

Enhancing Social Sustainability in Activities to Combat Desertification

A Manual for Reflection



Enhancing Social Sustainability in Activities to Combat Desertification

A Manual for Reflection

The designation of geographical entities in this book, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of IUCN or the Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung (BMZ) concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries..

The views expressed in this publication do not necessarily reflect those of IUCN or BMZ.

This publication has been made possible by funding from BMZ.

Published by: IUCN, Gland, Switzerland and Cambridge, UK



Copyright: ©2004 International Union for Conservation of Nature and Natural Resources

Reproduction of this publication for educational or other non-commercial purposes is authorized without prior written permission from the copyright holder provided the source is fully acknowledged.

Reproduction of this publication for resale or other commercial purposes is prohibited without prior written permission of the copyright holder.

Citation: IUCN (2004). *Enhancing Social Sustainability in Activities to Combat Desertification: A Manual for Reflection*. IUCN, Gland, Switzerland and Cambridge, UK. xviii + 136pp.

ISBN: 2-8317-0769-2

Cover design: IUCN Publications Services Unit

Cover photo: ©REDUSO Programme

Illustrations: *Design:* Adjinacou Gnahoui Cyriaque; Koudénoukpo Biao Juliette and Koné Haïkayamba
Drawing: Kaboré Timpousga aka “Timpous”

Translation by: Prosper Akanni

Layout by: IUCN Publications Services Unit

Produced by: IUCN Publications Services Unit

Printed by: Thanet Press Ltd., Margate, UK

Available from: