of intensive work in land evaluation, land use planning and land management, present approaches are still in search for clear and simple solutions to improve the living standards of its users by increasing land productivity while conserving and maintaining sustainable land resources. Obviously, the current approach is not enough demand-driven as it does not provide the relevant answers to the most urgent people's demands. Reasons invoked for this situation include a too technical and too sectoral approach, leading to a rigid top-down decision-making without due care for the needs and priorities of the stakeholders; lack of interdisciplinarity, and institutional weakness; and unclear procedures to link properly development and production objectives with environmental issues (Verheye et al., 1997).

In the light of these developments and related socio-political consequences, Agenda 21 has reiterated its concern on the need for a more interactive approach in land use matters and has called for mechanisms aiming to promote a constructive and productive dialogue between the full range of stakeholders. This approach should take into account the natural land use potential and find links between top-down and bottom-up concepts of decision-making in order to tap the maximum of the production potential.

3. WEAKNESSES OF THE PRESENT APPROACH

Though success or failure of planning generally depend on specific local conditions and on the involvement and enthusiasm of the people concerned, three major weaknesses can be identified which occur quite frequently in the present approach (Verheye et al., 1997).

3.1 A too technical approach

Though the FAO clearly states that the suitability of land depends on a combination of biophysical parameters and socio-economic conditions, most if not all assessment work in the past has largely been dealing with physical land attributes, with little or no attention being paid to social, economic and political aspects. This development has ultimately led to the commonly accepted conviction that land evaluation and land use planning were limited to an assessment of the physical environment.

Research in the past decades has mainly focused on the impact of soil and climatic parameters on yields. Hence, more or less significant correlations could be obtained between those parameters and the yield potential, viz. the theoretical yield perspectives.
Modern trends to quantify processes through computer models have given an additional push to this trend. The danger of an increased use of computer-assisted techniques in decision-making is, however, that the link with the field conditions might be lost, and that too often the outcome of the models is accepted as the only viable solution, at the expense of logical and simple common sense. Those trends include a major risk that, in

search for academic accuracy, too optimistic and thus unrealistic correlations are obtained between such factors and so-called effective yields (Verheye and Dent, 1997).

There is indeed still a large gap between theoretical (or expected) yields, as estimated from models and other types of calculations, and effectively obtained farmers 'yields. This gap is still difficult to identify and quantify as it strongly depends on local conditions. In a recent study involving maize, barley and tef production in the Ethiopian Highlands, Teshome Yizengaw (1994) found that calculated and effectively measured yields differed by 30-50% under controlled production conditions in research stations and by even more in farmers 'fields. A similar trend was observed for five field crops in Burundi (Hennebert et al., 1996).

In brief, what we have been doing up till now in terms of biophysical resource assessment is sound, but does not address properly the problems. The new approach does not pretend to replace the former concepts, but it adds and complements it to make the assessment more relevant. Clearly, our previous too narrow technical approach is not enough by itself to ensure that goals of higher production and additionally protection of the environment are effectively achieved by the people.

3.2 A too sectoral approach

Multidisciplinarity is one of the major assumptions on which the FAO Framework for Land Evaluation is based. However, current land use planning is still mostly carried out in view of agricultural uses and related crop production. Even in Agenda 21/Chapter 10 land use planning focuses mainly on the use of land for agricultural purposes, food production and development.

Land use and related activities should be viewed in a much broader context. The too narrow agricultural objective was first challenged by the forestry sector, in particular where it has become a natural associate of environmental issues. The value of trees has been re-assessed, whether in the form of planted forests or individual trees, as a mean for bio-fuel production, a regulator for water supply or water flow in catchment areas, or as an anti-erosion measure. As a result, efforts are now being made to integrate forestry development into crop and animal husbandry, especially in ecologically fragile regions (Verheye, 1998).

In a society where more and more people get involved in urban and industrial activities the benefits of agricultural land uses need to be matched with those of mining, industrial developments, infrastructure, leisure or tourism. And in this competition the balance is rarely in favour of agriculture. This situation occurs not only in the industrial world - in Europe for example less than 20% of the population is still employed in agriculture (NN, 1997), and it is expected that this will decrease with another 2 % per year in the future - but also in quite a lot of developing countries.

In Indonesia about 50,000 ha of good sawah land are annually lost for city expansion, and for the compensation of (rice) production losses more than five times more land has to be cleared, usually from forest areas. Because of its higher economic return land designated for mining purposes - bauxite mining in Jamaica, copper production in Zambia, diamond mining in Sierra Leone, Zaire, South Africa,... - will always have a higher priority over other uses (Verheye, 1997).

The important income generated from tourism puts a number of countries like Namibia, Botswana or Kenya into a position where they have to choose between the development, maintenance or expansion of game parks and the welfare/survival of the local subsistence farmers in the immediate neighbourhood. Obviously,

the interests of various stakeholders or interest groups, viz. individuals, communities or complete national or regional sectors, might vary widely.

Different land use options are dealt with at different ministries : agriculture, forestry, mining, tourism, city and country planning, and even the Ministry of Lands which is often only responsible for land tenure and titling. Competition between various land uses results therefore often in competition and conflicts between institutions. Because, moreover, economists, physical planners, sociologists and engineers working in those ministries, have often different priorities and approaches to problem solving, each ministry or discipline within that ministry or sector tends to develop separate terminologies, classifications and data needs. These are often incompatible with each other and hamper communication and the development of an integrated approach (FAO-UNEP, 1997).

Institutional structures are largely sector-oriented, hierarchically structured and used to work in a vertical sense, either by collecting information or by issuing orders for implementing laws or other types of decision-making. They are not used to act in a horizontal way, and any attempt to a multidisciplinary/multisectoral approach may lead to fears that collaboration between institutes and/or individuals could affect their power and status.

Therefore, priorities, problems and development concepts have in the past almost inevitably been addressing a particular facet of the overall situation instead of a holistic and integrated approach. Each of the major disciplines has tended to see itself as the starting point and centre of the process. At the present time, each is beginning to perceive that the problem is wider than what used to be its traditional technical approach, but - driven by institutionally vested interests - each is still trying to expand its terms of reference and legitimize acquisition of additional expertise to cover all the other factors as well. In this context, the rapidly increasing number of so-called land use planners is not a hazard (Sims, 1995; Verheye and Dent, 1997b). By-products of this process are additional inefficiency due to inter-institutional competition and mushrooming institutional overlap (Verheye et al.,1997). Obviously, the most serious problems in modern resource management are institutional, rather than technical (FAO-UNEP, 1997).

3.3 A too top-down approach ignoring stakeholders' needs and priorities

A too technical or one-sided sectoral approach leads to the wrong impression to planners and decision-makers that land use planning is a simple exercise which can easily be imposed on the stakeholders. Those, whether it be individuals, communities or government entities with a traditional, current or future right to co-decide on the use of the land, are often considered a passive group of people who, anyhow, have to accept, obey and implement decisions taken at higher institutional levels (Sombroek and Eger, 1996).

Land use planning is complex and multifaceted, and one may wonder why so few plans are successful and effectively implemented. The reason is that in the currently applied top-down approach planners have usually not the complete picture of the situation, and that very often they forget that planning is made for people, and in particular for meeting their direct and urgent needs. Moreover, planning goals of various interest groups might widely differ, both in space and in time. The objectives of the individual often tend to be primarily short-term and exploitive, while those of the community or nation are long-term and involve conservation of resources and amenities (Verheye et al.,1997).

People everywhere will produce from the land if there is a need for it and if they have the power and means to do so. People will sustainably manage the land if there are incentives to do so and if constraints can be

removed at reasonable cost and labour inputs. The top-down approach does not sufficiently support this, nor can governments even financially afford to do everything themselves without the active involvement of the people (Sims, 1995).

In spite of much reiteration of the need for change most programmes have often been - and are still - designed and implemented by development agencies or NGOs. The agency then identifies a problem in relation to its own priorities, expertise and interests, and although a process of "consultation" may take place with the target population and government, it is rare for the people to actually select the objectives and design of that programme. The result is that few, if any, development programmes are "owned" by the people or match their priorities, and that projects have therefore little lasting effect (Sombroek and Eger, 1996; Pretty, 1997). The following are some further deleterious effects of the top-down approach (Verheye et al.,1997):

- a tendency for governments to try to do everything themselves; this is at least inefficient and often impossible; it generally leads to unsustainable taxation levels;
- a feeling by people, and in particular by women, that they are excluded from decision-making, and that no care is taken of their particular concerns; this leads to the feeling that problems are primarily the responsibility of the government rather than of the community;
- and a failure of many planners to utilize local knowledge and enthusiasm.

All these problems are basically due to the absence of a genuine negotiation between all stakeholders, including the population, and the unwillingness, unawareness or inability of government and donors to redesign their programmes and institutional structures to respond to real priorities and requirements of the situation. Current programmes and institutions still tend too much to reflect the pre-conceived opinions of development professionals and the interests of their parent institutions. The underlying reason of this can only be that government and donor programmes are not enough driven by the demands of the stakeholders (Verheye et al., 1997).

After all, nothing will change unless government institutional frameworks expand and evolve to include the community voice. A new way for government and people to work together must be fostered which embraces this community voice at the planning and policy-setting stages. This guarantees delivery of appropriate decision-support information, provides incentives for cooperation at the grass roots, and commits public resources to institutional tools that strengthen the process and removes those constraints that limit it (FAO-UNEP, 1997).

4. NEED FOR A MORE PARTICIPATIVE APPROACH

4.1 Background

The aim of land use planning is to create the preconditions to achieve a sustainable, environmentally sound, socially desirable, and economically appropriate form of land use (Sombroek and Eger, 1995; Verheye, 1996). Present approaches are, however, not sufficiently successful to cope with the growing needs for a rapidly increasing population and related pressures on the environment. They are likely to work even less successfully as population pressures will increase in the future.

Most of the technical solutions are known - we know how to classify land as to suitability, we know how to prevent erosion, we know the environmental requirements of most species,... - but society has been unable to develop institutional structures which ensure the application of the necessary management techniques.

Present land use does not optimize overall human wishes, intentions, or well-being due to the lack of mechanisms to resolve conflicts between stakeholders (Sims, 1995).

An important aspect of the failure of the present approach is its dominant top-down attitude and the obvious lack of involvement of land users in the programme design and implementation. This is exacerbated by the present compartmentalization of institutions which results in fragmented efforts and failures to integrate all relevant factors (Verheye, 1998).

4.2 Principles of the new approach

4.2.1. Key elements

The new approach advocates a more pragmatic and workable concept of land management and land use planning. It hinges basically on 3 elements (FAO, 1995) : the stakeholders, the quality or limitations of the land for a given use, and the viable land use options within the area concerned. In order to be of direct relevance for meeting new challenges in the society it should be demand-driven (mainly though not exclusively from the bottom), meet the problems of the stakeholders, and provide realistic alternative solutions.

The new approach acknowledges the role of technical solutions without which land use can not be optimized, but stresses also the equal importance of institutional, legal and socio-economic aspects for the implementation of those solutions. While not ignoring the successful results obtained from former work, the new approach focuses on a closer integration of these four factors in land management and, in particular, stresses the need for a more active participation of stakeholders in planning and decision-making.

This strategy is not completely new, as it refers back to the basic principles of the FAO Framework. Moreover, most individual components have been in existence for some time. The difference with the former approaches is, however, that land use planning should not only be addressed to decision-makers, but also to the users of the land. This implies that from the beginning all stakeholders should be involved in the planning process. Within the framework of the natural production and use potential of the land, due attention should be paid to people's aspirations and to the engagement, viz. participation of the users in the conception and implementation of the plans. This involves, inter alia, a more direct participation of women in decision-making, in particular because in many rural areas they have an important share in crop production activities and in the marketing of goods, while at the same time they manage the family budget.

The key elements in the development of the new approach under field conditions are (Kutter et al.,1997:

- The potential of land is in the first place determined by climate, soil and landform. The range of crops and their yields, as well as the nature of other land use types, are functions of those natural resources.
- Land use planning and management involve both a production and a conservation component.
- The degree to which the natural potential can be tapped by the land users depends on technological know-how as well as on peoples aspirations. In this respect a good understanding of indigenous knowledge may constitute a good basis on which external know-how can be built upon. Such technical know-how can be acquired and emphasizes the need for an appropriate transfer of knowledge, related to people's objectives and needs.
- A successful land use plan is not necessarily one that produces most, but one that has found a reasonable balance between what can be obtained sustainably within the limits of the natural potential and the aspirations of the people.

- The primary objective of most land users is to meet their immediate needs for food, fuel and income. To do so, they apply their energy and skills to exploit available resources in the most cost-effective way. In other words, land users act according to what they think is best for them and their families (FAO-UNEP, 1997). The best strategy for achieving their objectives is to increase production and to conserve the productive potential of the land. All they need are the right incentives. This incentive system should have a short-term and a long-term component.

4.2.2. Incentives to produce

The most important incentives to produce are (FAO-UNEP, 1996, 1997) :

- *The right to land and ownership.*
  This includes the ability of land users to control the use of their land - which may need to include the right to exclude other users - as well as a greater sensitivity related to women's rights in this matter. Production is also encouraged when rights can be used as a security for borrowing. Obviously, there are no reasons to plant perennial crops or to apply fertilizers unless there is a guarantee that the land user can have long-term benefits of his labour and other inputs.

  Factors which affect directly land tenure issues are: type, duration and origin of user rights; type of boundary demarcation and land records systems; rights with respect to the use of specific resources such as water, plant or tree resources, wildlife,...

- *Economic and social rewards.*
  These involve economic incentives, reasonable market demands and attractive prices to the producers, expectations of a fair remuneration for work, and/or social rewards for high levels of production. Conditions which affect directly economic rewards include : costs of inputs and sale prices for the produce; profitability; credit facilities to farmers; tax status;...

- *Access to information and services*, including technology transfer, extension advice, access to critical inputs such as fertilizers, tools and machinery, as well as information about legal and administrative aspects and restrictions, such as regulations affecting access to resources, land use practices permitted or forbidden, environmental restrictions, etc.... It includes also women's' access to information and education, and women rights in property holding.

- *Access to improved infrastructure*, e.g. transport networks, storage facilities,...

- *Creation of an enabling environment for profitable production*. Unstable social and political conditions do not stimulate production incentives as there is no guarantee for profit making. The development of coffee, cacao, rubber, oilpalm,... plantations is not stimulated if no long-term social and political stability can be expected. Social unrest and threatening war situations make individual farmers reluctant to grow even the basic food crops for fears of theft or destruction.

4.2.3. Incentives to conserve

A purely bottom-up approach has still to be adjusted to fit within the long-term objectives of society's options and policies. Hence, people's aspirations might be too ambitious or short-sighted and not in line with environmental concerns. A plan for a sustainable management includes, therefore, often an environmental

component and requires a direct involvement of the stakeholders in this environmental concern. Major incentives to conserve are (FAO-UNEP, 1996, 1997) :

- *Awareness of the benefits of conservation*. Although farmers are often well aware of the dangers and risks of soil degradation, they mostly feel unable to do anything about it, and therefore consider it as of low priority, mainly in the case of those who, anyhow, have no security of land tenure. If people are however encouraged and mandated to deal with local issues - and are supported by some technical expertise or financial assistance - they may well respond and contribute their knowledge, enthusiasm, time and resources. Apathy, frustration and social behaviour can then easily be replaced by satisfaction and increased happiness when people feel they are contributing something worthwhile and are part of, and valued by society (FAO-UNEP, 1997).

  Farmers are nevertheless traditionally reluctant to new methods. Creation of awareness is therefore often linked to obtaining confidence and collaboration in the undertaking and may take initially some time.

- *Security of land tenure*, for example by ownership or long-term leasehold. This aspect joins the incentive for a long-term benefit and production referred to above.

- *Access to land conservation techniques that are equally productive*, as under conditions of scarcity of land no farmer can accept to loose part of his cultivated land for conservation practices if those do not provide any produce.

- *Direct participation of stakeholders from the beginning* in both analysing the problems and developing the practices that reduce land degradation. This initial participation allows also to identify better implementation problems of conservation techniques through the incorporation of local knowledge, to search for users-friendly interventions acceptable to the community, and to make maximal benefit of existing local structures. Moreover, experience has learned that stakeholders who are excluded from any planning and decision-making process tend often to be contra-productive.

- *Legal and punitive enforcement*, charges and sanctions for those who do not comply with the overall agreements.

4.3. An action programme for management and land use planning

A pragmatic approach for land management and land use planning, that should ultimately lead to a workable land use policy, involves the following sequence of eight actions (FAO-UNEP, 1996).

(i) *Installation of a national task force*, which encompasses as well the technical expertise to deal with the various problems and the power to take decisions and legal actions. Experience has shown that it is difficult to create such a group. In practice the Task Force should be composed of high-level decision-makers (who generally do not have the proper technical expertise) and be assisted by ad hoc technical groups for specific issues. This may include expertise available in non-governmental organisations, private consultants or special interest groups.

In addition, lower level task groups/committees might be installed at sub-regional or district levels. They should maintain close links with the corresponding national body, providing it with information

and receiving information and technical assistance from it. Lower level task groups might function as well as direct monitoring bodies for the implementation of the plans in the field.

Though it is not necessary that a representative of the stakeholders forms part of this Task Force, it is compulsory that one of the members of the group acts as a contact person in order to channel the attitudes and expectations of people at the grass root level - the so-called community voice - and who at regular time intervals informs the Task Force about progress made in items 5, 6 and 7 below. In order to fulfil his role properly this contact person might attend - or be represented at - village meetings or interviews with stakeholders at various levels, so as to perceive at first hand the nature and degree of pending land issues, and to collect information and reactions on the way the land users themselves look to solutions, using by preference as much as possible the local structures.

The functions of the national Task Force should be to investigate and facilitate the exchange of information, and to support and enable a holistic and integrated approach to land-related issues. It should take decisions based on social and technical considerations provided by experts and stakeholders, and which are in agreement with national development and planning objectives. Some of the more important subjects to be addressed are (FAO-UNEP, 1997):

- development of information systems on land resources, land use and their effects on the environment;
- prediction and tracing of land use needs and priorities; and
- coordination in the formulation, implementation and monitoring of development and management plans.

Its members should be neutral in a sectoral sense (which is often not easy as they are usually delegated from their sectoral group or ministry) since they must give unbiased advice on how to allocate or use land in accordance with the objectives of the planning agency and priorities of the stakeholders to whom the advice is given.

(ii) *Awareness creation* at all levels of the society about the needs to increase production while conserving natural resources. The major aim of this process should be to generate the debate on these issues, to receive feedback from experience at the grassroots, and to convey the message that the government cannot be expected to resolve every local conflict.

Awareness creation is often not made through special meetings but is a process of confidence that gradually grows along discussions and other social gatherings where other land matters are dealt with. Awareness creation is often an important "by-product" of more general tools related to Rapid Rural Appraisal (RRA) and Participative Rural Appraisal (PRA) sessions.

(iii) *Creation of a national resource data base*, with information on physical, economic, legal and social issues (databases, reports, studies). This is often a purely technical matter and can therefore be left to existing institutions within the country. In addition, local knowledge on physical conditions, soil conservation techniques, legal aspects, historical developments, etc. can be of paramount importance to better understand some local conditions. It can also be an additional source of information for decision-making in other, more or less similar areas. The creation of a national or regional resource data base should therefore also have a component acknowledging the local indigenous expertise.

Before the database is conceived it is necessary to define the format of data collection and retrieval. Moreover, clear agreements should be made about the intellectual property of the data, and about the modalities to disseminate and to make use of the information.

(iv) *Identification of the natural resource potential* and its particular constraints for a range of possible land use scenarios, including both agricultural and non-agricultural uses. This section refers to the traditionally developed system of land evaluation based on the matching of crop requirements with land attributes.

(v) *Provision of information to land users (top-down) and of feedback on their objectives, aspirations and priorities (bottom-up).* Stakeholders can only effectively participate if they are fully informed and if they are aware of the objectives of the plan. Usually, traditional ways of handling the problems might be taken care of, and local or indigenous knowledge may be tapped, as referred to under (3) above.

As it is often difficult to discuss with all individual stakeholders, this transfer of ideas can be organized through the creation of platforms for negotiation and discussion (Röling, 1994). The essence of negotiating amongst stakeholders is that all affected groups should be fairly well represented in the discussions and have the possibility to give their views. This helps to ensure that all interests are catered for, and that results are accepted by all actors.

A proper negotiation process requires the involvement of identified (potential) local resource management groups, local chiefs, NGO's working at village level, and planners. Organizational structures at village level have to be identified and existing groups have to be contacted in order to evaluate their potentials and constraints to work as local area management groups. In many cases traditional social structures might indicate the most effective way to proceed.

The integration of stakeholders in planning and decision-making leads ultimately to the empowerment of a part of the community which, traditionally, has always been excluded from decision-making. Empowerment ensures that stakeholders feel they have a responsibility and that they can derive significant advantages from participation; the latter are often a guarantee for the long-term sustainability of the process.

(vi) *Identification of needs and constraints to production and conservation faced by local communities, and suggestions to remedy to the major issues.* Local communities have usually already interesting solutions in hand, but lack the means and technical support to implement them. Special attention in this respect should be given to the active involvement of women's groups. This includes also the identification of conflicts.

Unresolved conflicts or competition leads to inefficient use of resources and often to their degradation and destruction. Effective conflict resolution involves a negotiating process, an institutional framework within which this can occur, and a common understanding of the potentials of the resource and the effects of different use alternatives (FAO-UNEP, 1997).

A good understanding of this local knowledge is a good starting point on which to develop decision-making. Tools to catch this knowledge involve Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA) approaches.

(vii) *Development of the land use plan* based on long-term objectives of both government agencies and the stakeholders. Action should be decided through negotiation, but preferably after a supporting technical group has prepared proposals for consideration by the stakeholders. It is essential to distinguish between the part of the process which involves assembling data and preparing proposals (which may be done by professional staff) and decision-making itself, which should be realised jointly by planners and all stakeholders - but which is too often achieved by government departments or regional bureaucracies alone (FAO-UNEP, 1997).

The plan should outline a series of actions, define responsibilities and the role and involvement of different parties/ institutions, and the rules to be obeyed. Follow-up actions should be foreseen to monitor the smooth implementation of the plans and to interfere when necessary in adjusting the initial programme or time frame.

A successful decision-making process can be seen as a negotiated agreement in which all stakeholders feel that they have achieved maximum possible satisfaction of their needs and objectives, and which results in resources being used in the most efficient way (FAO-UNEP, 1997).

(viii) *Provision of personnel and means to implement and monitor the plans, as well as the enactment of an enabling legislation*. Participatory monitoring of the plans ensures transparency amongst the stakeholders and is a motivation for their integration in all stages of decision-making. A clear definition of responsibilities and the agreement of a firm time-frame have a positive effect on project activities. Formulation from the early beginning of crucial assumptions under which alternative decisions can be taken will add in stakeholders' under-standings with respect to their participation and responsibilities, and ultimately to their motivation.

Enforcement of management plans or rules may be achieved through social sanctions. It may also be given weight through national legislation.

5. SUMMARY AND CONCLUSIONS

Present approaches are not significantly successful to cope with the growing needs for a rapidly increasing population and related pressures on the environment. An important aspect of the failure of the present approaches is their dominant top-down attitude and their obvious lack of involvement of land users in the programme design and implementation. This is exacerbated by the present compartmentalization of institutions which results in fragmented efforts and failure to integrate all relevant factors.

The new approach acknowledges the role of technical solutions for optimizing land use, but stresses the need for a more active participation of the stakeholders throughout the planning and decision-making process. It promotes the combination of top-down and bottom-up inputs towards a more interactive land use planning on the understanding that a balanced partnership between supportive government agencies, external technical expertise when required and self-directing people-owned programmes might be far more effective than the traditional too technical, too sectoral and too top-down approach.

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GUIDELINES FOR INTEGRATED LAND USE PLANNING

David J. Radcliffe

BACKGROUND TO THE GUIDELINES

In accordance with its responsibilities as task manager for implementation of Chapter 10 of Agenda 21, FAO was requested by UNEP to prepare a series of documents presenting an integrated approach to the planning and management of land resources.

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**, 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.**

This work commenced with a Workshop in mid 1995. A decision was made to prepare three documents: a short lavishly illustrated presentational document intended to raise general awareness, an intermediate length publication aimed at decision makers, and a guideline, in which the concepts are explained more fully and guidance is provided on the introduction of integrated land use planning to interested countries. It is intended that the ILUP guidelines will provide the basis for practically oriented manuals based at the regional or country level, and it is hoped that the present workshop will provide ideas and proposals as to the way forward.

The 'short document' and the 'intermediate document' were published in 1996 and 1997 respectively. In this presentation the final draft of the 'guidelines' will be presented. The guidelines represents the work of a number of consultants and considers a wide range of policy, institutional and technical issues. As much of the preparation was done in 1995, some aspects may require updating. During the presentation, particular items will be highlighted for discussion.

STRUCTURE OF THE GUIDELINES

The present report proposes a new approach to land use planning based on an inter-active partnership between governments and people. The new approach is focused 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 and planning is the key to the new approach.

The key chapters in the report are Chapter 5, which presents the essential elements of the new approach, Chapter 6 which describes the methodology, Chapters 7 and 8 which describe its application at village and national level, and Chapter 9 which outlines the practical steps required to introduce this approach at the country level. These chapters are given the most emphasis in this presentation. Chapters 2 to 4 are essentially introductory chapters, which justify a new approach to land use planning from perspectives of the dimensions of the current problem, the factors influencing land use decisions, and the limited success of previous approaches. These initial chapters will be dealt with briefly as they support the approach proposed in Chapter 5.

CHAPTER 2. THE CHALLENGE

This chapter adopts the standpoint that the current challenge facing humanity is the increasing pressure on land caused by the growth and rising aspirations of the population. Such pressure is manifested in impacts both on people and on the environment. Impacts on people include shortages of food, fuelwood and water, poverty, social disruption, and increased vulnerability to natural disasters. Adverse environmental impacts are destruction of natural habitats, land degradation and desertification, and pollution. Some of these effects are not merely localized but have global impacts. A well publicised example is the impact of destruction of tropical forest on global warming and rise in sea level.

The argument is presented that humanity cannot manage its resources efficiently and sustainably in the face of a rapidly changing global situation. This is often due to a lack of political will to address problems at a senior level, a lack of technology, or of access to technology by farmers, or of an inability of institutions to deal with current problems. The key to breaking out of the downward spiral of land degradation and poverty is to develop the technologies needed to increase production and to make these technologies accessible to farmers. Land use planning recognizes the variability of land resources and the differences in the objectives of various stakeholder groups and the resources available to them. It is proposed that the new approach - Integrated Land Use Planning (ILUP) will play a key role in addressing the growing problem.

CHAPTER 3. LAND RESOURCE MANAGEMENT DECISIONS

Chapter 3 looks at the people and institutions responsible for making decisions on land use, and at the factors which motivate and influence such decisions. Recognition of these different objectives and motivation is crucial to understanding why a new approach to land use planning is necessary, particularly when more than one group of users competes for the same area of land. Key factors influencing decision making are the policy and regulatory environment within which decisions are made, the rural-urban balance, the need for self-improvement, and security of land tenure.

People's attitudes to conservation are influenced by the same factors. On the one hand, the land user has a vested interest in conserving the land upon which he or she depends for survival. On the other hand, society at large is concerned with conservation of the environment as a natural capital resource, and for its aesthetic or amenity value. In some cases, a small rural population may have to bear the costs of conservation, for

example by non-use of a particular area, so that the benefits can be enjoyed by a larger number of people. An awareness of such realities, and of conflicts of land use in general, should underly the policies of Governments on land.

CHAPTER 4. THE NEED FOR A NEW APPROACH

Land use planning shares the blame for the mixed success of rural development programmes. Chapter 4 outlines the recent paradigm shift in land use planning, from a top-down prescription to a decision support mechanism, and goes on to consider the reasons why rural development projects have often failed to meet their objectives. Among these are:

- **Lack of clear and consistent policy for sustainable land use** Development programmes need to relate to clearly defined policies for sustainable land resource use. Often such policies are not defined, are confused with sectoral policies (for example on agriculture and on the environment), or are subject to change as a result of political or economic pressures.
- **Failure to address the legitimate goals of land users and to involve them in the planning process** Development projects often spring from the recognition of a problem or development opportunity by the government or development agency. Such approaches are top-down and may ignore the objectives and concerns of the land users who are ultimately charged with project implementation. The land users perceive the project as belonging to the government, and directives from above are often resented, resisted, ignored, and sometimes overturned.
- **Failure to address all relevant issues**. A sectoral focus on a particular issue, such as soil erosion or prevention of foot and mouth disease, does not address some of the underlying socio-economic factors which contribute to the problem. Action on these factors may be prerequisites to solution of the problem, and a purely mono-sectoral technical solution simply does not work.
- **Failure to integrate all the necessary disciplines and activities** There is a basic problem of integrating data from different subject areas (e.g. physical, economic and social) which is not easily compatible. This difficulty is sometimes compounded by the different fora in which action takes place (individual, family, community, and government) and the problem of disentangling cause and effect.
- **Undue emphasis on technical solutions.** Because it is often easier to solve the technical problem, rather than the more complex socio-economic issues, a technical solution may be offered, with the implicit assumption that any socio-economic or institutional constraints will also be solved.
- **Institutional problems**. This involves lack of institutional capacity to evaluate, integrate, design, coordinate, and execute, on the part of government and/or the aid agency. Frequently reasons have to do with unclear or overlapping responsibilities, lack of communication or competition between institutions, bureaucracy, lack of staff of sufficient calibre, lack of imagination, leadership and management ability, and absence of an overall planning framework.
- **Inadequate or ineffective regulation of land use**. Existing laws may be inadequate to guarantee land rights, to protect the land from degradation or pollution, to resolve conflicts over land use, and to register and empower authorize any required institutions. There may be conflicts between statutory and customary law. Commonly, the laws which are in place are not enforced, particularly those relating to the conservation of land resources.
- **Lack of well targeted incentives, or inappropriate incentives** Incentives may be used to facilitate the desired change in land use or land management. However, these incentives are sometimes poorly designed and achieve different results from those intended. On the other hand, the lack of incentives may impede investment in required soil conservation or land reclamation measures.

- **Lack of funds.** Absolute lack of funds is sometimes a less important constraint than the more effective channelling of the funds which are available. However, interruption in the flow of funds after the termination of donor assisted programmes or projects has often been a major problem. Poor planning by donors and recipients has often resulted in a culture of aid-dependence, failure to develop clear concepts of sustainable development, and development of inappropriate or unsustainable institutions.

These shortcomings are used to highlight the role that integrated land use planning can play in revitalising the rural development process.

CHAPTER 5. INTEGRATED LAND USE PLANNING: ESSENTIAL ELEMENTS

Chapter 5 is the key chapter in the Guidelines because it presents the elements of integrated land use planning, which are:

- a recognition of stakeholders and their often differing objectives
- an enabling policy and regulatory environment
- effective institutions at local, sub-national, and national level
- an accessible knowledge base
- a platform for negotiation
- a set of planning procedures

Recognition of different stakeholders to land and their different objectives is essential, both in equitable sharing of benefits of development and in anticipating likely conflicts and including mitigation measures in the land use plan. Farmers, different classes within the farming community based on wealth or gender, pastoralists, NGOs and government departments may all be stakeholders with different interests in the same area of land. The stakeholder concept can be extended to cover unborn generations who have an interest in conserving resources for their benefit.. A simplistic approach to planning may not recognize such differences.

Bearing in mind that decisions on land use are usually taken by the landholder, the role of government is to provide an enabling environment which promotes the adoption of rational and sustainable land use practices. The policy environment should comprise both incentives and regulatory measures to steer land use in the direction of efficiency, equity and sustainability. It is important to strike the right balance between incentives and regulations and to ensure that policy contradictions do not occur when addressing production and conservation objectives. Peace is probably the overriding factor of the enabling environment in providing some security of expectation.

Laws protect the rights of the land user, establish the institutions and mechanisms for support, and sanction the misuse of land through degradation or pollution. Laws in the last category are easy to enact but extremely difficult to enforce. Public awareness may ultimately be a more effective means of land protection than legal prohibition.

Having created the enabling environment, the main function of institutions is to support the land user in facilitating access to inputs, credits and markets and extension advice, and in channeling information between

land users and government. One of principle strategies of ILUP is to devolve decision making to the lowest possible level that is consistent with the ability for implementation. As far as possible, decisions on land use and management in the village should be taken by village level institutions, within the broader framework of government land use policy. This strategy has the twin advantages of mobilizing resources and knowledge at the grass-roots level and promoting participation of the people concerned, and of reducing the burden on the government at a time when there is a tendency to cut back on infrastructure and services.

Perhaps the most important institution for ILUP is the Local Resource Management Group (LRMG). The LRMG provides the basis for empowerment and mobilization at village level, and for interfacing between land users and the services provided by government, NGOs, or the private sector. There is no single model for the LRMG. In some cases they may be organs of government, in others arise spontaneously, and in others be instigated by NGOs. The framework within which the LRMG operates is shown in Figure 1.
In most cases an intermediate, or meso-level body is needed between the village and national level. This would be constituted at the province or district level and its main functions would be to coordinate developments in villages and to channel information in both directions between the village and the institutions of national government.
At the national level the most important aim is coordination between the various institutions involved in land related activities. Coordination is needed both at the administrative level and the executive level. In some countries a formal committee may operate effectively and others a working group without formal powers may be appropriate. Ideally both institutions should be in place. In addition, there is a need for an independent watchdog committee to ensure that rules are complied with.
Effective negotiation and decision making on land use cannot take place without a knowledge base that is accessible to the stakeholders. The two essential components of the knowledge base are information, and education to make the information accessible.

The following types of information are needed by decision makers:

- Information on the resource. For any form of land use planning, precise information is needed on area, including climatic factors, topography, soil, present land use, and many other aspects.
- Information on improved technology of resource management and the opportunities it provides for increased productivity and for conservation.
- Information on the needs and objectives of all stakeholder groups and of the community.
- Information on the institutional and legal framework, including rights of tenure to land, trees and wildlife. Stakeholders need to know their rights, what powers of decision they have, and where they can obtain further information and assistance.

It is important to note that transfer of knowledge is not a one way process. Harnessing indigenous knowledge is equally important in the planning process.

The essence of negotiation between stakeholders is that all the people affected are fairly represented in the discussions. This implies, firstly that each of them has been identified, secondly that arrangements are made for them to effectively participate, and thirdly that they are all fully informed on the issues at stake. To ensure that this happens it is necessary to establish and adhere to rules of procedure

The institutions proposed at local, sub-national and national level: the LRMG, the District (or Province) Land Use Planning Group, and the National Working Group, are effectively platforms for negotiation. Consistent with the policy of devolving responsibility to the lowest level, the LRMG will be the key institution for negotiation and settlement of disputes at the local level. When conflicting objectives of different stakeholders, or land disputes cannot be resolved at this level, they can be referred to the sub-national body. The courts are a last resort if negotiation fails to resolve the dispute.

CHAPTER 6. METHODOLOGY

Chapter 6 presents suggested technical procedures to carry out land use planning. The steps in the process are shown in Figure 2. The presentation is comprehensive with the understanding that appropriate methods can be selected depending on the objectives of the plan and the expertise and resources available. For example, systematic soil survey and land evaluation may be required for a national level plan, whereas a simple sketch map, perhaps using local soil names, with assessments of land quality based on farmer experience, may suffice in some village situations. Key questions that need to be asked are:

- how much of this methodology is really essential?
- to what extent can short cuts be made and methods be simplified?

A related question is who actually carries out land use planning? Is it a team of experts, a group of technical officers at the district level, or the villagers themselves? In the former case it is important to ensure continuing consultation, so that the methods do not become detached from objectives. In the latter case, some form of technical assistance may be required to facilitate the planning process.

Certain principles underly the planning process irrespective of scale or level of detail. For example:

- Data collection should be geared to gaining an understanding of how the land/land use ecosystem functions. What are the *processes* involved, how do land properties affect land use, and what is the impact of changes in land use on the land resource?
- Data collection should be efficient, focusing on *minimum data sets*, and flexible, to allow collection of any additional data which may be relevant.
- Data is needed in a *spatial format*, as maps or geo-referenced observations. The spatial variation in land resources is the main justification for land use planning.
- Data collection should be part of a *continuous* process. Rather than being seen as a one-off exercise needed to produce a rigid land use plan, the initial data set should be used to formulate a flexible, rolling land use plan, which can be later modified in the light of future information, or according changing circumstances.

In many circumstances a comprehensive plan may not be produced in a single exercise but components, defined either by location or sector, may be tackled individually according to comparative urgency and resource availability. For example, if village grazing lands are severely degraded, some remedial actions could be put in place without a comprehensive land use plan of the entire village land. Subsequently, resources may become available to develop another area of village land with small scale irrigation. While such sectoral based planning is not the ideal, it introduces an element of flexibility which may present a way forward in circumstances where resources are limited or coordination is difficult. Developments in one sector should take account of past, ongoing and future developments in other sectors, and of possible interactions (crops-

livestock, livestock-wildlife etc).

CHAPTER 7. PLANNING SUSTAINABLE LAND MANAGEMENT AT THE VILLAGE LEVEL

The village or local community provides a natural hub around which land use planning takes place. This level of analysis is sufficiently detailed to clearly analyze the interests of groups and individuals, but is also sufficiently broad to accommodate conflicting interests and to relate to land use plans at higher administrative levels (District or Province). Due to its position in the administrative hierarchy, the village is the best unit to consider the integration of people's participation and the conventional top-down approach.

The procedures outlined in Chapter 6 apply to the village level. However, stress is placed on simple effective procedures that can be used by a local planning team with only a limited amount of technical support. Effective interaction between the planning team, the land users in the area being planned, and the technical support group is crucial to the success of village level ILUP (Figure 3). RRA or PRA methods may be valuable in organizing traditional knowledge and experience into a planning framework. Aerial photographs are useful for conceptualising the actual situation on the ground.

Direct Stakeholders at the village level may be analogous to farmers who are grouped according to such factors as gender and wealth. Such groups commonly have different needs and objectives, with respect to such factors as maximising profit, minimising risk and conserving soil and other features of the natural environment. Village level ILUP is as much about recognizing these socio-economic differences as about recognizing differences in land conditions. The aim of the plan should be to present a range of opportunities from which each farmer can choose according to physical conditions and socio-economic circumstances.

Land evaluation is perhaps the most difficult part of the methodology to translate to village level. However, the concepts are not alien to villagers who often have their own methods of deciding which land is good for which crop. Such indigenous knowledge can sometimes be systematised and used in the planning exercise (*Box 36 in Guideline)*. However its application will be limited to land uses and management systems of which the villagers have direct experience. In most cases, a system based on the FAO framework may be used with a simple and easily understandable set of matching rules (*Box 35 in Guideline)*.

It is also difficult to lay down universally applicable rules for assessment of economic, social, and environmental impacts. All these factors should be considered. Details of financial or economic analysis are useful if farmers are to apply for credit to implements some elements of the plan. An example of possible social impacts on different groups in the community is given in Table 18 *(Guidelines, p. 110).*

Village land use planning arises from a perceived need for change and it is therefore important that the results are directly translatable into implementable actions. A community Action Plan is a way of translating ILUP recommendations into positive actions (*Guideline, Table 20).*

CHAPTER 8. INDICATIVE LAND USE PLANNING AT THE NATIONAL LEVEL

At the national level the responsibility for management and regulation of land resources falls on the government. They may exercise this responsibility by formulating a policy on land use and implementing strategies in support of policy objectives. An indicative national land use plan (INLUP), showing the spatial

distribution of land resources of the country and the location of areas with particular potential or specific constraints, is an essential aid to implementing national strategies of sustainable land resource use and environmental protection. The INLUP forms an input to (FAO,1993a):

- development of land use policy, balancing the competing demands for land between different economic sectors;
- the national development plan and associated budget, including project and programme identification and the allocation of resources for development;
- coordination of agencies in different sectors;
- legislation in such areas as land reform, forest clearance and water rights.

The INLUP can be prepared within the framework of integrated land use planning, following the procedures described in Chapter 6. At this level, it is inevitable that planning is carried out by a centralised agency appointed by the government. However, the concerns of various groups of stakeholders can be made known to the planning agency, who can choose to reflect these in the INLUP. There should also be opportunities for the planning group to present findings to a forum of stakeholders at key points in the planning process. Grass roots involvement at this level will be necessarily limited, but it is important to remember that the INLUP is only intended to be indicative. The real decisions on implementation should follow a more active dialogue with land users at the village level or in the area targeted for possible development.

It is at the national level that the 'classical methodology' of land use planning is most appropriate, including inventories of soils and other natural resources and development of GIS linked land information systems. Models to balance the supply of land with demand, both for agriculture and for other uses such as urban and industrial development, can be brought in to strengthen the use of the national land use plan in policy making. Land use planning at the province or district level is not specifically included in the manual. It is envisaged that some elements of the village and national methodologies will be appropriate at this scale, depending on the objectives of the plan and the resources available to carry it out.

CHAPTER 9. INTRODUCING THE NEW APPROACH

It is the responsibility of the government to ensure that the requirements are put in place, or that the conditions are created for them to evolve. As effective implementation of ILUP depends on initiatives by rural people, obtaining popular support for the programme is more important than speed in making the necessary changes. Partnership between government and people is the key to the success of the programme.

Introduction of the new approach will therefore be a gradual process in most cases. Two sets of parallel and mutually supportive activities will be carried out as shown in Figure 4. At the national level, a coordinating committee or working group will be established, an information campaign will be launched, and attention will be given to the various institutional, fiscal and legal reforms necessary to create the enabling environment for ILUP. At the same time, local resource management groups (LRMGs) will be created in pilot areas where they will apply land use planning procedures on a trial basis. Experience from this pilot exercise will be used to guide the activities at the national level, and to provide the basis for a widespread adoption of the approach. As a first step, a national workshop is proposed to introduce ILUP to the people and to decide on the best strategy for its adoption.

Specific actions which must be undertaken to set ILUP in motion include the following:

- a campaign of information and education;
- establishing a national coordinating body or working group
- creating a favourable policy and regulatory environment

At the pilot area level specific attention should be given to how local resource management groups should be formed, how these groups would represent interests of various sections of the community and what powers should be accorded to the group. It is unlikely that a single model for the LRMG will be applicable in all countries.

The widespread application of integrated land use planning throughout the country will depend on the synergy established between the pilot areas studies and the activities being carried out in parallel at national level (Figure 23, p.). Successful demonstration of ILUP in the pilot area studies is essential if the new approach is to capture public support and 'take off' in the countryside. The creation of enabling, incentives and laws, and effective institutional support, including empowerment of local level institutions, is equally essential. Box 44 lists guidelines for keeping the introduction of ILUP on course.

It is important that land use planning is integrated at the various levels of government, and that the linkages between land use planning at national, sub-national and village level is transparent and obvious to the stakeholders. Given this mutual understanding, the preparation of a indicative national land use plan (INLUP), (Chapter 8), or the incorporation of land resource concerns in a National Environmental Action Plan (NEAP) should also act as a stimulus to land use planning at the local level. By locating strategies and programmes in geographical, administrative or sectoral areas, the INLUP or NEAP should reveal opportunities for villages to access additional which may become available when such programmes are implemented.

The ILUP process is easily replicable and positive experience of application in the pilot areas should lead to its rapid spread. Partnership between the government and the people is the key to success. Governments should be seen as promoting a popular policy, which effectively empowers local people and gives them a greater degree of control over the resources on which their livelihoods depend. At the same time, the impact of land use planning on sustainable resource use and on the conservation of natural resources will assist the government in fulfilling its commitments made at the UNCED Earth Summit in 1992, and in the post-summit conventions on desertification, climate change, and preservation of biodiversity.

CONCLUSIONS

This guideline represents an important step in bringing together the elements of an approach to land use planning which attempts to integrate environmental, socio-economic and policy/ institutional aspects. It is a guideline, rather than a manual because the approach has not yet been tested in its entirety. However, some parts of the approach have been tried, often with some success, and it is by learning from these successes

that progress can be made towards building a system of ILUP which is appropriate for a particular country or region.

However, meeting the challenge is not an easy task, particularly where institutional reforms are concerned. Among the major issues which must be confronted are:

- Is land use planning a suitable focus for inter-institutional coordination? How can we justify this to government decision makers?
- Who actually carries out the planning, and how do they relate to I) the land users; ii) technical support services; iii) government decision making bodies.
- Can grass-roots institutions be created in which all stakeholders will be fairly represented (including poorer farmers, women, pastoralists, indigenous groups etc.)? Can effective mechanisms be set up for conflict resolution and arbitration between different stakeholders?

It is hoped that the experience of the present workshop will enable this process to move forward.

LAND AND WATER INTERACTION IN NATURAL RESOURCES PLANNING

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INTRODUCTION

By nature, a very strong interaction exists between water and the landscape. Issues related to land use planning are of importance for the management of water resources, and, inversely, water planning has important implications in land use and management. Yet, for several reasons discussed below, the link between land and water planning is usually very weak, leading to imperfections, inconsistencies or even contradictions in the planning processes. As land use planning should encompass all the elements related to the use of land and the natural resources it is made of, the specific relation with the issues related to water planning are worth investigating in an attempt to better co-ordinate and integrate the two disciplines for the greater benefit of the land users.

The purpose of the paper is to present the main issues related to water resources planning, to review the interrelation between land and water, and to investigate the possible linkages between water resources planning and land use planning. The paper should be understood as informative on the subject of water resources planning, and as a basis for discussion on the purpose, needs, and opportunities to better integrate land and water planning.

PURPOSE OF WATER RESOURCES PLANNING

The joint management of a common good: conflicting interests

Water is distributed in time and space in modes which are increasingly incompatible with human needs. Problems related to water availability, its quality and the control of floods require human intervention in the search for sustainable water management. To meet the demand for the desired quantity and quality of water at the right time at given locations, engineers, together with economists, lawyers, conservationists, sociologists and planners have, through the centuries, gained considerable experience in constructing and operating structure and implementing non-structural measures that permit improved management of natural water supply (Loucks et al, 1981).

Complexity of the systems and decision processes

The specific feature of water resources planning is that it must take into account multiple users, multiple objectives and multiple purposes. Water resources planning is about finding a way to satisfy the needs of several groups or individuals having different aims and objectives: it deals with the *joint management of a common good*. As a result of this, it is most of the time confronted with *conflicting* interests.

In the past, the engineering aspect of water resources planning was dominant. Hydrologists and engineers

would receive the mandate to find a technically feasible solution to solve a specific water problem in a way which was considered by the decision makers as the most beneficial. Increasingly, however, direct public involvement has re-dimensioned the role of the engineers and planners, shifting the responsibility for making choices from the engineers to representatives of the people, be they politicians or public officials.

Interdisciplinarity

Due to the increased understanding of the complexity of water resources management, planning has evolved from a situation in which a few technological alternatives were submitted to decision makers, to a situation where a large number of possible alternatives are scrutinized in the light of their technical, economic, legal, institutional, social and environmental impact.

A *system approach* makes it possible, with the help of *models* and decision support systems, to help define and evaluate, in a rather detailed manner, numerous alternatives that represent various possible compromises among conflicting groups. Models and decision support systems permit an evaluation of the economic and physical consequences of alternative engineering scenarios, of various operation and allocating policies, and of different assumptions regarding hydrology, technology, costs, and social and legal requirements.

Yet, one should still recognize the limitation of models in representing the real world: the availability of input data, the uncertainly about the future and the need to use a series of assumptions in developing the models lead to an uncertainty in the results.

Communication

This situation and the increasing recognition of the role and implication of the people or their representatives in the decision making processes bring the need to set up a very flexible and iterative planning process, in which the role of the engineer and the planner becomes that of a technical advisor, illustrating the technical implications of different scenarios to the decision makers. *Communication* between the engineers, planners, analysts and decision makers, including the different interest groups takes an increasing importance in the planning process.

THE RIVER BASIN AS A PLANNING UNIT

Like in any decision making process, planning and management of water resources should be systematically made at the lowest possible level while ensuring that the decisions taken does not produce adverse effects on people or the ecosystem outside the limits of the planning area.

As water resources planning is about finding adequate solutions to satisfy the needs of different users in a sustainable way, such objectives can only be achieved through a division of the land which encompasses all the users of a given resources. The natural reference geographical unit for water resources planning is thus the river basin, only way to ensure the integrity of the water cycle. In arid regions, where surface water is limited and most of the water is withdrawn from the aquifers, the limits of these aquifers make the natural division of land suitable for planning.

The challenge is thus to find a good balance between the need to place decision making at the lowest possible level, and the need to respect the hydrological cycle. This is discussed more in details in the section related to scale.

The recognition to use the river basin as the unit for planning and management of water resources is now well established. "Integrated river basin development" has been promoted by the UN for more than 40 years (United Nations, 1958). Initially, the focus was very much on infrastructure development. With time, and with increased understanding of the interrelation between the different elements of the water cycle, the human activity system and the ecosystem, the focus shifted to the concept of integrated water management or integrated river basin management (FAO, 1995; PAP-RAC, 1997). This change also reflects the current tendency, all over the world and in a situation of increasing water scarcity, to shift from a situation dominated by issues of *water resources mobilization* (construction of dams, hydraulic structures) to a situation of *demand management* in which an increasingly sophisticated management of the resources is required.

In both cases, the term "integrated" is used as a recognition of the interconnection of the different component of the water balance (including its use) and of the need to capture this complexity in the best possible way.

Water as an economic good and market imperfections

After the Dublin Conference on water and sustainable development (1991), and the Rio conference on environment and development (1992), the need to recognize water as an economic good as well as a social good has been emphasized. This important step in water resources management concepts was driven by the observation that, in a situation of increasing water scarcity, water needs to be directed towards the most beneficial use.

Although such a policy is necessary to help increasing the beneficial use of water resources, significant market failures should be recognized in water resources management, leading to the need for co-operative, or public, intervention. These market failures lead to inadequate or insufficient investment and create perverse incentives to the misuse of these resources, resulting in sub-optimal global benefit and inequity. Laws, management regimes or corporate management rules are then necessary to mitigate the adverse effects of individual, often conflicting needs. Without a common management mechanism, individual users have no incentives to curb their use of water or invest in its protection; upstream land users do not have incentives to invest in measures that would reduce flooding downstream, since many of the benefits are externalities that would accrue to others (Winpenny, 1997). The same applies to water pollution and discharge of wastewater. Similarly, the withdrawal of water from irrigation to more economically powerful sectors like domestic water supply or industries may lead to situations of accrued poverty and rural exodus, resulting in exacerbated inequalities and political instability. Searching for a water resources management option which promotes a satisfactory social balance, increased economic benefit and protection of the environment thus requires adequate integrated planning and management mechanisms.

River basin management authorities or Commissions

The river basin having been recognized for some time as the logical land unit for intervention on water resources, it is not surprizing that institutional arrangements have been sought to match this need for action at river basin level. Some river basin authorities have been operating for several decades across the world, and the trend is towards expansion of river basin management mechanisms.

River basin authorities have been created with very diverse aims and their degree of success vary greatly from one to the other. Early river basin authorities were set up mostly for the purpose of water development construction: water supply and irrigation, hydropower or flood control; others were driven by a need to address water quality problems. Some have been set up for a single purpose, other have received broader mandates.

Among the typical functions of river basin authorities, one can find data collection, processing and sharing, planning, water allocations, fund raising, cost sharing, project implementation, project operation and maintenance, monitoring of water use, control of pollution and protection of environmental conditions. Some have management power, others work as advisory bodies, others are fora for discussion and negotiation (this last function becomes very important in the case of international river basins).

Evaluation of several river basin authorities or mechanisms across the world show that in practice they often focus on a single purpose rather than being used as a device for comprehensive, integrated planning and management. While they might perform well for the particular purpose for which they were created, this often results in sub-optimal performances regarding the other functions of the river basin. On the other side, some authorities having received a broader mandate often did not manage to cope with the complexity of their task and performed poorly in all fields (Winpenny, 1997).

MATCHING PLANNING TOOLS AND METHODS WITH SCALE AND ISSUES

As seen above, the division of land in adequate management units is of major importance for water resource planning. One can identify three different levels for which planning and management are of primary importance: the irrigation scheme; the river basin (or aquifer basin), and the international river basin. A distinction is made between the last two due to the very different issues related to each of them.

The irrigation scheme

The irrigation scheme, whatever its size, is the first level for which a need exists for common management of the resource: usually, an irrigation scheme is characterized by one or a few sources of water (river, wells, dam), and the distribution among the different users requires established and enforced operating rules. In addition, the overall operation and maintenance of the scheme itself requires a co-operative structure capable of ensuring the sustainability of the scheme.

In the past, planning of irrigation schemes have been the prerogative of engineers, who would decide on operation modalities and impose them to the users. Operation of irrigation schemes would be the responsibility of large government-owned structures, dictating the rules to the water users.

The current trend in irrigation system modernization is towards more demand oriented control structures, as opposed to the traditional supply oriented structures. The advantage of such systems is that they gives the users more flexibility in the choice of how they want to irrigate, reducing the need for organized action. However, such system imply profound modifications in the conception of the schemes, often leading to increased investment costs. Early participation of beneficiaries in the design phase of irrigation schemes, although not always easy to organize, is now recognized as a better guarantee for future management of the scheme.

For those irrigation schemes which already exist and cannot be adapted to such a demand-oriented operation mode (they are the majority), the trend is to transfer the responsibilities of operation and maintenance to the farmers through the settlement of *water users' associations*. Water users' associations are organized according to the hydraulic division of the schemes and allow for a direct control of operation by the farmers. While in theory this approach is more suitable than the former large operation bodies, transfer of responsibilities implies a series of actions, including empowerment, training and capacity building, which are not performed without problems.

The river basin

As seen above, the river basin is the only physical division of the land which allows for integrated water management, as it encompasses all the users of a same resource. Some precautions should be taken, however, in applying this concept without clear understanding of its implications. The choice of a division of the land in river basin should be guided by a good knowledge of the hydrologic processes, and an evaluation of the degree of inter-dependency of the different users.

Indeed, there is no point for instance in centralizing all decision and implementation of rural water supply activities in a large river basin authority if it can be proved that these operations do not have any impact on the river in terms of water volumes and quality. In the same way, there is no need to apply the river basin concept to land use activities in mountainous areas if their impact on sedimentation and floods can be proved negligible to users downstream.

In other words, as the river basin division of the land is quite coercive by nature and cannot be subject to negotiation, it is fundamental that it be used only when necessary. This rule poses the problem of assessment of the degree of inter-dependency of the different users for different types of actions, which requires a good knowledge of the physical processes. Such a knowledge is often difficult to obtain, and uncertainties can lead to inadequate planning and management strategies.

Indeed, there would be many very good reasons to use other divisions of the landscape for the purpose of land use planning: according to farming systems, social and ethnic affinities, administrative boundaries, topological or agro-ecological zones, etc. It is thus important to adopt the most adequate or relevant way of organizing and dividing the land. Several different ways of dividing the landscape may very well be needed to achieve several different results.

A classical problem of water management is the dichotomy between the river basin and the administrative division of a country or region. In many cases, conflicts of authority arise between regional administrations or public authorities and water managers on issues related to water management.

International river basins

Technically, issues of planning and management of water resources in rivers or water bodies shared by several countries are not different from those concerning one unique country. However, the political dimension of the problems often supersedes all the other related issues. Issues of territorial sovereignty, food security, or economic development policy are at stake in such cases and can lead to serious regional tensions over the way to commonly manage the resources.

While the case of international river basins is the most complex situation, it is also the best example of the need for a basin approach to the planning and management of water resources. There is no international rules on ways to share the water of international rivers: the cases and situations of each river basin are too different to make it possible to draw universal sharing principles. Only two general principles have been agreed upon by countries at international level (Arcari, 1997): the principle of *equitable utilization of water resources* and the *duty not to cause significant harm to other watercourse states*. Two additional sets of rules state the general obligation to co-operate with other watercourse states and the duty to exchange data and information on the watercourse.

While these rules might seem very general, they are already a significant achievement in the sense that there is a recognition, on the part of the states, that some kind of responsibility exists in the way of using international water and that co-operation is required in the quest of a sustainable management of the water resources. Mechanisms for data exchange, discussion, negotiation or even joint planning and management of the water become then necessary, a role that can be best played by international river basin authorities or joint commissions.

The degree of co-operation may vary considerably among river basins. Exchange of data and information is probably a first step in co-operation between countries. This may include basic hydrological and water use data or the development of joint hydrological models. The importance of shared data and of a common understanding of the hydrology of the watercourse should not be underestimated in the process leading to agreements on water management. Data exchange can also be related to the exchange of real time information on runoff for flood prevention and warning.

A more advanced stage would concern the establishment of rules for the quantity and quality of shared water resources, leading to agreements between riparian countries, and the tools necessary to monitor the degree of compliance to these rules.

In the most advanced stages, one can reach a level of fully integrated planning and management of the water resources.

LAND AND WATER INTERACTION

A few of the most important relations between land and water use are presented below.

Upstream-downstream relation

A subject of importance for water management is the relation between land users located in the upper parts of the river basins (mostly the mountainous areas) and those living in the valleys. Most water users (irrigation, cities, industries) are usually located in the valleys, benefiting from the water generated in the mountains. Land use practices in the mountains may have a direct impact on the volumes, distribution and quality of the water available to users in the valleys. Deforestation, for instance, can lead to an increase in sediment yield and flood intensity in the rivers downstream. On the other side, afforestation in the upper catchments can lead to a reduction in water yield due to increased evapotranspiration (Frenken and Bousquet, 1997).

The current trend in mountain-valley relationship calls for a recognition of the link between them through the water cycle, and of the role mountains and mountains land users play in sustaining water availability for

downstream users. Such a recognition is the base for the development of integrated approaches in which negotiations can take place between all stakeholders to find satisfactory solutions to the water management problems. Solutions can include, for instance, the allocation by downstream water users of subsidies to upstream users as incentives to adopt water conservation practices. Once again, such achievement is only possible if a good understanding of the physical mechanisms is available, and if an adequate forum for negotiation exists.

Land use and soil moisture management

In arid and semi-arid regions, soil and water conservation practices (including water harvesting and runoff farming techniques) are meant to reduce the losses of soil, nutrients and water at the field level for a better agricultural production. Adoption of such practices on a large scale could, in theory, have either positive or negative impacts on water availability for downstream users.

Positive impact would include reduced sediment yields in the rivers, and reduced floods intensity. Negative impact could be a reduction in water availability due to increased soil moisture conservation upstream. When proved significant, however, this negative impact does not necessarily mean that such practices should be avoided. It is one more illustration of the need to adopt an integrated vision of water use, and to consider all stakeholders in the decision making processes.

Intensive agriculture and irrigation

Intensive agriculture in parts of a river basin or aquifer usually leads to a washout of part of the fertilizers and pesticides by rainfall or irrigation water and a reduction of the quality of the water in rivers and aquifers. It is also the case of intensive livestock farming.

In arid regions, irrigation results in increased water salinity. It is not rare that the same water be used several times for irrigation on a water course, resulting in very high levels of salinity, making the water unfit for agricultural or other uses downstream.

In both cases, in situations of intensive use, water quality and quantity deteriorates from the upstream parts to the downstream parts of the river.

CASE STUDIES

To illustrate the issues related to water resources planning, two cases studies are briefly described. The first example shows the importance of adequate fora for water resources planning and management and the interrelation between all stakeholders sharing a common source of water, being at the level of the irrigation scheme or at that of the river basin.

The second example describes some practical problems encountered in water resources planning, and the importance of a thorough understanding of the hydrological mechanisms for water resources planning.

Case study No 1. The example of the Kou valley, Burkina Faso.

In the Kou valley, in south-western Burkina Faso, an irrigation scheme has been developed several decades ago. Extending over about 400 ha, the scheme is used mainly for rice and maize production. The scheme receives its water from a river diversion through a 11 km-long primary canal. Seven secondary canals distribute the water, through gravity, to tertiary canals and finally to the individual plots.

Scheme management

Until recently, a state-supported co-operative was responsible of operation and maintenance of the whole system. With the withdrawal of Government from operational activities, the co-operative failed to take over and collapsed a couple of years ago. As a result of this, no more operation and maintenance is ensured on the scheme. This situation leads on one side to a situation in which only part of the farmers (those located close to the head of the system) still receive adequate and timely water allotments, while those situated in the tail end of the scheme do not receive their allotment and suffer from waterlogging caused by excessive water use upstream. In an attempt to solve the problems, farmers have spontaneously organized into eight small co-operatives. However, the groupings were made according to personal and ethnic affinities, and not following the hydraulic division of the land. As a result of this new organization system, a series of problems related to input supply, marketing or processing could be satisfactorily addressed, but the problem of water management remains and the degradation of infrastructures and inequitable distribution of water among user continues.

River basin issues

With the years, other water users (industries, intensive vegetable production) started withdrawing water either from the river upstream the irrigation scheme or directly from the primary canal. The amount of water withdrawn upstream of the scheme is now such that it is no more possible to satisfy the needs of the irrigation scheme, resulting in water shortage in the dry season.

Such a situation is typical of the need for adequate mechanisms for water resources management at river basin level. It has economic implications: in this case, upstream users make more beneficial use of the water than downstream users. It has managerial implications at the level of the scheme (how to cope with water scarcity ?). It has social implications, as the users downstream are penalized and put out of business.

Currently, no operational legal mechanism is available to help solving the problem. A joint water users commission has recently been set up as a first step towards finding an adequate way to manage water in the Kou valley. It is expected that, through full participation of all stakeholders in the negotiation process, a solution will be find which can be acceptable to all of them.

Case study No 2. Swaziland: Water resources development study

In Swaziland, water is allocated to users through water permits. These permits are delivered without any duration limit and a water permit user may use his/her water allocation for other purposes than that for which it received the permit. Water allocations are calculated per hectare, using a flat rate of 0.771 l/s.ha (or 0.875 l/s.ha below 530 m. a.s.l.), 24 hours per day, 365 days per year.

In the Usutu river basin, the water resources of the basin are now committed to an extent that it is no longer possible to deliver new water permits.

A recent study by FAO (Frenken and Bousquet, 1997) reviewed the situation of water withdrawal in the two basins in an attempt to assess current and future water needs and to issue recommendations on the future management of the water permits.

In trying to assess water abstraction by basin and sub-basin, first step in the estimation of the water balance, the reviewers were severely limited by the availability of relevant information. Irrigation being the main user of water, a spatial distribution of irrigated land, including the main crops grown, would have been necessary to estimate net and gross water consumption.

Available land use maps, although very detailed, could not be used to estimate the extent of irrigated land with a sufficient level of precision. One of the reasons for this situation is that a large part of irrigation is made of very small plots, scattered among the basins, the mapping of which being feasible only at very large scale. On the other hand, statistics are available only on the basis of the administrative divisions of the country, which make them unfit for use at sub-basin level. Finally, estimates of land under irrigation were computed on the basis of partial information provided by the Water Apportionment Board, and of information provided by government experts, leaving room for considerable increase in precision.

Despite these uncertainties, the study could show that the water apportionment system, based on a flat allocation rate all over the year, largely over-estimated real withdrawals (approximately by a factor of three), and that a more precise computing method, taking into account actual crop water requirements, would allow for a better distribution of the available water. The study also made it possible to obtain a distribution of water abstraction within the year, identifying the months of high water demand and water deficit, and proposing management rules to overcome these problems.

OPPORTUNITIES FOR MORE INTEGRATION IN LAND AND WATER PLANNING

This paper has shown how land use, and most of all agricultural land use, affects water resources and thus have an impact on water resources planning and management. On the other hand, but maybe to a lesser extent, the availability and distribution of water resources have a direct impact on land use, its planning and its management. In this, the impact of upstream water users on land use possibilities downstream is of relevant importance.

In terms of water resources planning, land use is usually considered either as an external factor, affecting the quality and availability of water, while land use planning is considered as a tool in achieving sustainable and satisfactory water resources management.

Conceptually, land use planning and water resources planning have developed from different bases and different scientific disciplines. This is reflected at institutional level, where competencies over water and land are rarely united under the same responsibilities (which is further complicated by their multidisciplinary nature). These are probably the reasons at the origin of communication barriers which have hindered a better integration of the two disciplines.

While having different scopes and objectives, the concepts and approaches of land use planning and water resources planning have evolved over the years towards adoption of some general principles in which they now both find a common ground for action. The need for an integrated approach, in which all the elements of a given system, including the environment, must be taken into account, is a common concern. It is the same for the importance of effective participation of all stakeholders in the decision making processes and the crucial

role of negotiations. Probably, the importance of a good understanding of the physical processes and of the characteristics of the resources base is also a shared concern in seeking sustainable management of the resources.

It is the recognition of the close inter-relation between land and water which calls for more co-operation between the two disciplines of land and water planning. The issues of common interest mentioned above might be of good help in trying to bridge the gap between them.

CONCLUSION

The main purpose of this paper was to present the main concepts and issues which guide the actions of water resources planners, the intellectual reasoning underlying water resources planning, and the current trends in the development of water resources planning and management.

The need for an integrated approach to water resources planning has been emphasized, the river basin being the logical geographical land unit allowing for such integration. In this sense, it is argued that a good understanding of the hydrological processes is a prerequisite to the adoption of adequate mechanisms for planning, the general rule being that planning should be done at the lowest possible level.

The importance of a multidisciplinary approach to planning, and the role of negotiation, ensuring effective participation of all stakeholders (or their representatives) have also been underlined. Ensuring effective negotiation processes requires the choice of adequate mechanisms, supported by an enabling environment at the political, institutional and legal levels.

Finally, the links between land and water use have briefly been reviewed, in an attempt to investigate the needs and opportunities for a better integration of the two disciplines.

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GTZ APPROACH IN INTEGRATED LAND USE PLANNING

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GTZ (the German Agency for Technical Co-operation) has established an inter-disciplinary working group on INTEGRATED LAND USE PLANNING in 1993. Due to the interdisciplinary nature of the work carried out, a large variety of different experiences and viewpoints has been incorporated in developing the concept of land use planning. Every person has accentuated areas which are of particular importance to him or her. The types of action taken in the course of the discussion process include workshops, conferences and the discussion of and compilation of documents.

Between 1993 and 1995 five workshops were held on land use planning in four different languages and five different regions.

- Berlin in July 1993
- Asian Workshop in Sri Lanka 1993
- African Workshop (Francophone) in Niamey in 1994
- African Workshop (Anglophone) in Kenya 1994
- Latin-American Workshop in Bolivia in 1994

One of the results of the working group is the elaboration of the guide:
Land Use Planning - Strategies, Tools and Methods -, which has been published by GTZ in German in 1995. The guide is a further step in developing an concept on Land Use Planning within the framework of Development Co-operation.

> ***Land use planning in technical cooperation is an iterative process based on dialogue amongst all participants whose aim is to define decisions on a sustainable form of land use in rural areas and to initiate the appropriate measures for implementation.***

This basic understanding contains the following definitions:

1. The essential element of land use planning is the dialogue amongst all participants to reach decisions based on consensus. A major assignment of land use planning is to accompany and motivate the participants and those affected in order to attain a conciliation of interests on nature, type and extent of land use.

2. The dialogue-orientated learning and voting process amongst participants leads to the development of planning capacities and lasting co-operative relations at local levels.

3. Participants in land use planning are direct and indirect land users, as well as those affected by the consequences of usage. Another group is formed by contributors who often have political or economic influence; this includes authorities, organisations, middlemen and women, processing industries for

agricutural products, etc. However, the most important target group of land use planning is made up of the direct the direct land users themselves.

4. Land Use Planning covers all steps in a process extending from procurement of *data* through the processing, analysis, discussion and evaluation of that *data* right up to establishing consensus and making a decision on the form of land use planning to be practised. This includes clarification of the prerequisites for implementing and preparing, and initiating that implementation. However, in the context of technical co-operation, LUP does not normally provide for all planned measures to be carried out in their entirety.

5. "Iteration" means putting the decision-making process into practice and converting it into step-by-step planning adapting to the situation in hand. It is a repeated or recurring process that seeks to approach an optimal solution. New developments and knowledge gained in the course of a planning process are thus incorporated in the process and may require revision and updating.This may result in repetition of steps which have already been taken and can mean renewed data collection, analysis, discussion and decision.

6. Land use planning is first and foremost a process of clarification and understanding between people who together wish to change something and prepare future action systematically. In the process, the components of a plan are worked out cooperatively. At the heart of a planning process there is therefore always a commonly desired objective to be achieved by implementing the plan. Time planning is linked to physical/geographic/ecological planning of areas, and the two are mutually dependent.

7. Rural areas, in contrast to urban areas are less densely populated with low building densities and relatively little centralisation of infrastructure, facilities or services.

8. The nature of land use is considered to be sustainable when it is both socially and environmentally compatible,desired by society, technically viable and when it makes economic sense. This means:

   - *Social justice*
     When considering the effects of planning measures, attention should be paid to the distribution and nature of use. Advantages should be spread in such a way that even socially weak parties should participate fully in the process.

   - *Long-term security of natural resources*
     The system of use should be designed to ensure that the natural basis for living is maintained in the long-term, i.e. the use of resources should correspond to the natural potential. Existing environmental damage should be minimised and damaging developments avoided by supporting and developing suitable approaches.

   - *Acceptance and social compatibility*
     The measures applied are to be desired, accepted, supported and largely carried out by those affected by them. The effects of such measures can only be sustained if they are socially compatible and culturally suitable and if they take into account local knowledge and capacities.

- *Economic efficiency*
  The measures planned should be designed to contribute to the long- term security of the economic basis of the participants. They should be conceived in such a way that they are self-financing and thereby economically justifiable. In this way, they contribute to improving living conditions and to the overall economic development.

- *Viability*
  The planned measures should be guided by the tolerance of the local population in terms of technology, economy and organisation. Decisions are generally guided by local technological culture and locally available resources. Even if large expenses can be considered as investments for the future, the magnitude must be assessed realistically and amortisation should be kept within clear time limits. This applies particularly to major infra-structural measures.

On the basis of the guidelines given in the concepts, eleven principles of Land Use Planning are explained below and converted into suggestions for practical action.

1st Principle **Land use planning is orientated to local conditions in both method and content**

Applied planning often fails because global models and courses of action are applied and transferred automatically and uncritically. But LUP is not a standardised action which is uniform the world over. Its content is determined according to the initial regional or local situation analysis.

2nd Principle **Land Use Planning takes cultural viewpoints into account and builds on local environmental knowledge**

Rural societies or groups can often provide complex indigenous knowledge of the environment. If this is the case, such local knowledge should form the basis for the adaptation, use and development.

3rd Principle **Land Use Planning takes into account traditional strategies for solving problems and conflicts**

Traditional rural societies have their own way of approaching problems and settling conflicts concerning use. In the course of land use planning such mechanisms have to be recognised, understood and taken into account.

4th Principle **Land Use Planning assumes a concept which understands development to be a "bottom-up" process based on self-help and self-responsibility.**

LUP should enable the population to actively participate. The planning and implementation of measures can only be sustainable if plans are made with the people, not behind them or even against them. Planning is therefore not just a matter for specialist experts, but should be carried out together with those affected by it. It is only when those affected make the planning their own that it can become an important element of self-help.

5th Principle **Land Use Planning is a dialogue, thereby creating the prerequisites for a conciliation of interests and co-operation between the key figures.**

The core task of LUP consists of initiating a process of communication and co-

operation which "allows all participants to formulate their interests and objectives in the dialogue". On the basis of "decisions in harmony with each other", a sustainable form of land use is brought about "whereby the aims and interests of other participating groups are taken into account to the greatest possible extent"

An important element of participation-orientated LUP is identifying the various groups of participants and differentiating them in terms of their roles in the use of and access to resources, their position on the social scale (gender approach) and their capacity, either as stakeholders or as contributors in authorities and other organisations.

6th Principle **Land Use Planning is a process leading to an improvement in the capacity of the participants to plan and act.**

The participatory methods used in all planning steps of LUP promote technical and organisational capabilities of all participants, thereby extending their capacity to plan and act. In the medium term, this qualification process leads to an improvement in the capacity of local groups for self-determination.

7th Principle **Land Use Planning requires transparency. Free access to information for all participants is therefore a prerequisite.**

Transparency in planning and, the extent to which stakeholders are informed, strengthen both their willingness to take part in planning and decision-making and their capacity to do so. It increases motivation for sustained implementation of results. An open exchange of information leads to objective discussion among the key figures and increases the willingness to reach a consensus. The dissemination of information in local languages contributes to improved transparency and strengthening of the trust which the population places on land use planning.

8th Principle **Differentiation of stakeholders and the gender approach are core principles of Land Use Planning**

A prerequisite for realistic land use planning is the differentiated analysis of the various interest groups. The aim is to explore the various interests together with the participants in order to create a basis for the necessary voting and decision-making process. Since men and women often have different access to natural resources, different ways of articulating themselves and different interests arising from the economic and social character of their roles and scope of duties, the role of gender is an important criterion when differentiating stakeholders.

9th Principle **Land Use Planning is interdisciplinary co-operation**

The ecological, economic, technical, financial, social and cultural dimensions of land use make it necessary to take an interdisciplinary approach to work. Land use planning has at its disposal countless interfaces with other technical disciplines and planning fields. It uses a broad spectrum of tools. One-sided *view* of planning is avoided due to the interdisciplinary and inter-sectoral configuration of the planning groups.

10th Principle **Land Use Planning is an iterative process, which means flexibility and openness to reaction to new findings and changing conditions**

LUP involves more than just preparing a planning document, it is an iterative process. Iteration integrates both the principle and the method simultaneously, new developments and findings are observed selectively and consciously incorporated into the planning process. They may lead to decisions being revised and the repetition of steps already taken. This can render superfluous both previous analyses and data bases which had been set up at some expense. Iterative planning requires flexibility in planning, but in no way constitutes a "concealed lack of planning".

11th Principle **Land Use Planning is implementation-orientated**

It makes no sense to have land use planning without considering how the decisions reached and the solutions identified are to be implemented. LUP does not end with the land use plan.

The implementation of limited measures (e.g. the development of cultivation techniques which conserve natural resources) right at the outset, or parallel to LUP, plays an important role in winning the trust of village people in the planning process which is developing.

GTZ Products

The following products related to the subject have been elaborated by GTZ:

- *Land Use Planning - Strategies, Tools and Methods*, GTZ -Publication available in July 1998
- *Land Tenure in Development Co-operation -Guiding Principles*- GTZ-Publication, 1998
- *Tool Box on Land Use Planning*, building up tools and case studies step by step

EDITORIAL REPORT - BOTSWANA
Relevance of the Guidelines to Botswana

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Botswana.

GENERAL EASE OF USE

Is the way in which the manual is presented follow a logical framework?

In general the manual has been presented in a manner that follows a logical framework. Chapter 2 which describes the nature of the problem to be addressed followed by chapter 4 which explains the inadequacies of the old approach to deal with the problem is a strong justification for a new and more effective approach whose elements and sequential steps have been described in the chapters that follow.

While chapter 3 contains essential information dealing with the decision making process, it's link with chapter 4 does not seem to be clear.

Did you find it generally easy to follow and understand?

Generally the manual is easy to follow and understand primarily because of the logical framework adopted in it's presentation. The use of diagrams, boxes, tables etc. has also contributed significantly to the easy understanding of the main text.

Which aspects did you find to be unclear or difficult to follow.

The manual is clear and easy to follow.

What recommendations do you have to improve the manual to make it easy to follow?

No major recommendations.

CONTENT

What aspects of the content seemed most clearly relevant to your country experience?

In general many of the chapters in the draft manual contain aspects that are relevant and applicable in Botswana. For example, the methodology described in chapter 6 of the manual is to a large extent being applied in Botswana with minor variations only.

In Botswana planning can be carried out at three levels (village / extension, district and national level) which are similar to those explained in chapters 7 and 8 of the manual. The major differences are mainly on the details of what should be done at each level.

Were there aspects which seemed irrelevant to your country experience?

Since the land use planning methodology in Botswana cannot be regarded as fully established no aspects of the draft manual can be referred to as irrelevant yet.

What issues did you find completely missing which need to be included?

The final manual could probably be improved by including a section / paragraph that deals with frequency of updating existing land use plans. Land use plans cannot remain relevant indefinitely. They should be reviewed and updated after a certain period in response to new challenges including changes in technology and socio-economic factors.

The manual should also identify and discuss who the users of a land use plan are. This is important to know because the land use plan should take into account and endeavour to satisfy the needs and expectations of the clients who should be identified and discussed in the manual.

What issues need further explanation or clarification?

In chapter 6 the manual focuses on the methodology for land use planning including land evaluation and appraisal of options (page 89). It is not clear how the financial performance of the competing uses will be measured when qualitative land evaluation is adopted. The assumption here is that quantitative land evaluation will produce predicted yields which can be used for calculations in the financial analysis while the qualitative land evaluation method gives no figures.

What needs additions, changes, or deletions need to be made to make this manual more realistic and practical?

In chapter 1 page 1 there is a statement which indicates that 'The new approach is centred on the concept of stakeholders and their objectives..." However, in chapter 5 pages 45-46 there is section focusing on stakeholders which needs to be expanded . The analysis of stakeholders seems to concentrate on Government and the farmers only. The manual should attempt to:

- identify more categories of stakeholders,
- discuss their objectives.

An in depth analysis of stakeholder categories would underscore the importance of identifying and involving them in planning for better management of land resources.
In general the manual is well written and needs no major corrections.

EDITORIAL REPORT - KENYA
Focusing on Policy and Law Aspects

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GENERAL COMMENTS

This guidelines make very good and easy reading. The presentation is certainly logical even if repetition becomes inevitable after chapter 6. As text-book presentation of the necessary steps that ought to be followed in the design of land use management plans from the national down to the village level, I believe the guidelines will be very useful.

There are perhaps only two presentation problems which require further thought. The relate to chapter 7 through 9; and the second to Appendices 1 and 2 Granted that chapter 7 and 8 are intended to apply the methodology set out in chapter 6, the repetitive nature of sequencing in these chapters remains uncomfortable. Perhaps this could be minimised by merging material in these chapters with that in chapters with that in chapter 9. The result would be that discussion shift to how the new approach (read "methodology") should be introduced at the "national" and village levels. This obviously would make it a very long chapter but I believe a more logical presented one.

Appendices I and discuss tenure and the legal framework for land use planning. Presumable, these are meant to provide the philosophical back-drop against which chapters 1-9 are to be read. Two questions arise. First, are these two parameters the only ones we need to draw attention to? Should we not say more about the institutional (as distinct from simply the regulatory) framework within which land use planning and management decisions occur - both formal and informal? Second if tenure and law are that crucial, should we not discuss them in the main body of the guidelines perhaps after chapter 2?

SPECIFIC COMMENTS

What follows is chapter commentary on the contents of the guidelines.

1. Chapter 1: Introduction

This chapter provides a succinct lead into the objective and needs which the guidelines seek to satisfy. Because the target group to which they are directed are identified as "professional and technical practitioners of land use planning and land resource management", the guidelines are presented more in the form of "advisory notes", than a "code book". That is not necessarily bad!

2. Chapter 2: The Challenge

This chapter identifies the primary challenge facing mankind in the natural resource field as one of

stewardship rather than exploitation. That is in accord with the contemporary paradigm shift in the field of environmental governance since the Stockholm Conference in 1972. Although the success or failure of efforts to meet that challenge will depend on what we do about human population and technology, not enough insight is given on these variables in the chapter. This chapter needs to say a little more about these variables. What policies and strategies should we adopt in an attempt to manage population growth in the next century? And how are we certain that the destructive force of technology (so well documented since the industrial revolution) will be avoided?

3. **Chapter 3: LRM Decisions**

The guidelines are supposed to emphasise both the top-down and bottom-up approaches to planning and management. This chapter, like those after it, does not really provide that synergy. The role of government in LRM decisions appears overstated. It is important to indicate how, and with what consequences, national (i.e. top-down) policies are reinterpreted at meso and local levels before implementation items of concrete plans.

4. **Chapter 4: Need for New approach**

Perhaps the main issue here is: what is really new about the approach suggested here? The chapters identifies some of the reasons for past failures in development planning very well (see Box 7). Then it opposes a user-based approach operating within a framework of explicitly stated national land and land use policy. If that is what is "new" then we should define (or at least describe) what constitutes (or counts as) policy. Are we referring to a single published national policy framework (as in Tanzania) sectoral policy formulations (as in Kenya), or ad hoc policy pronouncements directed at particular problems (as in Malawi)? Should that policy be part of an overall ideology of development? Should there be different policies at the national, meso or local levels.

5. **Chapter 5: Essential Elements of ILUP**

Although this chapter recognises that ILUP is always demand driven, what comes out are demands emanating more from the top than from the bottom. Perhaps the reason is that the land user as a stakeholder is cast essentially in the role of a source for land use data. A more positive image is required here. However, technically optimal the land use plan may be, its implementation and outcomes will depend ultimately on what that user thinks of or does with it! Further, the chapter leans rather too heavily on the side of rigidly ("legally" as used here) defined institutions. This is neither necessary not always possible. Local land management groups are more likely to be informal and socially or culturally defined than to be statutory creations. At the national level, or course, a statutory creation will be necessary perhaps along the Botswana than Namibia model. But even at this level a rigid mandate may be useful except perhaps at the conflict resolution level.

6. **Chapter 6: Methodology**

The eight steps listed in Figure 9 appear sound and logical. The only question is whether steps one and two ought not to be inter-changed. In other words, should we not identify the need or define the problem before investigating whose need problem it is?

7. **Chapter 7: LRM at the Village level**

Because this is the level which ultimately matters, care should be taken in defining the LRMG. I find no satisfactory definition of the village and consequently of the LRMG. Should it be anthropologically delineated or would any legal construct suffice (e.g. Ujamaa Villages in Tanzania)? For operational purposes it may be important o indicate how a village however defined can generate their plans using the methodology set out in Chapter 6.

8. **Chapter 8: LUP at the National Level**

It is important to emphasise that the National level plan can be only be indicative. For that reason one expects broad principles which can then be more concretely define at the meso and local levels; each lower level being more detailed and "codelike" than the previous one. There is only one context of sectoral or ecological planning. Otherwise there could be an unnecessary proliferation of bureaucracies.

9. **Chapter 9: Introducing the approach**

A phased approach to ILUP appears sensible especially if preceded by capacity building and education - that is once a national policy has been defined or clarified. As regards the location of the national institution, an independent Land Use Commission reporting to the legislative organ of the state through one of its Committees appears preferable.

10. **Appendix 1: Tenure**

As I have already indicated, consideration should be given as whether the material here should not be integrated into the guidelines. That notwithstanding, I have reservations about the following issues:

(i) the assumption that private ownership is the quintessential tenure system capable of guaranteeing "security" and generating incentives;

(ii) the clear bias towards statutory regimes in the definition of tenure systems.;

(iii) the misleading and incorrect classification of state ownership to include land;

(iv) communal and individually held; and

(v) generalisations, mostly uncritical, of the supposed incidents state communal and individual tenure regimes.

If the guidelines are going to be useful, it must come to terms with the fact that in many parts of the World, individual tenure is not the accepted mode of proprietary control and management of land. Attention should therefore be directed at modalities of making ILUP possible in these jurisdictions.

11. **Appendix 2: Legal and Regulatory Framework**

Several issues need clarification in the Appendix. First, the guidelines should approach law as a system of norms, institutions and processes reflecting agreed policies at nation, meso and local levels. Second law, as used should include socially binding norms in addition to statutory instruments generated at national, meso or local levels.

Indeed at the local level only socially binding may have efficacy even if, as the Appendix recommends, LRMG are "legally" established and "authorised to enact laws appropriate to the local situation". Third , national property and land use legislation should target only those normative and policy issues that are genetic and national in chapter. In appropriate circumstances such laws should and must prescribe different standards where this makes ecological or cultural sense. Where a constitutional stipulation is considered necessary, this should be confined essentially to issue of radical title, territorial distribution of land resources, eminent domain and the police power. Forth, I do not believe that there is such a thing as "international land use law" what there is - as embodied in the post -Rio Conventions (CBD, CDD and CCC) and earlier instruments are framework for international environmental governance. Clearly those conventions/treaties/agreements are not of the same genre as national land use legislation. In any case should therefore either be deleted or relegated to a footnote.

EDITORIAL REPORT - LESOTHO
Integrated and Community LUP in Lesotho

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INTRODUCTION

The draft guidelines document which is submitted for improvement and review before the workshop seemed to be clear and straight forward, and also follows a logical framework in land use planning process. It is easy to follow and could be readily usable in most of the developing countries where we are facing severe land degradation, depletion of natural resources, declining production in all its spheres and Increasing demographic pressure while our natural resources are finite. There is an utmost need to have rational approach or intervention to strike the balance on the environmental management, for future substance on land resources base.

The executive summary, as well as the first four chapters serve as an Introduction, and the basis for significant adoption of integrated land use planning approach. The first chapters relate on people's dependence and their interaction with land resources. And due to various people ever increasing demands our resources are depleted, and this ultimately results into a vicious cycle that will lead to a crisis in the future of us not being in position of sustaining ourselves.

They also introduce us to land use decisions which have to be followed to integrate the communities perceptions, solutions and problems in planning; so as to avoid problems and failures that were experienced in the previous approaches.

The last chapters (5-9) deal directly with Integrated land use planning approach at various levels, with regard to existing social frameworks and guiding policies that have to be followed in the planning process. The draft manual is easy to follow and understand with the exception of few topics/points which will be highlighted later in the report; as part of comments in relation to Lesotho's community land use planning approach.

INTEGRATED LAND USE PLANNING/COMMUNITY LAND USE PLANNING

The draft guidelines document has many aspects similar to those of the community land use planning approach which is used in Lesotho since 1981. Lesotho has its own unique problems and opportunities in natural resource management, which compel it to involve the local people in decision making and formulation of the community-based land use plans; such as the rugged topography, harsh climate and socio-economic parameters. And also, its community-based land administrative system provides an unusual opportunity to plan and manage its natural resources with a high degree of popular involvement. This is done to strengthen the confidence and capacity of the local leadership, and to re-awaken the awareness at community level that natural resource management must be and can be effected at that level, upwards to the national/global level.

Overview of the Planning Process

In very generalised terms the planning process is as follows:-

Preparations -getting started

Defining goals

Defining the present situation
Physical environment.
The social, Institutional and economic environment,

Defining and analysing problems and potentials.

Formulating plan alternatives

Finalising, documentation and approval

Implementation and follow-up

As derived from 'Lesotho community land use planning manual'

The aforementioned planning process, in detail, is appended in this report as 'step by step land use planning process' whereby the local communities are made aware of their deteriorating environment and natural resources, through meetings. Then a planning area is chosen and delineated, for planning purposes; followed by conducting all the relevant surveys for the entire area in order to get the land potentials to the plan and its implantation.

The local communities are then called for a headmen village workshop, where they discuss their problems, solutions and opportunities in small groups. Important planning issues are highlighted. Participants are challenged to move from discussion of their interest towards action, by forming common Interest groups, with a spokesman to act as their link. Together, the plans of the common interest groups constitute the village development plan. The other workshop (community workshop) is conducted, whose participants are the community representatives from various organisations and institutions, with the sole purpose of encouraging the community members to discuss and direct the planning and implementation approach. This is normally, finalised during the 'on-the-spot planning' process where the same participants are asked to make a walk about throughout the area with government officials to determine the various recommended land uses on different land units, depending on the land suitability/capability.

Then, final documentation of the plan is done, which is normally supported by detailed sector plan preparations from various Government Ministries/Departments. Approval of the broad land use plan is done at the community level, district level, to ensure government staff commitment in providing technical assistance to the communities. And lastly, approval is done by Land Use Planning Division Headquarters. Implementation, monitoring and evaluation are done, together, by government officials and the communities.

Page 67 reveals different levels of planning in Lesotho, and the purposes of conducting them.

General Comments on the Draft Manual

- The concept of holistic approach in planning was not clearly spelled out, that is, integrating all the three economic sectors at the community and national levels. Those sectors are: agriculture, industry and services sectors. By integration of these sectors during our planning process, the national policies could easily be translated into operational terms applicable to a region to be planned. Plans for increasing agricultural production rely not only on the choice of the most suitable and sustainable Land use, but also on the creation of the service facilities and industrial installation, as well as on the growth of urban makers and transportation networks. [p. 20]
- The draft guidelines document suggests the presence of the Agricultural Resources Board to ensure enforcement of land laws and policies designed to conserve or properly manage land resources, especially those which could link up with locally formulated land use plans. This we advocate, since we do not have such co-ordinating boards or any legally independent body or office charged with the responsibility of enforcing the laws or co-ordinating the local and national levels.
- In the Agricultural Resources Board, representatives of important NGO's should be included, even at the local level where we have the local management resource groups.
- The draft document does not have the fora like workshops, where the local communities can use as their platforms for negotiations.
- The draft document, in its levels of planning (chapter 6); as compared to Lesotho community land use planning, it does not have 'on-the-spot planning' level, as well as agricultural sector planning, since we are only dealing with agricultural sector.
- The National Co-ordinating body/working group should not be at the office of the president/prime minister, or under parliamentary committee, to avoid politicisation of the entire planning process. It would rather be under the neutral ministry or an independent land commission.
- Land tenure/security of tenure is problematic in developing countries with regard to integrated land use planning process, and also there are problems of land fragmentation (smaller parcels of land scattered all over the place, this disrupts the proper mapping of land units, or determination of land utilisation types.

Issues that Need Clarification/Explanation

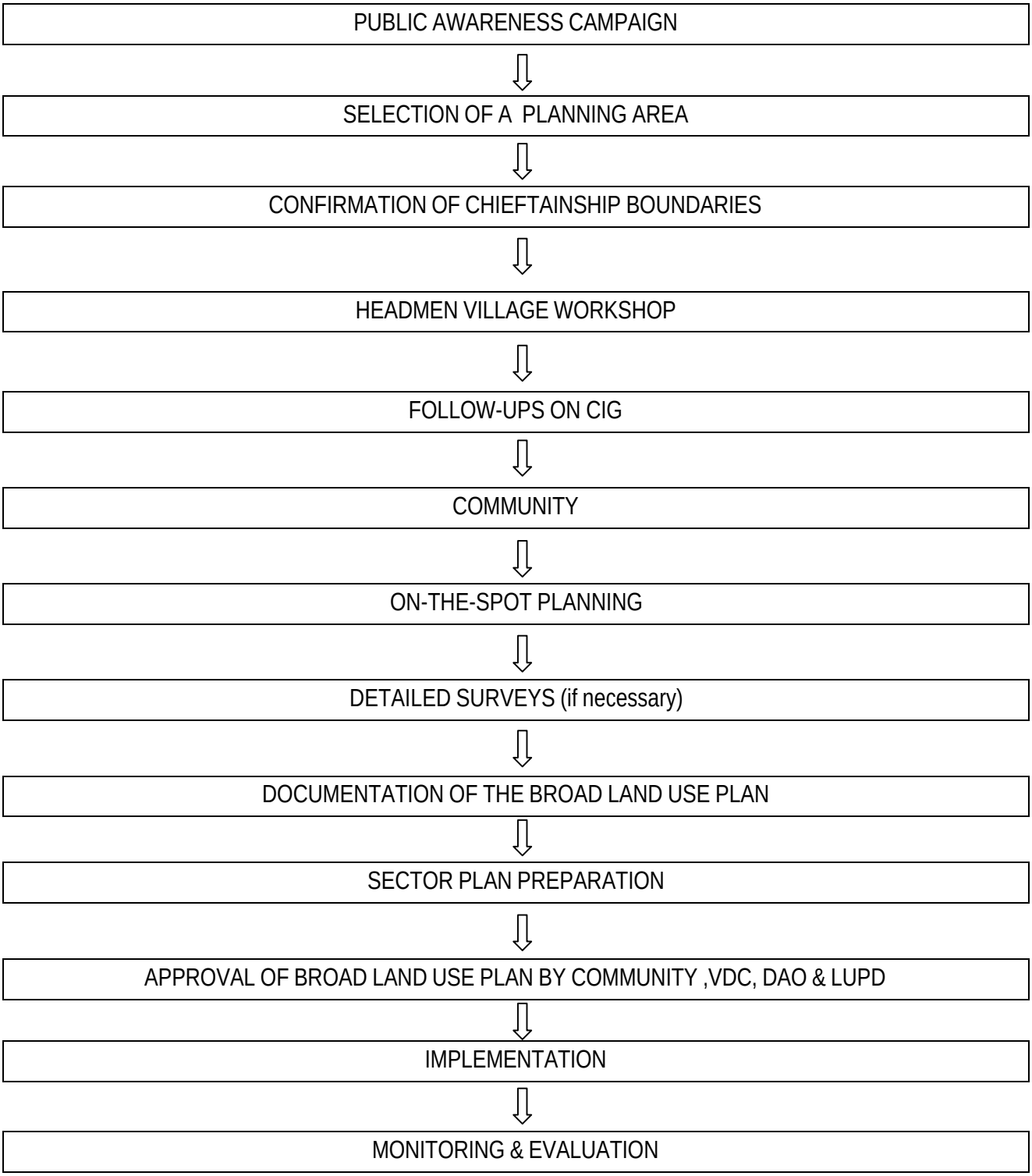
P 88
under preliminary identification and screening of options. e.g. example of results of quantitative land evaluation based on modelling (How is it used in ILUP?).

P 94
goals achievement matrix : An example from Dedza district, Malawi

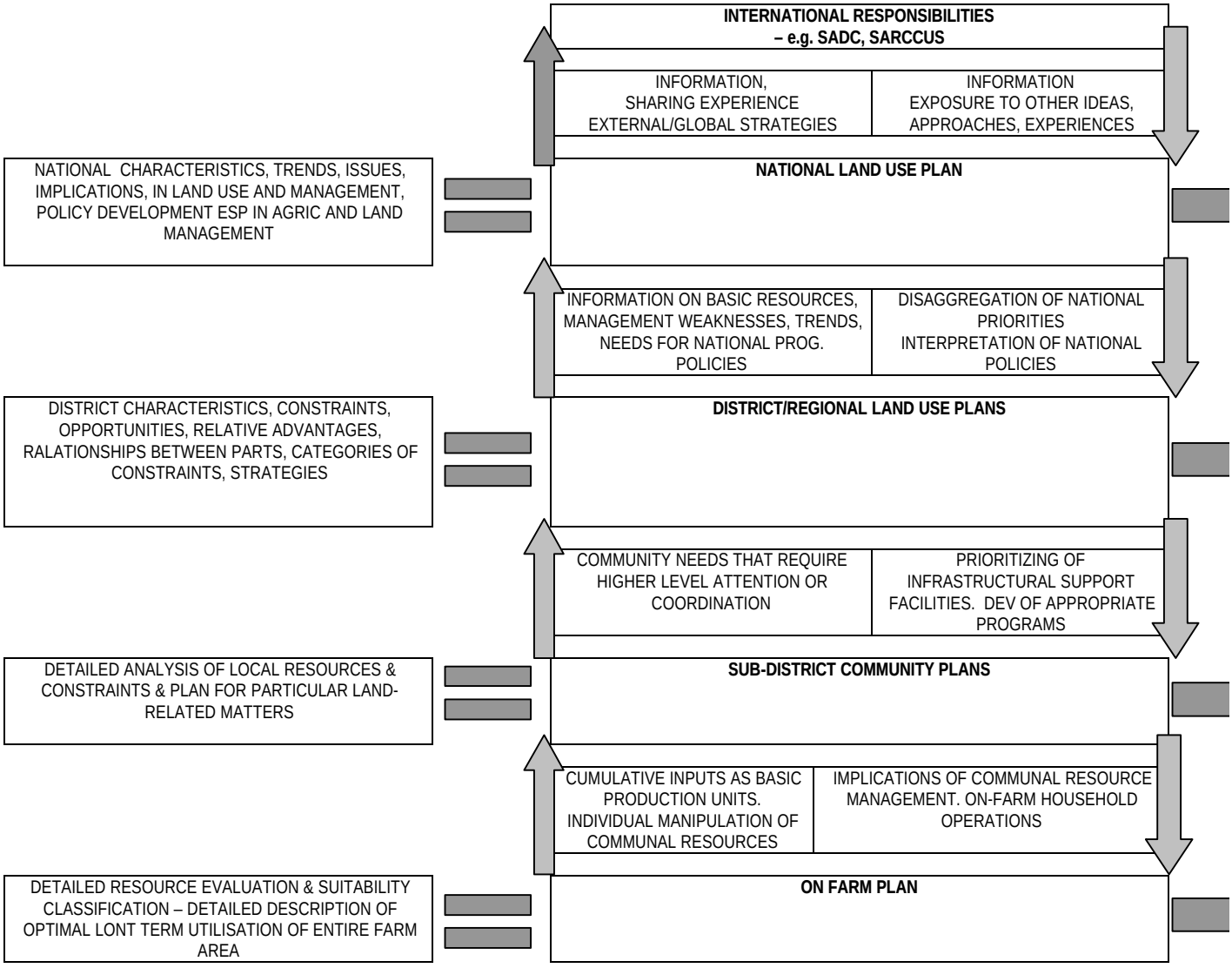
P 95
Multiple objective optimisation using aspiration - Led Decision support. An example from Bungoma District, Kenya.

P 102
(RRA/PRA) Figure 17: An example of RRA Transect of Rehamabad Terraces is not indicated as well as figure 18, example of agricultural and rainfall data collected by RRA. And figure 20 P125. Kenya land suitability for.....

STEP BY STEP LAND USE PLANNING PROCESS



LEVELS OF LAND USE PLANNING IN LESOTHO



EDITORIAL REPORT - MOZAMBIQUE
Relevance of the Guidelines to Mozambique

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GENERAL EASE OF USE

Does the way in which the manual is presented follow a logical framework?

In general the way in which the manual is presented follows a logical framework. However, the chapters 7, 8 and 9 seem to be part of the methodology (chapter 6). Chapters 2, 3 and 4 appear to be too long, being introductory chapters.

Did you find it generally easy to follow and understand?

The language used allows one to follow and understand, but the train of thoughts is easily lost due to:

- the big size of the chapters (especially the first four chapters),
- the language style (with many redundancies, eg page 30) and
- the text not being short and direct.

In order to easily get a clear picture from the manual, one needs to read it several times.

Which aspects did you find to be unclear or difficult to follow?

The sequence and structure of the different boxes throughout the manual are not easy to follow. Some display examples or case studies while others highlight the fundamental points discussed in the text. While the latter have the advantage of saving time for those who are mainly interested in fundamental points, the others point out a particular example to elucidate the issues under discussion in the text.

The criteria based upon to chose either to display an example box or the summary one is not clear. This may result in incomplete picture both for those looking for fundamental points and those looking for examples. With too many examples in text boxes, the reader is distracted and often looses the general line: He encounters a reference to a text box; finds the text box; reads it; reflects about the example and wants to continue reading at the place where the reference was encountered, having by then lost the context.

What recommendations do you have to improve the manual to make it easy to use?

The chapters 2, 3 and 4 should be shorter or alternatively include a brief summary in order to allow a quick and effective impression of the main points in each chapter.

The table of contents should have two to three levels, all numbered. A hard separator between different chapters would make it easier to locate them.

There should be a list of boxes to make them easier to locate.

The header should depict the chapter title

The most important examples which are now displayed in text boxes, should be incorporated in the text. Others could be discarded or put in a separate sub-chapter. Sayings (e.g. text box 41) could be put at the beginning of a chapter.

The subtitle of the manual: "the key to sustainable land reseource… " is very pretentious, a more modest one could read as "towards a sustainable land resource… ".

CONTENT

Clearly relevant aspects to Mozambique

Chapter 4 highlights very well the Mozambican situation, lacking an integrated approach in Land Use Planning.

Our experience shows that "imposed" projects by donors do not drag enough ownership and do not fine-tune accordingly with local expertise, and therefore are unsustainable. Centralized planning of e.g. communal villages, without involvement of local people, resulted in similar situations.

Conflicting interests between commercial farmers and traditional communities are becoming increasingly important issues.

So far, in Mozambique only the agricultural sector was able, very recently, to carry out a land use planning exercise at district (Xai-Xai and Mocuba) and community (Gondola) levels (eg. Nyamuno et. al.., 1995), being pilot studies and part of the preparation of the National Agricultural Programme.

From these exercises it became clear that the proposed land use plan for agricultural activities as a stand-alone sector, is prone to potential frictions with the coming land use plans from other sectors (e.g. energy and mining; tourism). An ILUP seems to be critical to minimise frictions between different sectors.

Another relevant aspect is the creation of an enabling environment (in chapter 9). As for Mozambique the parliament and other Mozambican institutions are reviewing policies and legislative aspects.

Aspects that need further explanation or clarification

Education: especially at community level, there is a great need to create awareness.

Many people live on the survival rim; they are mostly interested in solving their particular problems of this very day, without having time to think in regional terms. This is also related with the educational level. People in such conditions may not be expected to participate at equal level as e.g. representatives of private enterprises. Then, the "I" of ILUP will not be much more than a nice looking varnish.

It's not clear, who in the process of ILUP will act as facilitator(s). What will be his responsibilities? The way the process is described in the manual, it almost seems to be something that will occur spontaneously.

The manual focuses too strongly on agricultural use and wildlife.

ILUP is taken as a static process.

- Will there be no changes of land uses in the course of time?
- How conflict resolution will be carried out? Won't there be losers?
- Will the present commercial and the smallholder farmers continue the same?
- Rationalisation of the agricultural sector will definitely spare people, resulting in unemployment. How the "static" ILUP will solve this problem? Provision of agro-industries?

The ILUP exercise, although being time consuming is probably cost effective in the long run. Its adoption seems to be a good choice. Is it financially auto-supportable by a country like Mozambique? Will the final LUP be still relevant a decade from now knowing that the condition of land and its use will change in the course of time?

It is stated in the manual (page 128) that "obtaining popular support for the programme is more important than speed in making the necessary changes." Indeed, pilot plans in Mozambique suffered several delays. However, financing agencies, today more than ever, are interested in timely outputs. How to cope with this inherent conflict?

EXPERIENCES AND CASE STUDIES

Programme title
National family sector agricultural development programme (pre-programme)

Project
Land use planning in Mozambique (Xai-Xai case study).

Responsible organization
Ministry of agriculture and fisheries

In relation to the manual, in general the exercise covers especially the methodology plus chapters 7 and 8.

Overall objective
To develop a basic methodology for the elaboration of a National Land Use Plan.

Process of implementation and stakeholders involved

A draft methodology was tested as a case study. The exercise was executed under responsibility of Provincial Land Use Brigade, which coordinated the participation of stakeholders through consultative meetings. The objective was to involve all stakeholders: provincial governor, district director, administrators, local authorities, etc and the local community. In this regard proper awareness to local community about the exercise was made.

Results and outputs

The direct result was the land use proposal for the Xai-Xai district . The results of the exercise contributed significantly for:

- The elaboration of land use planning proposals
- The elaboration of Land Act (approved 1997).
- The elaboration of the Land Policy
- The elaboration of the Agricultural Land Management Strategy and the respective investment plan (for 5 years).

Lessons learned

Give more emphasis on training national staff and not rely on external expertise.
It should be a multi-sectoral (integrated) LUP.

EDITORIAL REPORT - NAMIBIA
Focusing on Regulation of LUP in Namibia

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GENERAL COMMENTS

I work on the fringe of land use planning, namely in physical data collection and processing, and thus do not feel myself qualified to comment in depth on the main body of the report. I have read through it carefully, and consider it a thorough, well thought-out document.

In general, the document is relatively easy to use, though the volume might be daunting for some readers. Chapter and section headings could perhaps be more descriptive, for improved ease in finding something specific from the contents pages,

Some issues are repeated in several chapters. Although I understand that it is done to highlight issues at different levels, I think that some rationalisation could be in order.

p38
Technical assistance often lack a thorough training component. National staff assigned to technical assistance project usually have to continue with their normal work and have difficulty in spending enough time on the TA project and in discussion with the advisors. This problem is not readily perceived by management.

p 54
High level body: must have statutory powers and members must be obliged to attend meetings. Could be useful to let one technical specialist (without voting power) accompany each decision maker from every relevant ministry or department.
Technical specialist should meet regularly and have small secretariat.

p77
FAO Soil Database is too inflexible for general application. Without the source codes users cannot make changes to suit their own needs.
I have not yet seen LUD.
ECOCROP1 is too general. It should have some indications of yield levels.

I have summarized the way land use planning is regulated in Namibia, with reference to the institutional set-up at national level, the Land Use and Environmental Board Bill, and the Environmental Management Bill. This list is not exhaustive, and I may have left out important role players.

INSTITUTIONAL FRAMEWORK

The National Planning Commission co-ordinates all development planning in Namibia and acts as the link between donor organizations and development programmes.

The Subdivision Regional Planning of the NPC is responsible for an overall framework to assist regional planning activities and to evaluate regional development programmes. It prepares financial analysis of capital projects presented by the Regions.

The Ministry of Lands, Resettlement and Rehabilitation (MLRR) has the mandate to carry out land use planning. Their capacity is limited, but has improved considerably during the last four years.

Several *line-Ministries* are involved in sectoral land use planning, but recently the emphasis has shifted considerably towards integrated, multi-sectoral land use planning, steered by MLRR. MLRR had started a process of integrated land use plan production in Kunene region, which will be completed around May 1998. MLRR assumed the role of co-ordinator between other ministries, to avoid duplication of functions.

Ministry of Agriculture, Water and Rural Development (MAWRD) used to do commercial farm planning. Through the Agro-ecological Zoning Programme, the Ministry is now involved in collection, processing and dissemination of information on all natural resources with an influence on agriculture. Through the Farming Systems Research Unit, the Ministry is involved in studying communal farming systems. The SARDEP (Sustainable Animal and Rangeland Development Programme) and NOLIDEP (Northern Livestock Improvement Development Programme) programmes lean towards practical land use planning on community level, with strong emphasis on participation of the community. The Directorate of Planning prepares agricultural policies, programs and projects, co-ordinates and monitors agricultural development projects.

Ministry of Works, Transport and Communication (MWTC) is *inter alia* responsible for planning and designing the transport infrastructure of Namibia.

Ministry of Mines and Energy (MME) inter alia administers mining, prospecting and mineral rights by issuing licenses. They work in close co-operation with MAWRD, MET and the Ministry of Finance,

Ministry of Environment and Tourism (MET) is *inter alia* involved in compiling environmental profiles for the Regions (Caprivi completed, next are Omusati, Ohangwene, Oshona, Otjikoto).

Ministry of Regional and Local Govemment and Housing (MRLGH) is *inter alia* responsible for co-ordinating and regularizing development planning in the 13 Regions.

LUEB
The Land Use and Environmental Board is responsible for initiating, co-ordinating and regulating land use and development planning at national, regional and local levels.

NAMPAB
The Namibian Planning and Advisory Board, consisting of various Ministries at Permanent Secretary level, as well as representatives from the Municipal Association and NamPower, advises the Minister of Regional and Local Government and Housing on matters related to the preparation and implementation of regional and town planning schemes.

IMSCLUP
The Inter-Ministerial Standing Committee for Land Use Planning, now defunct, served as an interim measure for co-ordinating land use planning in Namibia, until a formal national land use planning co-ordinating body (LUEB) could be established. It provided a forum where various Ministries could present and discuss their

specific projects and plans to ensure optimum co-ordination, and could exchange information to promote networking and reduce duplication.

When the LUEB Bill is promulgated, IMSCLUP will be revived as IMSCLUP-Rural and IMSCLUP-Urban, with somewhat different composition, objectives and legal status.

Land Reform Advisory Commission
This Commission has the mandate to review the suitability of commercial farms offered for sale, for resettlement of disadvantaged Namibians.

Environmental Commissioner
The Environmental Commissioner will be responsible for implementation of the Environmental Act, and scrutinizing of projects to determine whether they require environmental impact assessments.

Ombudsman and High Court
One of the functions of the Ombudsman has been mentioned in the report. The High Court of Namibia has the right to overrule decisions by planning authorities.

LAND USE AND ENVIRONMENTAL BOARD ESTABLISHMENT BILL (First Draft, 4th version)

(NB!! Please note that my source is the FIRST DRAFT of the Bill. The content might change drastically in future!!)

This Bill makes provision for the establishment of a Board (LUEB) to initiate, co-ordinate and regulate land use and development planning at national, regional and local levels.

General principles

All land use planning and land development decisions and practices in Namibia shall be subject to the following *general principles:*

- the principles enunciated in the Namibian Constitution, national land policies and a commitment to redress the social and economic imbalances in Namibian society;
- the co-ordination of urban and rural land use planning and land development by ensuring that effective institutional connections are made with all Ministries and planning authorities;
- ensuring efficient and integrated land uses and land development through
    - promoting sustainable development by, inter alia ensuring that environmental assessments are conducted in terms of applicable law as part of the planning process;
    - promoting the integration of the social, economic, institutional and physical aspects of land use planning and land development;
    - promoting integrated land uses and land development in rural and urban areas in support of each other; and
    - promoting a diverse combination of land uses;
- the promotion of sustainable development by ensuring account is taken of environmental factors, and in particular by requiring the application of environmental assessments in terms of applicable law;

- a the active participation of affected communities in land use planning and land development; and
- the promotion of security of tenure, providing for the widest possible range of tenure alternatives, including individual and communal tenure.

These general principles will apply throughout Namibia, to actions of the State and all other planning authorities.

Disputes

In case of a *dispute,* a planning authority may first call for mediation. If that fails, the planning authority shall conduct a hearing. Decisions reached at such a hearing will be binding upon the parties affected, including the State or any regional or local authority. These hearings shall be open to the public and any person entitled to appear at the healing may be represented by any other person.

A planning authority shall upon request (by LUEB) provide written reasons for any decision reached by it.

A decision by a planning authority shall be subject to review by the High Court of Namibia.

Functions and powers

The functions and powers of the Land Use and Environmental Board (LUEB) are to -

- ensure that land use planning and land development is promoted, co-ordinated and integrated on a national and regional basis in both rural and urban areas;
- promote sustainable development through ensuring that account is taken of the environment by the State and any planning authority;
- promote the fullest possible participation of affected and interested parties in land use planning and land development.,
- establish planning committees, including subordinate inter-ministerial committees in respect of
  - land use planning in urban areas; and
  - land use planning in rural areas;

  and delegate certain functions and powers to them..
- determine appears referred to it by planning authorities concerning land use planning and land development, including environmental assessments.
- advise the President generally or in respect of any particular case in relation to the formulation or implementation of national policy on land use planning and land development as well as the amendment or application of the provisions of this Act or any other law relating to land use planning or land development;
- carry out such functions and exercise such powers as are specifically delegated to it by the President;
- perform any act which may contribute towards the achievement of the objects of the Board.

The Board shall take *decisions, or advise the President,* as the case may be concerning land use planning and land development, and more specifically *on the following matters:*

- the appropriate scope of land use planning, including the relationship between spatial and non-spatial planning;
- the appropriate levels at which land use planning should be carried out, the kind of land use planning to be done at each level and the co-ordination between different Ministries, levels of government and other planning authorities;
- the appropriate documentation or instruments to be used for land use planning at each level of government;
- the appropriate emphasis that should be placed upon development, including land development, for the benefit of low income and historically disadvantaged communities;
- the appropriate methods of monitoring compliance with the general principles set out above and the setting and achievement of objectives for land use planning and land development;
- the appropriate levels and methods of public participation in land use planning and land development;
- the integration of environmental protection with planning at all levels of government; and
- any other matter specified by the President by notice in the Gazette.

The Board may do *research,* institute an *inquiry or collect information* (or let these activities be done) in connection with *any matter which has* or is likely to have *an effect on the physical development of any area in Namibia,* including:

- the physical, social and economic characteristics of the area (and any neighbouring area);
- the distribution, increase, movement and the urbanisation of the population in that area;
- the natural and other resources and the economic development potential of that area;
- the existing and planned infrastructure, such as water, electricity, communications network and transport systems in that area.
- the general land utilisation pattern; and
- the sensitivity of the natural environment.

The Board, in consultation with the National Planning Commission and the appropriate planning authorities, may arrange for the *preparation of a national development plan, regional development plans, regional structure plans and urban structure plans.* The objectives of these *development plans are to promote orderly physical development of areas to the benefit of all their inhabitants, by reference to land use, land development and environmental protection.*

The procedures to be followed for preparation of these development plans, are as follows:

- A planning committee will be formed.
- Interested persons will be invited, by notice in the Gazette, to submit written proposals for inclusion in the draft plan, to the planning committee.
- The planning committee will consider these proposals, carry out an investigation, consult any Ministry, regional or local authority or person, as it may deem necessary.
- The planning committee will prepare a draft plan and submit it to the Board.
- The Board will make the draft plan available for inspection by interested persons.
- The Board will consider any comments submitted by interested persons and, if deemed necessary, carry out (or commission) further investigations and consultations. These tasks may be delegated to ad hoc investigating committee.

- Once a development plan had been approved by the Board, its commencement will be announced in the Gazette.
- Interested persons may apply in writing to the Board for amendment of a development plan.
- The Board may amend such plan either directly or after again following the whole procedure set out above.
- Development plans shall be reviewed at regular intervals.

Composition of the Board, Technical Committees

The Land Use and Environmental Board shall consist of the Director-General of the National Planning Commission, who shall also be the Chairperson of the Board; the Permanent Secretaries of 9 Ministries /10 Departments (MLRR, MRLGH, MET, MAWRD (DARD, DWA), MWTC, MFMR, MME, MTI, MoF); one representative each of the Association of Local Authorities, the Association of Regional Authorities, the Council of Traditional Leaders, the National Development Corporation; two representatives of an association of non-governmental organisations (one active in urban and the other in rural land use planning and land development issues), two persons, appointed by the President, the chairpersons of the subordinate inter-ministerial committees in respect of land use planning in urban and rural areas respectively (non-voting, ex-officio) and the Environmental Commissioner (non-voting, ex-officio).

Inter-Ministerial Standing Committees on Land Use Planning in respect of land use planning in rural areas (' Rural planning committee' / IMSCLUP-Rural) and urban areas (' Urban planning committee' / IMSCLUP-Urban), will be established to carry out functions delegated to them by the Board. These committees will each consist of 8 senior technical personnel at director level, from relevant ministries, and the Environmental Commissioner. The chairperson of the Rural planning committee will serve on the Urban planning committee, and vice versa, to strengthen co-ordination between the committees.

The Board and two Inter-Ministerial Standing Committees may appoint additional committees and technical sub-committees, respectively, for specific functions.

ENVIRONMENTAL MANAGEMENT BILL (Fifth Draft)

(NB!! Please note that my source is the FIFTH DRAFT of the Bill. The content might change drastically in future!!)

This Bill makes provision for establishing general principles for the management of the environment and natural resources, promotion of co-ordinated and integrated management of the environment, giving statutory effect to Namibia's Environmental Assessment Policy, enabling the Minister of Environment and Tourism to give effect to Namibia's obligations under international environmental conventions and establishing a Sustainable Development Commission and Environmental Commissioner.

General principles

In planning and implementing acts likely to have a significant effect on the Namibian environment, including its biodiversity, Government Institutions and private persons shall apply the following principles:

- renewable resources shall be utilised on a sustainable basis for the benefit of current and future generations of Namibians;
- community involvement in natural resource management and sharing in the benefits arising therefrom shall be promoted and facilitated;
- public participation in decision-making affecting the environment shall be promoted;
- fair and equitable access to natural resources shall be promoted ;
- equitable access to sufficient water of acceptable quality and adequate sanitation shall be promoted and the water needs of ecological systems shall be fulfilled to ensure the sustainability of such systems;
- the precautionary principle and the principle of preventive action shall be applied;
- there shall be prior environmental assessment of projects and proposals which may significantly affect the environment or use of natural resources as provided for in Part 4 below and other legislation;
- sustainable development shall be promoted in land-use planning;
- Namibia's movable and immovable cultural and natural heritage including its biological diversity shall be protected and respected for the benefit of current and future generations;
- generators of waste and polluting substances shall adopt the best practicable environmental option to reduce such generation at source;
- the polluter pays principle shall be applied;
- reduction, re-use and recycling shall be promoted;
- there shall be no importation of nuclear, hazardous or toxic waste into Namibia.

Provision is made for the appointment of a *Sustainable Development Commission,* composed of representatives from relevant Ministries (MET, MME, MAWRD, MFMR, MLRGH, MLRR, MWTC), the National Planning Commission, the mining industry (Chamber of Mines nominee), the commercial and industrial sector (Namibia National Chamber of Commerce and Industry nominee), town and regional planners (Institute for Town and Regional Planners nominee), environmental non-governmental organizations (three Namibian Non-Governmental Organizations Forum nominees) and two people appointed by the Minister. The Environmental Commissioner will be an ex-officio member of the Commission.

The functions of the Sustainable Development Commission are discussed in detail in the Bill. Those with a direct impact on land use planning, are:

- reviewing Environmental Assessment Reports and issuing or refusing toissue environmental clearances in respect of projects;
- making recommendations in respect of conditions to be imposed in respect of the implementation of projects;
- investigating complaints regarding acts or omissions affecting Namibia's environment, and referring the matter to the Ombudsman or Prosecutor General or recommending other appropriate steps to the Minister or other relevant Government Institution.

Provision is made for the appointment of an *Environmental Commissioner* He will basically be the executing agent of the Sustainable Development Commission. Some of his functions are to determine the form, scope and content of environmental assessments, review the contents of Environmental assessment reports, and advise the Commission on the granting of or refusal to grant environmental clearances.

The Bill establishes the circumstances requiring environmental assessments, the objectives and obligations of these assessments and the procedures to be followed by the Environmental Commissioner and Sustainable Development Commission, up to issuing of environmental clearances.

Schedule I of the Bill lists the activities requiring environmental assessment. There are sections on construction (e.g. of roads, railways, airfields, communication networks, electricity installations, tourism facilities, drilling of boreholes and construction of dams, weirs, levees, reservoirs etc.) and resource extraction, manipulation and conservation. Of specific interest to land use planning authorities are the fact that environmental assessments are required for:

- The rezoning of land from -
    - residential use to industrial or commercial use;
    - light industrial use to heavy industrial use;
    - agricultural or undetermined use to any other land-use;
    - use for nature conservation or zoned open space to any other land-use;
- Reclamation of land from below or above the high-water mark of the sea or associated inland waters;
- Alteration of natural wetland systems.

INFORMATION

National Level

Information is scattered between Government Ministries, NGO's, developers and private companies (especially consulting engineers). Much is in the public domain and the rest can usually be acquired through data-exchange or agreeing to provide some services (e.g. developing databases and linking them to maps, to the advantage of the data owners). We found that, in general, negotiations at technical level work better than trying to obtain data through official channels.

Several institutions are at present collecting all available data and building up databases linked to geographical information systems. At the Ministry of Agriculture, Water and Rural Development, the AEZ Programme had been doing this for several years, and we have a good set of available data.

Where data are totally lacking, there is reasonably good communication between institutions on who will be collecting what. In general, there is a lot of goodwill to share data and not to duplicate expensive data collection exercises. Usually, when a large survey is planned, the responsible organization hosts a workshop to get inputs from all interested parties. They try to incorporate those suggestions and data needs in their surveys. Usually another meeting is convened at the end of the survey to present results and conclusions.

Regional and Local Level

The distribution of information from national to regional level is not yet very efficient. The main reason for this being the problem of scattered information. The intention of the AEZ Programme is to provide our whole database to extension officers and other interested parties. This will be in the form of databases and maps with very user friendly query interfaces. Where computer equipment is unavailable, maps with detailed legends and additional documentation will be provided.

Commercial farmers can be reached reasonably effectively through the National Agricultural Union, Farmers' Associations, MAWRD extension officers and Farmers' Days / Information Days. The flow of information from farmers to MAWRD are through the same channels, as well as through the Agricultural Boards (Meat Board, Agronomy Board) and Producers' Associations.

Information dissemination to and collection from communal farmers are improving. This is through AWRD extension officers, the Namibia National Farmers Union, Farmers' Days / Information Days, NGO'S, the newly formed FSR unit of MAWRD's Research Division.

The Namibia Broadcasting Corporation has several programs aimed at the farming community on National TV, and the National and Language Radio Services.

I have included remarks on some of the physical and management factors affecting land use potential in Namibia, as these may be more specific to our country than to other southern African countries:

PHYSICAL LAND FACTORS AFFECTING CARRYING CAPACITY AND LAND USE POTENTIAL IN NAMIBIA

In Namibia, the role of climate on the land use potential is largely restricted to rainfall and related precipitation risk.

Rainfall risk

Rainfall risk is very important in semi-arid areas, including most of Namibia. This risk refers to both temporal and spatial variability.

Temporal rainfall variability has to some extent been introduced in the classification of units for the GPZ Map of Namibia where, besides the average length of growing period, also the concept of dependable GP has been introduced. This refers in general to probability levels of 50% (1 year out of 2), 75% (3 years out of 4) or 80% (4 years out of 5). Temporal variability and dependability have been worked out for 52 stations over a recording period of approximately 30-40 years (1951-1991). Several sources in the country have indicated that average rainfall over the past years has dropped by some 20% as compared to the period before 1985. In the case of cattle breeding, a very dry year will result in de-stocking, which needs a few years to recover, while this effect does not apply to arable cropping.

Spatial variability is very important in semi-arid areas and can only be overcome by extending grazing areas. This urges for large commercial farm sizes, the ability of communal farmers to move with their herds/flocks to areas where rain had fallen, an increased number of boreholes and provisions to be made for the production or purchase of fodder.

Nature and length of growing period

Nature and length of GP expresses both the amount and distribution of rainfall over the year in an area. The nature of the GP assesses the continuity of the moisture availability to plants and crops, taking into account both precipitation and soil moisture storage; at the same time it identifies important intermediate water stress

periods. The length of GP, in days, is a good indicator of the time in the year that biomass production, whether a grass or arable crop, can take place without major moisture or temperature constraints. For Namibia there exists a good Growing Period Zones Map at scale 112,000,000, produced by the AEZ-FAO/TCP/NAM 6611 project.

Temperature regime

Little information is available on the impact of temperature on crop growth and biomass production in the country, but it is believed that at national level this factor plays only a minor role in crop differentiation. Simulated data ($r^2 > 0.92$) for minimum and maximum monthly temperatures on a 5' grid exist for the whole country

Soil characteristics

The soil type affects crop growth, including grass growth, through 4 major parameters, namely water- and nutrient supply, rooting conditions and soil aeration. These are expressed by 5 major soil characteristics : *soil texture, profile depth, drainage, soil pH and salinity l sodicity.*

Water availability and quality

It is considered that surface water supply is of little importance in agricultural and grazing land use types in Namibia. Most additional water supply has to come from groundwater. Water use in this context refers to human consumption, irrigation of crops and watering for animals.

The evaluation of *water availability* from depth of the ground water table and yield of borehole is made on the assumption that the deeper the borehole, the higher the drilling and pumping costs. Water yield from the borehole determines the surface and crop which can be irrigated and/or the number of animals which can be watered.

With respect to *water quality* one must distinguish between the quality of drinking water for human consumption on one hand and for irrigation/animal watering.

LAND MANAGEMENT FACTORS AFFECTING CARRYING CAPACITY AND LAND USE POTENTIAL IN NAMIBIA

Those factors refer mainly to technical know-how and costs to overcome constraints related to adverse natural land conditions.

Slope, erosion hazards, stoniness, rock outcrops

Although these can be considered as natural physical land factors, they affect also land management aspects. *Stoniness and rockiness* adversely affect access to land, use of farm mechanical tools, availability of nutrients, root development, and water retention of the soil.

Bush encroachment

Rangeland degradation due to bush encroachment is a major problem in Namibia. All the savannah veld types north of 23°S in Namibia (approximately 17 million ha) are subjected to one or another form of bush encroachment, and it is believed that the phenomenon extends at present over 8 to 12 million ha. The two major problem species for bush encroachment in the country are *Acacia mellifera* (black thorn) in the Thorn Bush Savannah and *Dichrostachys cinerea* (sickle bush) in the Karstveld.

Bush encroachment has a double adverse effect on grassland production in the sense that it reduces areas for palatable grass growth and creates competition for available soil moisture. Hence, it results in decrease of the carrying capacity of the affected areas. Access is also severely restricted by dense bush.
Carrying capacities in the country have declined between 20 and 80% over the past 20 years. In the Thorn Bushveld of Otjiwarongo carrying capacities for large stock units have dropped from 10 ha/LSU in 1970 to 15-20 ha/LSU nowadays. In the Karstveld Savanna carrying capacities have declined from 8 ha/LSU to the present situation of 15-20 ha/LSU. The average bush densities in the Thorn Bushveld and Karstveld are estimated at 6000 and 10000 stems/ha respectively. Bush densities of 14000 to 20000 stems have been recorded.

Methods of controlling bush encroachment are of mechanical, biological or chemical nature. Bush control is extremely costly and therefore requires substantial investments.

Poisonous plants

Plant poisoning is most common when food is scarce, such as during droughts or in the beginning of the rainy season. In Namibia most poisonous species are of the second type. They occur mainly at the beginning of the rainy season on the footslopes of hills and dunes, where they develop faster than the surrounding grasses, and hence are a direct target for grazing cattle.

Treating the problem of poisonous plants is in the first piace a management issue, as they need to be camped off for a critical period of the year when grass is still scarce. This requires additional costs for fencing and the need for more grazing space; in other words, the occurrence of poisonous plants on a farm has an indirect effect on the size of the farm.

Animal diseases

The risk for animal diseases affects not only the average weight of the animal and the meat quality, but requires also extra costs for veterinary care and quarantine. Ultimately, it seriously influences the market price, as a number of consumer countries put heavy controls and even embargoes on imported meat products

Provision of stock-watering points

The additional supply of watering points through boreholes adds to the sustainability of herds and reduces the risk factor in the case of rainfall shortage. In particular it defines the distance at which watering points are available to stock.

EDITORIAL REPORT - SOUTH AFRICA
Focusing on the Convention to Combat Desertification in South Africa

Roben Penny
National Coordinator,
UN Convention to Combat Desertification in South Africa
Godfrey Mogoane, Hélette Prinsloo
Directorate Resource Conservation,
National Department of Agriculture

GENERAL EASE OF USE

Does the way in which the manual is presented follow a logical framework?

Yes, very user friendly.

Did you find it generally easy to follow and understand?

Who is this document actually for ?
Easy to follow. As the National co-ordinator of CCD, this is not the kind of document to be used, because it is too technical. It is likely to be useful for people who work for me, such as the Land Use Planners.
For the NDA, DRC the document can be used within the Directorate, as well as giving it through to the Provincial Extension Officers to be put to use.
What about a popular version of the document, for extension workers and general information.
General use: the boxes make the information easy to grasp.

Which aspects did you find to be unclear or difficult to follow?

Quite clear. Some of the technical information is information not needed to know by everyone, but will likely prove useful to others.

What recommendations do you have to improve the manual to make it easy to use?

It would be helpful if some of the long, solid passages of text were broken up: perhaps bulleted for easier assimilation. The paragraphs can also be numbered for easier use.

The bibliography is useful, but could be referred to in the text (perhaps in boxed form). When reading about specific methodologies, it would be handy to have reference right there with the particular work on the subject.

CONTENT

What aspects seemed most clearly relevant to your country experience?

The whole document is relevant. Land use planning is a huge part of the CCD.

What aspects seemed irrelevant to your country experience?

No. There are so many LUP projects in different areas of South Africa that this information should be applicable across the board.

What issues did you find completely missing?

Because women are so important in land resource management, and because the issue of gender is sensitive, I feel that we need a separate section on gender. We need to mainstream and sensitize people about the role and effect that gender has in the whole development process. The underlying principle of gender is to integrate it into policies and institutions and ensure gender-sensitive policies for land resource management. There are concrete steps, mechanisms and processes that we can use as tools to ensure the above.

What issues need further explanation or clarification?

Gender aspects of land resource management.

The CCD states that we should concentrate on policies that are appropriate to dryland populations, as their needs and concerns need to be addressed in order to combat desertification. Not much work has been done on the issue in South Africa. Under the CCD, it appears that we need to concentrate particularly on communal land resource management, as much of our previous research has concentrated on commercial farming practices.

What additions, changes or deletions need to be made to make the manual more realistic and practical?

Throughout Chapter 6 and elsewhere, it seemed that scientific data collection was more important than collection of data on socio-eoconomic factors. The whole document seemed to be top-down/scientific biased, to the detriment of the socio-economic components.

The role of the extension worker has not been emphasised enough. In South Africa they play a major role in land use planning. They are definitely one of the most important stakeholders.

Because many dryland populations are in marginal areas, one of the factors being considered by the CCD is 'alternative forms of income' and this should form part of sustainable land resource management.

It is important that evaluation and monitoring is developed as part of the planning process.

An important issue that needs to be looked at is bush encroachment, declared weeds and declared invader species. These plants can always be used to create additional jobs, as well as a secondary income.

EXPERIENCES: Update on the Progress of the Convention to Combat Desertification (CCD) in South Africa

I would like to report on the progress made on the National Action Programme related to the CCD for South Africa.

Assistant Environmental Officer
An Assistant Environmental Officer has been appointed by the DEAT, to coordinate inter alia the gender issues to be integrated in the NAP and will provide general assistance to the National Focal Point and the NAP coordinator. With the large training component related to the job, she in turn will be trained in order to build capacity within government.

National Secretariat
It was decided that the coordinating body of the Convention in the DEAT will now be known as the National Secretariat, consisting of officials of the DEAT and the National Coordinator, assisted by EMG when necessary.

National Awareness Raising Campaign
EMG hosted a Desertification Awareness Raising Strategy Workshop on 1December 1997 in Cape Town. The aim of this workshop was to determine a South African awareness-raising strategy, short and long term objectives, target audiences and a key message. This was followed by another workshop on 11-13 March 1998 where the consultant to the Environmental Monitoring Group (EMG and a team of involved officials form various fields, discussed a plan of action and map out a way forward within a framework that stresses consultation, organisational strengthening, capacity building, information and dissemination. It was decided that these actions will culminate in a special effort to raise awareness on World Desertification Day on 17 June 1998.

Rapid Appraisal (National Audit)
The coordinator of this component of the NAP, and his assistant held a series of very successful workshops in almost all the provinces . The rapid appraisal is on schedule and it is envisaged that this appraisal will be completed by July/August 1998 and the results be presented to the Reference Group.

Scientific Task Group
A four day workshop entitled Appropriate Restoration Technologies for South Africa was organized. It took place from 23 - 26 March 1998 in Potchefstroom and it was decided that this workshop would be the appropriate forum to elect further members for the Scientific Task Group, which was mentioned in the previous letter who will support and advise on the NAP process and implementation in South Africa.

National Desertification Fund (NDF)
Preliminary talks were held with the Development Bank of Southern Africa (DBSA) to do a feasibility study to set up a process to look into the most appropriate fund for South Africa. A proposal in this regard was formulated by an official of the DBSA and further actions will follow shortly.

Southern African Development Community (SADC)
South Africa's involvement in SADC will be strengthened by the participation in a workshop to be held in April 1998 in Gabarone, Botswana where the integration of the Kalahari-Namib Action Plan into South Africa's NAP will be workshopped. The 13 SADC countries will establish a Multidisciplinary Scientific and Technical Consultative Committee (MSTCC).

Strategic Planning Workshop
This workshop took place on 9 to 11 February 1998 at Roodevallei, Pretoria. The facilitator led us through a process to help us identify our individual roles, strengths, and priorities in order to put a good NAP together. The outcome of this workshop will be mailed to you in the near future.

Land care
This is an initiative driven by the Department of Agriculture and is a concept on land and resource management. It has been decided that at the appropriate level, linkages between Land Care and the CCD will beformalised.

Gender
South African representatives attended a SADC workshop in Zambia on mainstreaming gender issues and concerns in the implementation of the CCD. What we now need to focus on are structural and institutional changes that will eliminate discrimination against women by taking account of the contributions of both men and women during the formulation and implementation of the NAP.

SWAZILAND
Land Use Planning In Swaziland - A Review

Jameson D. Vilakati
Director,
Swaziland Environment Authority

INTRODUCTION

The challenges now facing Swaziland particularly in the environmental, educational, sociological, nutritional and agricultural sectors, all of them intensified by the rapid increases in the Kingdom's human and livestock populations, increases that threaten to reduce the quality of life of every Swazi, calls for a new approach in the use and allocation of land to individual uses.

Land Use Planning, and more specifically rural land use planning, has been the preoccupation of the Ministry of Agriculture since the 1940's, when problems of natural resources depletion were manifested through overgrazing and soil erosion on both arable and grazing lands. This became more evident as pressure on land increased as a result of human and livestock population growth.

THE LAND USE PLANNING PROCESS IN SWAZILAND

With the increase of land degradation in communal areas, it became evident that there was need for more land and that land had to be used for the purposes for which it was well suited.

As early as in 1946 the Colonial Government introduced a land settlement scheme where privately owned land was purchased and communities were settled in villages.

In the land settlement schemes, grazing and arable land were identified through soil surveys, and land for homesteads and grazing was demarcated. While arable land was allocated on an individual household basis, grazing land was communal. The consolidation of the arable and grazing land into blocks was thought to lead to improved agricultural production and also to improved natural resources management.

Although the planning of land settlement schemes was based on natural resources evaluation and appeared genuine and well thought, it did not provide for the participation of the communities in the planning process. Everything was being done for the people and it was perceived that the schemes were the most appropriate innovations and would be suitable for the people. People were expected to fit into the schemes without questioning it. Further, no future or forward planning was undertaken, with the result that the schemes crumbled because they did not take into consideration the interests of the communities. The people perceived the schemes as imposed on them by the Colonial Government. Problems of natural resources degradation continued despite the fact that the schemes were governed by the Land Settlement Act of 1946.

In 1950, the Swazi Administration Act was promulgated and this Act placed the responsibility of Natural Resources Management and the siting of settlement areas on communal land on the Ingwenyama and the Chiefs. This legislation empowered the Ingwenyama and the Chiefs to issue orders on the method of

settlement. In 1953 the Ingwenyama issued orders concerning the method of cultivating land and introduced grass strips on arable land for reducing soil erosion. The 1950 the Swazi Administration Act also saw the birth of the Central Rural Development Board in 1954, with the responsibility for rural land use planning on Swazi Nation Land. The Central Rural Development Board (CRDB) was empowered to oversee that appropriate land us planning was undertaken in communal areas with full community participation. The Ministry of Agriculture was empowered to provide technical expertise to the CRDB and the communities. This meant that a community land use plan could be approved after all parties concerned were in agreement. This type of arrangement continued until the early 70's.

From 1970 onwards, the Government of Swaziland intensified its agricultural development strategies through a Rural Development Area Programme (RDAP) which concentrated on intensified agricultural production, provision of infrastructure in rural areas, and addition of more private land to communal areas. Areas for arable irrigation, settlement of homesteads, and grazing were demarcated through technical land resources surveys with soil surveys taking the central role. The current Land Use Planning Division within the Ministry of Agriculture was born in 1968 with the following mandate:

> *"To ensure orderly development and exploitation of the country's natural resources particularly on Swazi Nation Land".*

In all its activities the Land Use Planning Division has endeavoured to guide the country's policy makers on areas of high potential agricultural value by providing appropriate information on soil types and their suitability for various agricultural uses. The Division has also continued to participate in large scale land use planning exercises involving river basin development and was pivotal in producing community land use plans during the rural development area programme.

Land Use Plans produced during the RDA programme were often not implemented because of the poor communication that existed between the CRDB and the Division. CRDB decided to spearhead allocation of land to various uses and ensured that communities participated in planning the use of their land since their views were sought. In some instances, the communities themselves drew up the plans of their areas and these community plans were submitted to the Land Use Planning Division for technical appraisal before final adoption by the communities and approval by the CRDB.

FAILURE OF LAND USE PLANNING EFFORTS TO MAKE SIGNIFICANT IMPACT

Despite the establishment of the CRDB, the creation of the Land Use Planning Division and some community participation in the land use planning process in Swaziland, Land Use Planning has failed to make a significant impact in the stewardship of land resources in the country. The failure of the process to make significant improvement in the management of the natural resources in the country may be attributed to the following:

1. The Land Use Planning process tended to concentrate on sectoral issues, to focus on the planning of the land for agricultural purposes and to disregard the existence of urban development. In turn, Urban Development tended to disregard the existence of the agricultural sector.

2. The Land Use Planning exercise has not adequately identified the stakeholders and tended to concentrate on a broad community approach without focussing on different group and individual interests within a community.

3. There has not been an adequate forum for dealing with communal grazing land management and no attractive alternatives to extensive livestock production in communal areas have been identified. No incentives were put in place to attract households to other alternatives forms of land uses other than livestock.

4. There has been very poor institutional coordination between the CRDB and the Land Use Planning Division, even to such an extent that the two organisations appeared to be pursuing different objectives.

5. Even though people have been encouraged to plan the use of their own land, there has not been a forum of information sharing between the communities, the CRDB and the technical divisions within the Ministry of Agriculture.

6. Information produced by the Land Use Division aimed at rational Land Use Planning in rural areas has been too technical even for technical departments within the Ministry, let alone for the communities.

7. Competing land use uses have emerged because of the absence of a National Land Use policy to guide development.

8. Integrated Land Use Planning has been absent and sectoral self interest tended to compound the problem; e.g. there is no forum where agricultural and urban development interests and objectives are discussed.

STRATEGIES FOR IMPROVING LAND USE PLANNING

In order to improve the Land Use Planning process the following is suggested:

1. Create institutional linkages that will ensure proper identification of all stakeholders.

2. Formulate and adopt a National land Use Policy that will guide land use allocation.

3. Develop Guidelines that will ensure that all key players are involved in the process of Land Use Planning.

LAND USE PLANNING IN SWAZILAND
With Special Reference to Land Degradation and Peri-Urban Growth

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INTRODUCTION

This presentation will serve a dual purpose, namely firstly to highlight some of the aspects of Land Use Planning in Swaziland, and secondly to give an introduction to the field excursion of the Workshop. A selection of slides will provide an impression of conditions in the planning area an along the excursion route.

I will concentrate on two main issues in the project area, namely land degradation and problems related to peri-urban growth. In other words, the relationship between human settlement and the environment.

The project planning approach is holistic, looking into all aspects, factors and options of land use, and taking into account the present and future role of all land users. The planning base has two major components, (1) the physical framework, and (2) the socio-economic conditions. These two components form the information base for the planning and decision making process in which all stakeholders participate.

The physical planning base follows the agroecological zoning (AEZ) concept and provides information on physiography, soils, climate, present land use and land suitability. Socio-economic data includes population growth, security of tenure, institutional arrangements, traditional leadership and an array of information from surveys on present living conditions and aspirations of the people.

Land use planning cannot be based on physical factors and aspirations only. Guidelines are required to determine the overall direction of the planning process and the final choice of sustainable and balanced land uses at national, regional and local levels. Over the past years Swaziland has defined a policy and strategy framework relevant to land and environment development in general and interacting sectoral approaches in particular. In agriculture, for instance, dryland crop production should be stimulated in the suitable areas of the subhumid Upper Middleveld and Highveld, irrigated agriculture and extensive grazing in the semi-arid Lowveld, forestry in the steep parts of the Highveld, etc. Proper planning should help rectify situations where current land use and conditions are not optimally matched.

THE PROJECT PLANNING AREA

The project area is located in the Upper Middleveld - a distinct agroecological zone - and forms part of the core area of the nation along the Mbabane-Ezulwini-Manzini urban corridor. It has been selected because of severe degradation problems in the communal rangelands and uncontrolled peri-urban development. The area has very

favorable soil and climatic conditions for crop production, but most of the land with high potential is used for grazing and occurs in a severely degraded state.

The project area is covered by four agroecological units, which have been subdivided in 35 Basic Planning Units (BPU's) on the basis of physical factors and present land use. These BPU's are homogeneous areas and are the units for planning at local and community level. Information relevant to land use planning is recorded per BPU. Data collected includes present land use, land suitability, status of erosion and degradation, population growth and peri-urban development. Planning priorities have been determined and a number of BPU's, or part of it, have been selected as priority planning areas. A selection of the available tabular and spatial information is shown in this presentation (these tables and maps are not included in these proceedings, but available from the project).

PERI-URBAN DEVELOPMENT

Some of the main issues in the peri-urban areas on Swazi Nation Land under traditional leadership are the following:

- Unplanned growth and related environmental problems.
- Unclear institutional responsibilities.
- Poor social infrastructure.
- Unclear tenure arrangements and inefficient plot allocations.
- Unplanned changes in land use.
- Traditional system becoming commercial.
- Government unable to provide services.

Analysis of the population growth is an essential tool in assessing and defining peri-urban development. An tabular overview is given of the growth over the past 40 years in the different parts of the Mbabane -Manzini corridor. The main conclusion is that the population has increased in the declared urban areas at a rate which is at least double the country average, and in the inner peri-urban areas at a still higher rate.

Data from the enumeration areas in the outer peri-urban zone and rural areas have been correlated with the Basic Planning Units. Amongst the BPU's in the project area there is a large differentiation of population growth over the past 10 years, ranging from almost zero to about 80 percent, which variation is shown on a map. As expected, the peri-urban zone directly adjacent to the city of Manzini shows a strong increase. However, there is also the interesting phenomenon of high increases in specific BPU's further away from the urban area, whereas other BPU's at the same distance have a lower than average growth. The explanation for this differentiation is that conditions in certain areas are more favorable for settlement than in others (no population pressure yet, good access, good soils, availability of land, etc.).

In planning it is essential to recognize peri-urban trends in an early stage, and not run behind the facts. Early recognition will facilitate the identification of suitable locations for concentrated settlement, but also for other peri-urban land uses such as green belts. The classification of the BPU's according to peri-urban development on Swazi Nation Land is shown on another map. Four classes have been distinguished: (1) Rural (no peri-urban

development), (2) Initial Peri-Urban, (3) Outer Peri-Urban, and (4) Inner Peri-Urban, using simple criteria, such as the current population growth, building for residential purposes, changes in land use.

Government is currently developing a peri-urban growth policy to control peri-urban development through an improved institutional framework. The proposal is to have a high level Peri-urban Authority which will support lower level Community Development Associations with technical advise and land use planning. Peri-urban situations require early planning for infrastructure and zoning of the land for settlement, green belts, urban agriculture, forestry, recreation, amenities, etc. Our land use planning project integrates various inputs from the Ministries of Agriculture, Housing, Natural Resources and Environment to achieve a balanced and sustainable planning for all land uses.

The slides shown illustrate several of the problems in peri-urban areas, such as houses built on steep slopes causing erosion, uncontrolled dumping of solid and other waste in gullies and rivers causing environmental health problems, lack of infrastructure, settlement encroaching on good arable land, etc.

EROSION AND LAND DEGRADATION

Some of the main issues and conclusions on land degradation are:

- Actual erosion and land degradation occurs mainly on the communal rangelands.
- The most serious erosion is found around dipping tanks and access routes.
- The communal tenure system is not conducive to sustainable grazing and control of stocking rates.
- Erosion hardly occurs on subsistence rainfed arable land due to sustainable management.

The Upper Middleveld has the most serious erosion status and poorest range conditions of all agroecological zones. The erosion and degradation status of each of the BPU's in the project area has been determined. The most severe degradation is found in the units which have large communal grazing areas with deep erodible soils, which is unfortunately also the land with the highest potential for crop production. In many places cattle tracks have developed into deep gullies, in particular along routes to dipping tanks. Some of these gullies are more than 20m deep and develop with a speed of up to 10m per year. The most widespread type of erosion is sheet erosion, which has severely affected all rangelands.

The communities are aware of the seriousness of the land degradation, and have been very receptive to discuss options for land rehabilitation. Depending on the situation, the communities have a choice from a number of conservation measures, e.g. changing grazing land to arable, fencing of community owned grazing camps - to be used as fattening ranches -, leveling and planting of grass to eliminate small gullies and sheet erosion sites, stabilization measures to reduce runoff at the heads of the larger gullies, etc.

The slides shown illustrate the various forms of erosion, the deep and wide gullies of Mangcineni (included in the excursion), examples of severe sheet erosion, terracette erosion and landslips. Arable fields, in contrast, show very little erosion. Most fields have well maintained grass strips along the contour lines, which has proven an excellent conservation measure.

CONCLUSION

The most important elements in the community based land use plans for the priority areas are strategies to rehabilitate the degraded land and to control the peri-urban development.

The available options have been at length discussed with and within the communities until choices are made for the final planning of the land uses, such as residential, concentrated settlement (transitional between rural and urban), traditional homestead areas with arable land, commercial arable, extensive grazing - open or in grazing camps -, woodlots, etc. Protection and rehabilitation of degraded and vulnerable areas plays a major role in the use and management of all the land.

As an additional note it can be reported that during the excursion a spontaneous community meeting took place in Vusweni priority planning area - as a follow up to another meeting - where we were informed about the decisions they had made with regard to some of the major land issues. We also made a short visit to inspect one of the sites, and further discussed the decision to convert eroded grazing land to arable land and the more detailed aspects of the plan, such as areas with concentrated settlement, improved infrastructure, woodlots and irrigated agriculture.

LIST OF PARTICIPANTS

No	Name	Institution	Address	E-mail	Tel / Fax	Expertise / Professional Background
1	Roben Penny	Department of Environmental Affairs and Tourism	Woodbine, Essex Road, Kalkbay Cape Town, South Africa 7975	robenpen@jaywalk.com	+27-21-7881285 (t/f)	National Co-ordinator of the UN Convention to Combat Desertification
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Annex 1

No	Name	Institution	Address	E-mail	Tel / Fax	Expertise / Professional Background
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29	Constance Neely	FAO-Land & Water Development Division	Viale delle Terme di Caracalla, 00100 Rome, Italy	constance.neely@fao.org	+39-6-57055286 (t) +39-6-57056275 (f)	Participatory Watershed Management

AGENDA

Date	Period	Topic	Participants	Responsibility
• 30.3.1998	• 9:00	• Welcome of Participants	**all**	• **W. Dlamini MOAC**
	• 9:40	• Presentation of participants and expectations	**Chairmen: J.D. Vilakati W.H. Verheye**	• **C. Neely / A.Kutter (FAO)**
	• 10:40	• Coffee/Tea Break		
	• 11:15	• Presentation of the FAO /UNEP approach on LUP		• **W. Verheye**
	• 12:00	• Opening		• **UNDP, PS, MOAC**
	• 12.20	• Presentation of workshop objectives		• **A.Kutter (FAO)**
	• 12.50	• Presentation Nat. Coordinator		• **J.D. Vilakati**
	• 13:10	• Lunch break		
	• 14:10	• Paper on Land-Water Interactions (20min +10)		• **J-M. Faurès (FAO)**
	• 14:40	• Swaziland presentation (Project SWA/95/002)		• **A.Remmelzwaal**
	• 15:30	• Coffee/Tea Break		
	• 15:50	• Presentation of revised guidelines		• **D. Radcliffe**
	• 16:30	• 3 Country paper presentation (15min)		• **Country representatives / W.Verheye**
	• 17:30-17:45	• Feedback		• **Kutter**
	• 19:30-21:30	• Reception		• **A. Remmelzwaal**
31.3.1998	• 8:30	• 3 Country paper presentations (15 min)	**all**	• **Country representatives / W.Verheye**
	• 9:40	• Statement GTZ		• **W. Zimmermann (GTZ)**
	• 10:00	• Coffee/Tea Break		
	• 10:15	• Summary of presentations formulating working topics for the groups		• **D. Radcliff/A. Kutter**
	• 11:10	• Splitting up in working groups		• **Kutter**
	• 11:50	• Group work	**in groups**	• **Group leaders**
	• 13:00	• Lunch break		
	• 14:00	• Group work		• **Group leaders**
	• 15.30	• Coffee/Tea Break		
	• 16:00	• Feedback	**all**	• **A.Kutter**
	• 16:20	• Field excursion preparations + instructions		• **A.Remmelzwaal**
1.4.1998	8:00 – 16:00 17:30	• Field excursion • Feedback in relaxed atmosphere	**all**	• **A.Remmelzwaal / Project** • **A.Kutter**
2.4.1998	• 8:30	• Informal group progress reports	**all**	• **Group leaders / A. Kutter / C. Neely**
	• 9:30	• Group work		
	• 10:30	• Coffee/Tea Break	**in groups**	• **Group leaders**
	• 13:00	• Lunch Break		
	• 14:00	• Group work and preparation for final group statements		
	• 15:30	• Coffee/Tea Break		
	• 16:30	• Feedback		• **A. Kutter/C. Neely**
3.4.1998	• 8:30	• Presentation of working group results and discussion	**all**	• **Group leaders / W.Verheye**
	• 10:30	• Coffee/Tea Break		
	• 10:50	• Formulating of a common statement and recommendations for the publication		• **D. Radcliff / W.Verheye / A.Kutter**
	• 11:30	• Final feedback		• **Kutter / C. Neely**
	• 12:00	• Closing		• **J.D. Vilakati (MOA),** • **Mr. Mamba (PS MOAC)** • **Ms.S.Ring (FAO Res.Rep.)**
	• 12:30	• Lunch		

PRESS RELEASE

FAO/UNEP Workshop "Integrated Land Resources Management in the 21st
Mbabane, March 30 - April 3, 1998

The Food and Agriculture Organisation of the United Nations (FAO) and the United Na Programme (UNEP) are organising, in collaboration with the UNDP/FAO Project "Impro Swazi National Land", implemented at the Swazi Ministry of Agriculture, an internati "Integrated Land Resources Management in the 21st Century". This event takes place ir Mbabane, between 30 March and 3 April 1998. Experts from 14 countries, most of the including a group of Swazi experts and representatives from FAO (Italy), UNEP (Kenya) a are attending the meeting. The conference programme is given in the annex.

Over the past 20 years FAO and UNEP have expressed growing concern about the incr land and food production in the world in order to meet the growing needs for the future g population has increased from 3.6 billion in 1970 to over 6 billion in 1998, and it is exp continue at an approximate rate of 85 million people per year - that is not less than 90 time Swaziland. In the meantime, the amount of available land is 'increasing at a much lower ra 1997 as compared to 5.3 billion ha in 1990). A recent study has moreover indicated tha arable land in the world (200 million ha) is threatened by various forms of land degradatio the world population is increasing much faster than available land. Moreover, land deg under control.

These figures indicate clearly that we move towards problems of food shortage and comp rapid and adequate action is taken.

The picture above is very much similar to the Swaziland situation where land degradation and institutional as well as management constraints prevent a sound and sustainable increa the production to support the growing national population.

Over the past years FAO, UNEP and other international organisations have been instrum guidelines and providing methods for optimising crop production and establishing national policies. Most of those have been focused on the technical aspects of land use planni concern paid to the position, attitudes and needs expressed by the farmers and all those another are affected by land use decisions. In the common technical jargon this group o "stakeholders".

This concern was reiterated at the UNCED Conference in Rio de Janeiro (1992), and appointed Task Manager for the implementation of the land chapter in Agenda 21. This la on 3 major principles: avoiding further soil loss and degradation (soil conservation aspect), in a sustainable way (production aspect), and involving both stakeholders and decision-ma process participatory aspect).

The international workshop will discuss strategies how to improve the present approach in too technical, a too sectoral and a top-down approach. It will in particular emphasise on a more holistic and more multidisciplinary approach, and will focus on the importance of inv

at all levels of decision-making. In addition, it will also try to find ways to overcome institu
dealing with land issues.

The fact that the United Nations agencies have selected Swaziland to host the workshop is
Swazi situation is in many aspects representative for the type of problems and challenges t
in many other parts of the world.

TABLE OF CONTENTS OF DRAFT GUIDELINES
as submitted to the workshop for discussion

Title: INTEGRATED LAND USE PLANNING –
the key to sustainable land resource management in the 21st century

Table of Contents:

WORKING GROUP 1

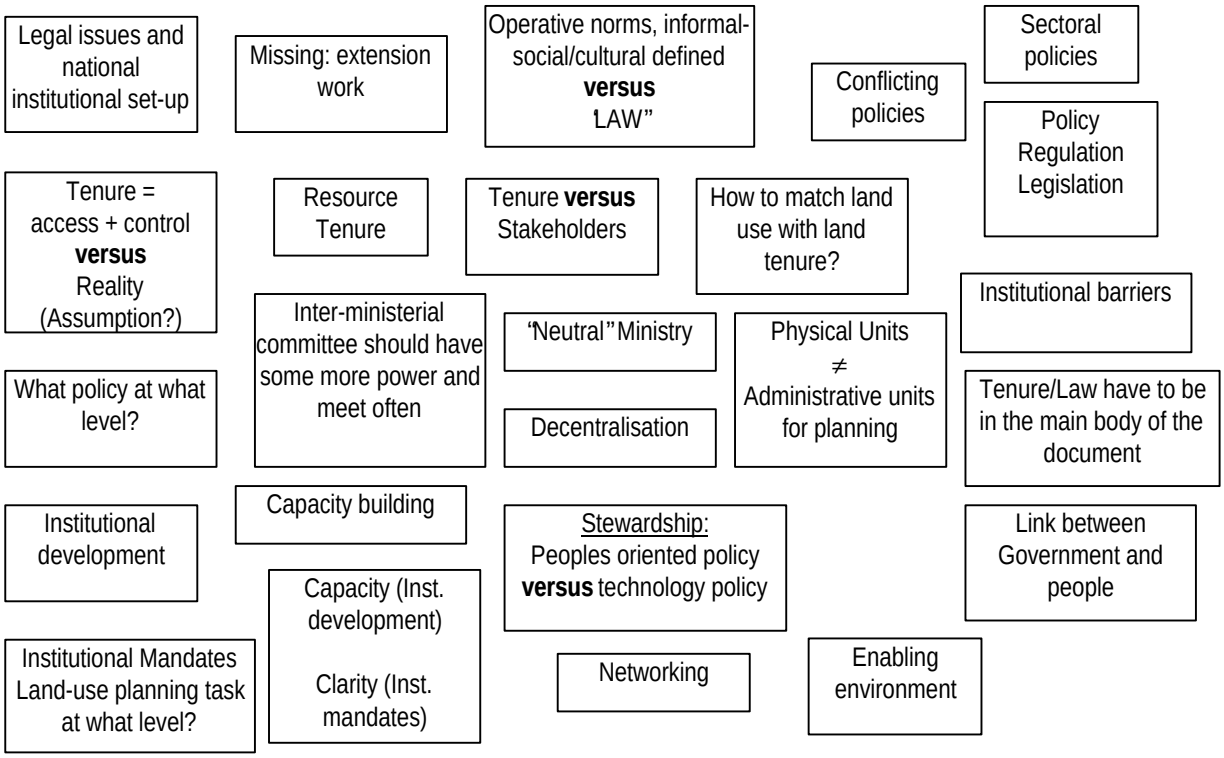
DISCUSSION TOPICS

- Policies
- Laws
- Institutions

PARTICIPANTS AND BACKGROUND

Brenton ABA	Range Management/ Animal Nutrition
Busa N. Ginidza	Physical Planning
Solomon T. Gamedze	Forestry Policy and Planning
Marina Coetzee	Land Evaluation
Jameson Vilakati	Environment
Arie Remmelzwaal	Land-Use Planning/ Natural Resources
H.O.W. Okoth-Ogendo	Agrarian Reform
Adel Orabi	Soil Science
Andrea Kutter	Geography/ Land-Use Planning
Willy Verheye	Applied Soil Science

ISSUES IDENTIFIED IN THE PRESENTATIONS TO BE DISCUSSED (VISUALISED ON CARDS)



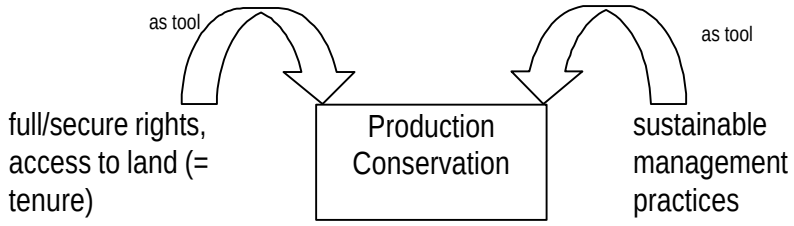
DISCUSSION RESULTS

Policy

There must be a national Land Use Policy[1].

a) Objective
- create enabeling environment
- give direction on major issues perceived by government + allocation of national resources + set long-term goals

b) Content
- link to international conventions (Agenda 21, CCD, Wetlands, Biodiversity)



c) Target levels
- land use policy should cover all uses of land
- land use policy should address both resources and users
- land use policy as "basic" or "overall" policy
- sectoral sub-policies should be developed out of the land use policy or should be developed in accordance with it (water policy, soil policy,...)

d) Formulation Process
- top-bottom interaction leads to formulation of policy objectives according to the demands of the people

Law

Laws are formulated to enforce/legislate policies.

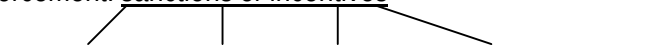
a) Concept
- the concept of law must include both statutory law and customs/traditions
- laws are dynamic; subject to review as society changes
- before creating new laws, rationalization of existing laws
- one "central" law, from which more "secoral" laws are formulated
- structure of laws should be uniform

[1] policy formulation is focused at national level

- harmony between public administration and practical land use
- laws must be sensitive to local culture

b) Content

- laws should define, manage and protect resources
- laws should define rights to land
- laws should define authority
- should define institutions for implementation
- resolve conflicts
- enforcement: sanctions or incentives



Institutions

Institutions implement laws and enforce them. Laws must very clearly define the mandates of the institutions.

a) Levels of institutions

- planning and administrative levels are not the same

b) Tasks/Role of institutions

National Institutions

- coordinate
- delegation of authority to lower levels
- regulate
- monitor
- enforce
- preperation of guidelines
- conflict resolution/negotiation
- 'board' at highest possible level with representative institutions (with mandate to make decisions)

Local Institutions

- implement policy in form of plans
- doing planning on their own land
- representation should include all stakeholders:
  community commitees, women groups, farmers associations, disadvantaged groups, NGOs at local level, government staff at local level, off-site stakeholders

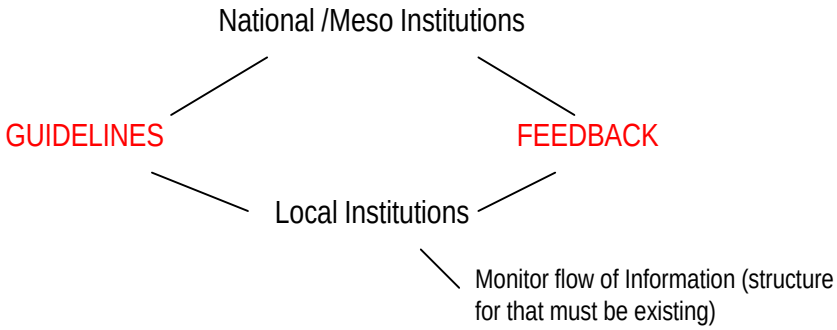
c) Empowerment of local institutions

- empowerment: clear scope of authority
  implementation capacity
  resources

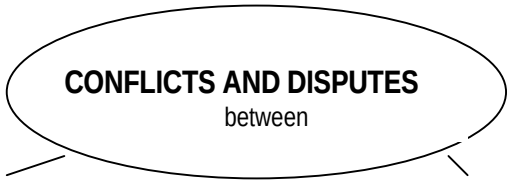
- how?
  - MORAL ⇑
    - awareness creation
    - access to information
    - training and education
    - improve management style
    - link to national institutions
  - MATERIAL ⇑
    - access to resources
    - control own budget

  → ownership, stewardship, responsibility

- information and feedback
  - remove barriers to flow of information
  - create platform for negotiation (exchange information, offer services, conflict resolution)



d) Conflicts and Disputes



Institutions
(land-use planners)

Problems:
- overlapping mandates
- political agendas
- different priorities

Stakeholders
(land users)

- competition for access to resources
- competition for use of resources

How to minimize conflicts?
- clarity of mandates
- "neutral"national institution has mandate to resolve conflicts
- try to resolve disputes at administrative level rather than judical level

- conflict between stakeholders will be resolved next higher level in case it cannot be resolved by local (neutral) institution
- local representatives in higher level organizations

EXAMPLES/ LESSONS LEARNED

1.	Having one comprehensive law for production and conservation creates institutional chaos.	KENYA
2.	"Neutral" institution (board/committee) to coordinate LUP, composed of representatives of line ministries, NGOs, traditional leaders, local authorities, regional authorities, environmental commissioner and planning commission	NAMIBIA, BOTSWANA
3.	Problem: Dual law system Government - Traditional	SWAZILAND
4.	Problem: peri-urban areas encroaching on primary agricultural land. Who has authority?	SWAZILAND
5.	Representatives that truly speak for the stakholders, not only in the name of them (farmers association)	SIERRA LEONE
6.	ZONING e.g. new urban areas in Egypt, developed in desert to leave arable land under agriculture	EGYPT
7.	Misuse of authority/nepotism at local level. How to control it?	EGYPT, SWAZILAND

KEY RECOMMENDATIONS ON CONTENT

Policy

- In introduction, obligations under international conventions should be noted.
- Sectoral land use policies should be prepared in the framework of the national (overall) land policy.
- A good integrated land use policy should consider all land uses.
- Policy formulation should be based on top-bottom interaction.

Law

- Laws should address norms, processes and institutions.
- Laws should be "flexible" enough to take account of cultural issues and local conditions.
- Enforcement mechanism should not only include penalties, but also incentives and other measures e.g. taxes.
- The concept of law should include both statutory law and customs/traditions.

Institutions

- There is a need for national, sub-national and local institutions.
- Power of institutions has to be defined to prevent overlap, fragmentation and confrontation.
- Authority should be delegated.
- Local institutions should be empowered.
- Mandates of national institutions should include a mechanism to resolve conflicts that may arise on sub-national or local level.

WORKING GROUP 2

DISCUSSION TOPICS

- Land–use planning/ Land resources management
- Methodology
- Information for decision-making

PARTICIPANTS AND BACKGROUND

Hélette Prinsloo	Resources Conservation
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Armindo Cambule	Soil Science
Bongani Masuku	Soil Science
Kabi M. Shekeshe	Rural Sociology
Dumisani Ngomezulu	Land-Use Planning
Mduduzi Dlamini	Physical Planning
Jean-Marc Faurès	Water Resources Planning and Management

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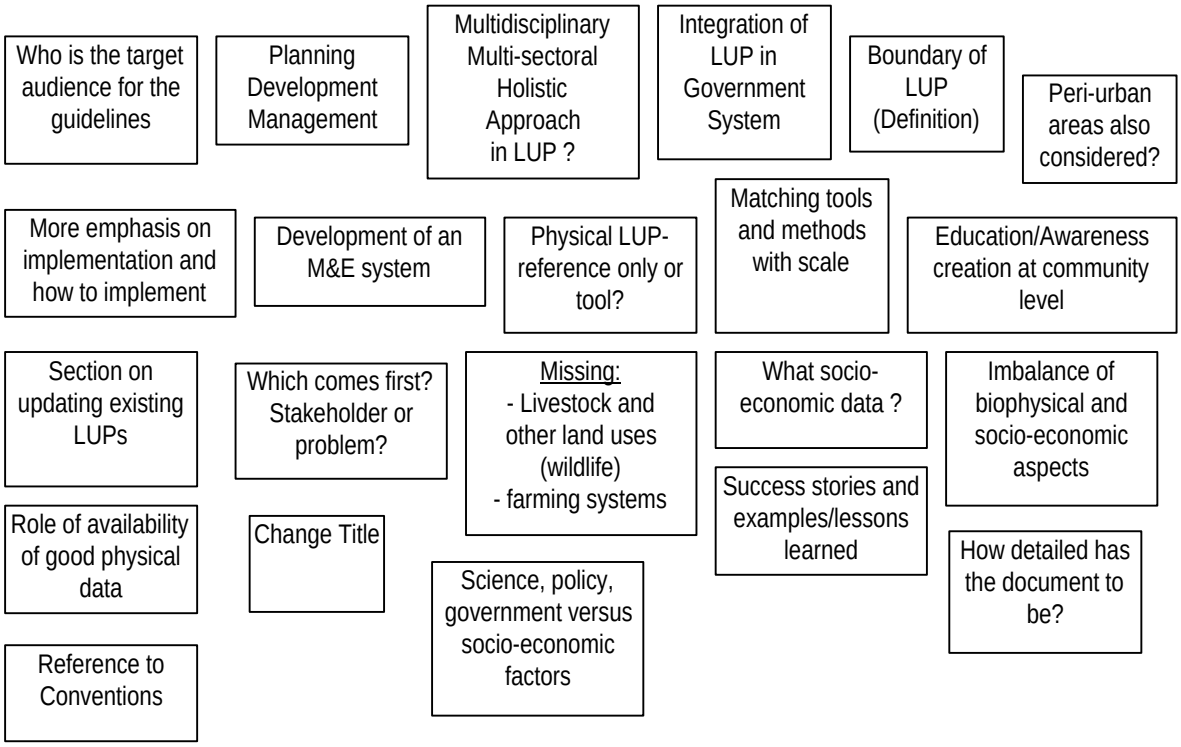


DISCUSSION RESULTS

Land-Use Planning/ Land Resources Management

a) Target audience

- targeted primarily at professionals and technical practitioners of land-use planning
- book is intended as a framework from which each country will develop its own methodology (manual)
- secondary target audience: decision-makers and policy-makers

b) Definitions proposed by the working group

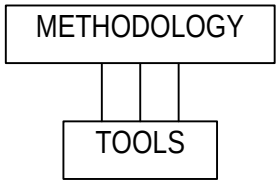
- In recognition that planning without implementation is inadequate for ensuring sustainable land use, it was suggested that the two – planning and implementing – be incorporated into *land resources management*. This implies an approach which is both multi-disciplinary and multi-sectoral.
- Integrated Land Resources Management (ILRM):
  ILRM is a set of coordinated actions aiming at the sustainable use of land. It encompasses all the uses of the land and includes all community level actions which contributes to the objective. ILRM can be pro-active and reactive.

c) Proposed title for the guidelines (no consensus could be found)

- "A Framework for Integrated Land Resources Management"
- "Guidelines for Integrated Land Resources Management"
- "Land-Use Planning Guidelines: An Integrated Approach Towards Sustainable Land Resources Management"

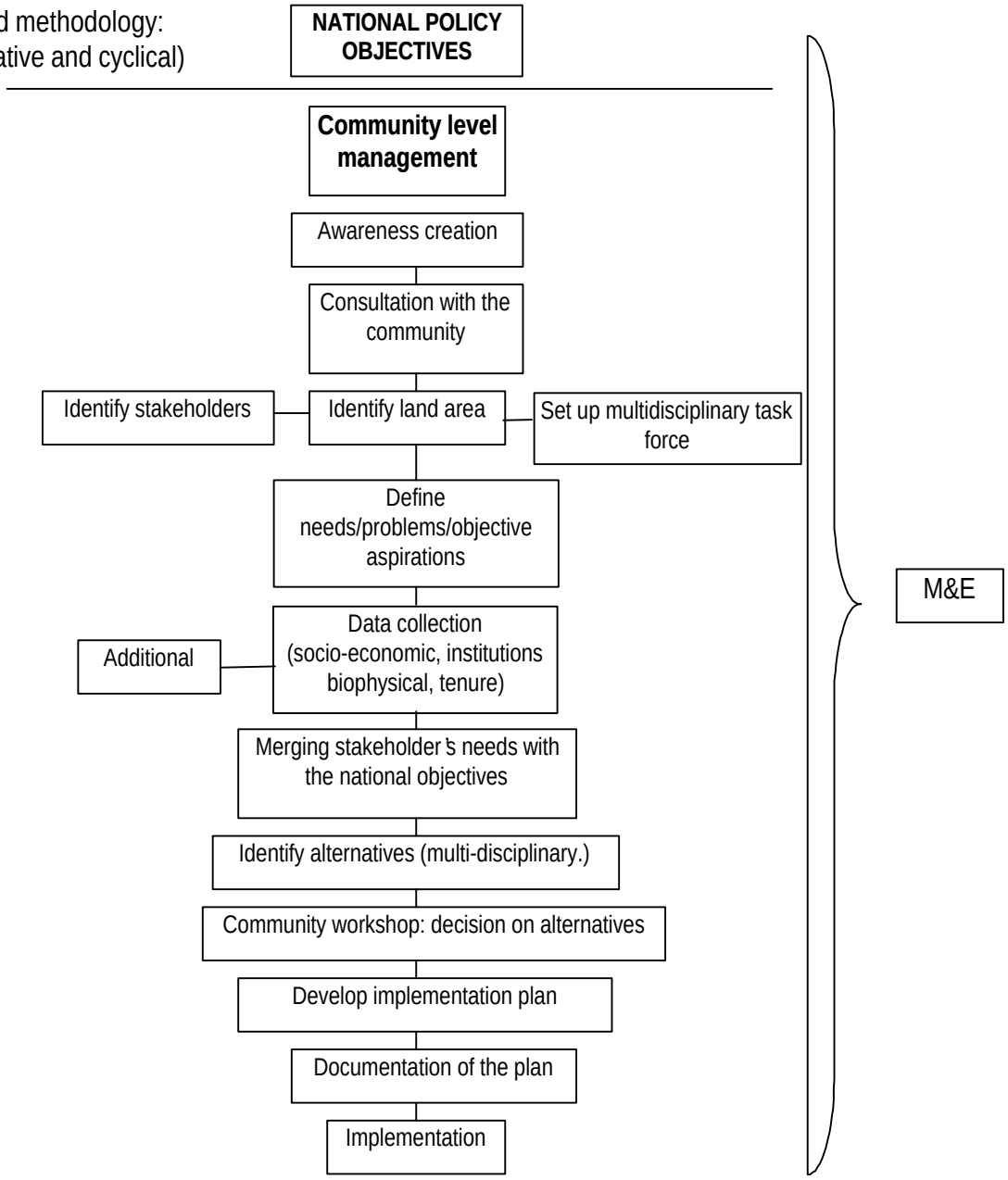
Methodology

- The manual should recognize the multi-disciplinary dimension of land uses.
- It is recognized that the manual addresses primarily rural land use.
- The methodology should be equally applicable to any land resources management programme:



- data collection
- land evaluation
- data management (GIS, RS)
- gender analysis
- RRA/PRA , communication
- etc.

- proposed methodology:
  (iterative and cyclical)



KEY RECOMMENDATIONS ON CONTENT OF THE GUIDELINES

- Land resources management should incorporate both planning and implementation.
- A holistic approach implies multi-disciplinarity and a multi-sectoral working.
- Clarify the target audience of the guidelines.
- Guidelines, not manual.
- The methodology should be separated from the tools.
- Integrated land resources management can be pro-active or reactive.

KEY RECOMMENDATIONS ON EDITORIAL ASPECTS OF THE GUIDELINES

- more case studies
- summary at the beginning of each chapter
- references at the end of each chapter

WORKING GROUP 3

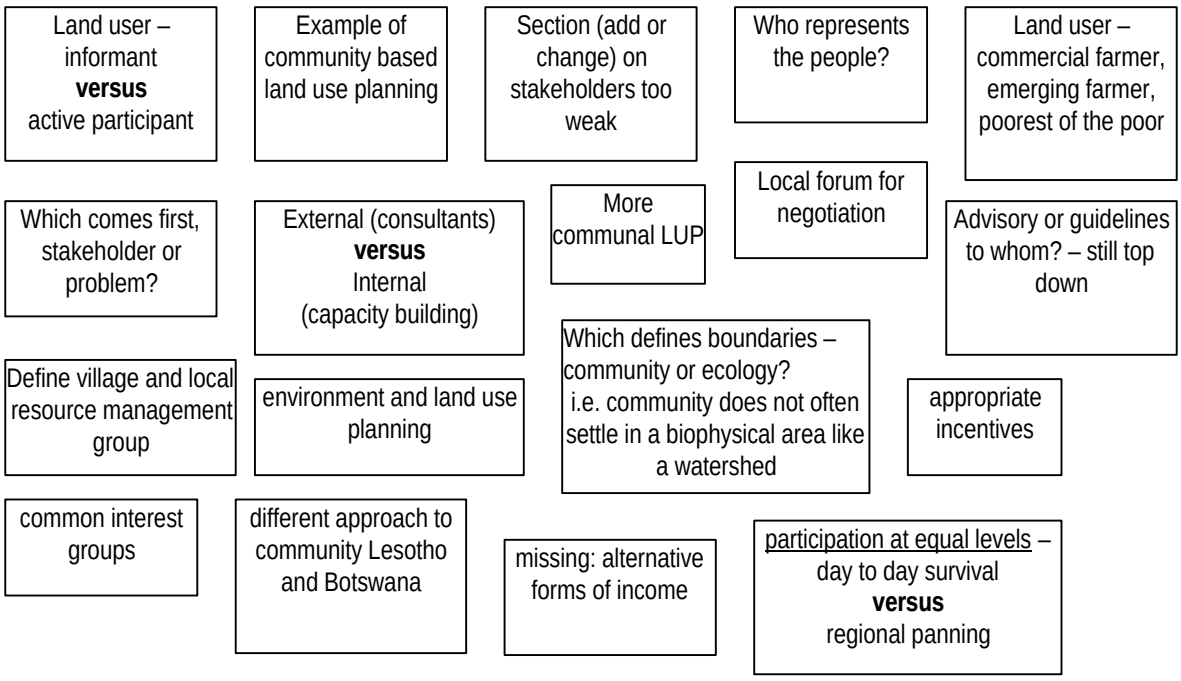
DISCUSSION TOPICS

- Stakeholders
- Community
- Top-Down/Bottom-Up Approaches
- Conflicts

PARTICIPANTS AND BACKGROUND

Thandi Gama	Planning
Godfrey Mogoane	Resources Conservation
Mathokoza S. Shengwe	Physical Planning
Michael McDermott	Land Policy
Willi Zimmermann	Land Management
Roben Penny	Combat Desertification
David Radcliffe	Land-Use Planning
Constance Neely	Participatory Watershed Management
Melvyn R. Mayisela	Engineering/Planning

ISSUES IDENTIFIED IN THE PRESENTATIONS TO BE DISCUSSED (VISUALISED ON CARDS)



DISCUSSION RESULTS

Stakeholders

(Expand and clarify this topic – put chapter 3 and chapter 5 together and put a box on stakeholder analysis)

a) Levels of stakeholders

3 Levels of Stakeholders: National
Meso
Community and local

b) Types of stakeholders

National Level	**Meso**	**Local**
Parliament /	House of Traditional Leaders /	Local Farmers /
Ministries x	Regional GOVT x	Traditional Authorities – Headmen /
House of traditional leaders /	City Councils x	Representatives – Extension Officer o
National Land commission o	Regional Administration x	Traditional Authority /
Research Institutions o	Extension Workers o	Indigenous groups /
Kings council /	Members of Parliament /	Land owners / o
Associations of farmers and cooperatives /	Land Board o	Land users / o
National Unions /	Regional Land commission o	Landless / o
National NGO representatives /	Provincial Minister (e.g. agriculture) x	Local land occupiers – residential, business, farms /
Ministries x	NGOs /	NGOs /
Parastatals o	Chiefs /	CBOs /
Steering Committees o	Forest Reserve/National Park o	Local Service Organizations /
Universities /	Private industry	Churches /
Professional Associations / Planners, Business,		Youth Groups /
Donor – Cooperating Partners		Farmers Associations /
		Women Groups /
		Chiefs /
		Communities /
		Representatives of Farmers, Pastoralists, local women groups /
		Other land users /
		Village authorities /
		Traditionalists, Healers (herbalists)
		Handicrafts – wildcrafters /
		Rural development forums o
		Local land commission o

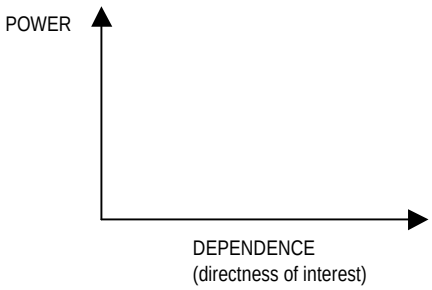
/ = Non-government x = Government o = mixed

c) Interaction between local/meso/central levels (principles)

- Information sharing and flowing
- Grassroots participation
- Pressure induced by demand
- Lower representation in higher level
- Strengthen decentralization
- International – global community and neighbouring/regional countries
- Strengthen role of boards and commission
- Transparency in decision making process
- Empowerment at regional and local level (negotiate)
- Higher representation in lower levels
- Ownership and then responsibility
- Trust
- Awareness raising
- Information on process
- Technical and local knowledge
- Information on coping mechanisms
- Formalize linkages/policy interaction at all levels

d) What is important for the approach/document?

- Cross representation at all levels
- Assess Strengths and Weaknesses of Stakeholders
- Clarify relationship between power of stakeholders and dependence to land:



- Community Participation (where does this go in the document?)
- Multidisciplinary approach
- Implementation Agencies
  - Coordinate, integrate and facilitate (this requires specific training)
  - Avoid consultation fatigue
- Understand structure of the community
  - All groups

Traditional Leaders
Women and disadvantaged groups
Youth
Marginalized (special attention to vulnerable groups)

- LMRG's Promotion/Creation (specific training/capacity building required here also)
- On the spot planning vs. further analysis (next steps...)

Community

Organization of participation process on community level

Multidisciplinary / integrated approach

- Recognize existing structure of community (including youth)
- Identify disadvantaged groups
- Recognize sensitize traditional leaders
- identify potentials and constraints of each group
- Interrelationships cause and effect analysis and awareness raising
- Emphasis on women empowerment
- Work with each existing group individually and exchange results – capture all voice
- Promotion and creation of LRMGs through dialogue at community level (by preference use of existing structures)
- Capacity building on informed decision making on local level
- Gender sensitive analysis of changing farming systems
- Training of advisors in the new role of facilitators
- Advisors need to act as facilitators
- Ensure everyone is informed at all stages
- Encourage on the spot action planning – where appropriate
- Need for further analysis
- Provide forum

Conflicts

a) Possible origins

- Impact of empowerment on tradition, tenure jurisdiction (e.g. Chief Conflicts)
- Influence of leadership on land use (development)
- Competition for resources and land uses
- Land tenure (parallel legal system)
- Conflict between different policies

- Offsite pollution or other impacts
- NGOs versus Government
- Demand versus environment
- Conflicting interests and common good
- Communal interest versus commercial interest
- Culture vs. Economic interests
- Social equity versus national economy
- Conflict in land restoration
- Conflict among existing groups in a community
- Widening gap of poverty
- Cultural interests versus economics
- Power and insecurity
- Donor conflict on recognition
- Stakeholder conflict at local/community level

b) Conflict Resolution

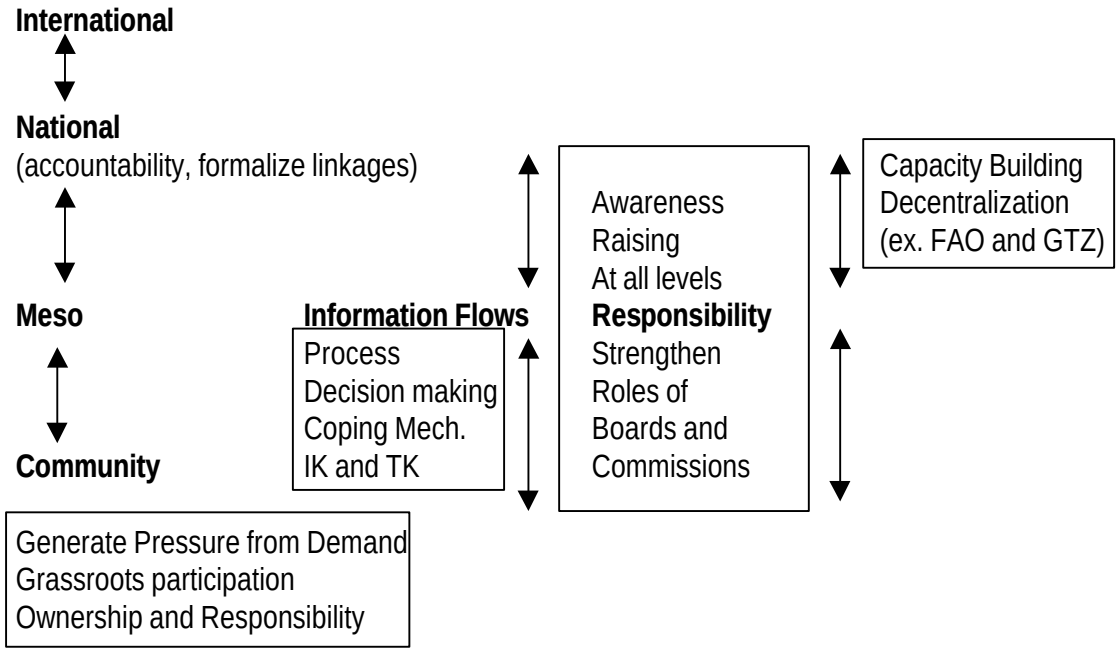
- Avoiding tactics
  - Common vision
  - Consensus Building
  - Integrated Coordination/tradeoffs
  - Trade-offs
- Resolution
  - Traditional Negotiating Structure
  - Facilitator (ground rules, response of and respect for traditional authority)
  - Traditional Court
  - Ombudsman
  - Statutory Court

c) Incentives to avoid/solve conflicts

- to avoid dependency syndrome
- Awareness raising/creation and education
- Target incentives to share costs of conservation more widely
- Recycling of locally generated income
- Sharing benefits of wildlife conservation areas (campfire-Zimbabwe)
- Incentives such as nurseries, etc. (trees, medicinal plants, etc.)

Top-Down/Bottom-Up

- there was a proposal for editing figure 7 in the draft manual:



EXAMPLES/LESSONS LEARNED

1.	Formulation of national development strategy.	SWAZILAND
2.	National Environment Action Plan.	SWAZILAND
3.	Village Area planning.	BOTSWANA
4.	Decentralization	GHANA
5.	Community Based Land Use Planning	LESOTHO
6.	Bush Control Project	NW province, SOUTH AFRICA, BURKINA FASO/COLVILLE, AND ZIMBABWE IN HM CHINA
7.	Water quality monitoring team	PHILIPPINES

GENERAL RECOMMENDATIONS DRAWN FROM DISCUSSIONS

1. **Stakeholders**

This section should be expanded and clarified. The chapters 3 and 5 can be merged. It will be important to show the various stakeholders that are within the national, meso and local levels and to show the relationships between the levels. This section should also cover

a) methods for assessing strengths and weaknesses of stakeholders (stakeholder analysis methods can be placed in a box),
b) strengthening interaction between these levels including cross representation at all levels and enhanced ownership. A graphic depicting the relationship between power of stakeholders and dependence on land should be included.

2. **Community**

The section on Community must include promoting community participation, understanding the structure of the community, using a multidisciplinary approach, and creation or promotion of LMRGs (including training). Within this section, many suggestions are made for organization of participation process on the community level (see working group outputs).

3. **Top Down/Bottom Up Approaches**

This section needs to be enhanced including the graphic currently identified as Figure 7. Specific aspects noted were the importance of accountability, responsibility and formalized linkages across levels, the importance of information flows across levels. The information includes information regarding awareness creation, process, decision making, coping mechanisms, and indigenous and technical knowledge. Decentralization issues need to be addressed and the capacity building needed to work within this context. Examples from FAO and GTZ recent conferences can be drawn upon in this discussion. Capacity building at for implementing agencies should strengthen their role as coordinators, integrators, and facilitators where as at grassroots levels it is concerned with enhanced participation and informed decision making.

4. **Conflicts**

There should be a section, which deals with possible origins of conflict as well as avoiding and resolution tactics. Case examples should be included where incentives served to avoid and or solve conflict by increasing ownership.

WORKSHOP EXPECTATIONS OF THE PARTICIPANTS

At the beginning of the workshop, the participants were asked for their expectations they came with to the workshop. Three questions were given:

- What do we hope to learn or to give during the workshop?
- What do we hope to share or contribute?
- What would we like to gain personally?

The expectations were written by the participants on cards and visualised on a pin-board.

1. What do we hope to learn or give?

I would like to (learn):

- how to coordinate between land and water agencies
- about case study experiences from other countries
- widen personal scope and pick up interesting new ideas
- to interchange ideas , views and methodologies with regard to sustainable LRM
- share views and experience on ILUP
- about new approaches to ILUP and what the concept of ILUP entails
- the evidence of success land policy development
- to have a better understanding of LUP
- to get more knowledge on the aspects of LUP
- about a practical guidance on the ILUP process
- the evidence of successful land use planning schemes
- basic concepts and principles of ILUP
- about a holistic understanding of LUPs
- new ideas and approaches to land-use planning – technologies and legislation
- better coordination of how the stakeholders could be achieved
- to understand the basic principles of ILUP
- to find a balance between socio-economic and physical factors affecting LUP
- how the countries plan their land use and solve land related problems
- to get a broad understanding of land related problems and their solutions
- to give input to case studies to build ILUP guidelines
- to get a practical guidance in planning
- a clearer definition of planning and management
- a practical definition of the word ‘integrated”
- to listen to experience from participants
- to meet people make contacts with others working on LUP in Southern Africa
- about country case studies and success stories
- to get other peoples opinions on how the manual should look like

- to get ideas referring introducing advanced management systems in rural areas
- how to make an ILUP feasible
- how to strengthen community participation in LRM
- how to prime the community development process
- get a document with workable strategy for strengthening institutions coordination
- to discuss ideas with people with common interests
- how to bridge local knowledge with scientific knowledge in ILUP
- what is really appropriate in LRM
- to achieve consensus on the main issues
- about the grazing animal environment interactions
- to have a better understanding of the scope of LUP.

2. What do we hope to share or contribute?

I would like to share (or to contribute):

- countries experiences in LUP
- my opinion on how the document should look like
- coordination, experiences, views from our countries
- experiences on various approaches to ILU management systems
- country level experiences in LUP and RM
- sectoral needs in conducting ILUP
- approaches within Swaziland's draft national land policy
- information on Namibia's AEZ –programme
- information on two draft bills with reference to LUP in Namibia
- experiences from our countries on various land issues as high lighted in these documents
- experience in participatory NRM
- contribution towards sustainable land management decisions
- integrated land uses and sound land use policies
- ideas on integrated planning with particular emphasis on the region
- information and experiences that might improve the manual
- my experience in the subject also suggestions on the adaptation of the new approach
- new concepts in LUP
- experience/problems encountered in planning eg bureaucracy versus participation and constraints versus expectations
- ideas gained from participatory planning during NEAP development process
- challenges of drawing up a policy
- to expand knowledge on how land use planning is carried out in other countries
- discussions on new strategies for ILUP
- we always learn something new from such workshops
- UNDP's experiences in supporting environmental management and water supply

- experiences, ideas, new views and a better understanding
- experience of editing guidelines and land use planning in 15 countries
- examples, good experiences, bad experiences
- land use planning experience from Swaziland

3. What would we like to gain personally?

I would like to:

- create a future network to facilitate the exchange of experiences
- have constructive discussion of ILUP issues
- meet new people
- get a better sense of LUP
- get to know new colleagues
- make friends
- have a practical workshop on ILUP in the future – model area
- look forward to an exhilarating field excursion
- learn about the view from other participants on planning resettlement properly
- strongly emphasis on resettlement
- gain greater insight on ILUP with how to improve coordination between land and water agencies
- learn about the indication of whether and how village land use planning actually works
- work in an open relaxed atmosphere
- get a detailed overview of land use planning in Swazi national land areas
- gain knowledge on communal land use planning
- learn about country experiences in LUP
- learn about clearly demonstrated evidence of success stories of ILUP from case studies
- have time for lively debate
- have adequate time for plenary discussions
- learn about a programme for capacity building in ILUP
- have constructive inputs
- have open free discussion on topic at hand
- have more independent discussions and less facilitator intervention
- get to know interesting people
- gain and share knowledge in a relaxed atmosphere
- have a positive working atmosphere
- no comments
- see decision-makers actively participating in a similar workshop
- visit to land use planning projects in Swaziland
- come out of here with an understanding of land-use planning
- have discussions in a relaxed manner

- see something of Swaziland, especially the rural areas
- make contacts for future follow up activities – jointly
- meet people and share ideas on NRM and the promotion of sustainable livelihoods.

PARTICIPATORY EVALUATION OF THE WORKSHOP

BACKGROUND

The Feedback-Technique is a special form of communication. In addition, it is an instrument for monitoring the level awareness of people what is going on in a communication process. It is aimed at:

- monitoring the awareness status concerning project objectives as well as project progress as seen by the people involved; and
- the creation of a transparent and open (working) atmosphere in a group. It supports the group dynamic.

DAILY FEEDBACK

The workshop was designed such that each day, the participants could provide feedback on the workshop with regard to:

- how well we were meeting the objectives of the workshop, and
- how the "atmosphere" felt for the workshop.

This was done using a feedback board (picture) on which participants and organisers could visually and anonymously place their mark – either good, neutral and bad - as to the how the day went. Through this exercise it was possible for the participants as well as the workshop organisers to follow the trend of the workshop, discuss the daily 'rating' and make mid-course corrections where necessary.

PARTICIPATORY WORKSHOP EVALUATION

On the last day, a final participatory workshop evaluation was conducted. Two questions were formulated focusing on positive aspects and aspects which could be improved. The participants used cards to write down their ideas and fixed it visible for everybody on the board. The following are the sorted results of that exercise:

What has been good?

Discussions, Ideas and Experiences

- the information and knowledge gained
- the discussion (3)
- all the ideas that have been shared
- bringing together the various disciplines and experiences
- I have learned so much
- sharing of ideas
- the discussions have been very good

The Field Trip

- the tour was marvellous
- the field trip (2)

- field trip in the middle of the week was beneficial to atmosphere and learning experience

Atmosphere, Organisation and Progress

- the very good atmosphere (2)
- relaxed and conducive atmosphere
- the organisation of the workshop (2)
- the workshop was very well guided by the organisers and participants
- organisation for moving forward (2)
- creative and pleasant working methods and atmosphere
- we have made much improvement in the manual
- comments on how the manual should look like
- timing

Other

- everything

What could have been better?

Discussions, Ideas and Experiences

- more time for reflection on group presentation
- more multidisciplinary panel
- not enough discussion on case studies and examples
- more participatory issues identification

The Field Trip

- sandwiches for the field trip
- field trip arrangement could have been better

Other

- the social atmosphere could have been better
- nothing could have been better (4)

SUMMARY

From the point of the organisers and the participants, it was generally felt that the workshop was successful in meeting the objectives and in convening a workshop based on a participatory approach. The points for improvement will be used in planning future workshops.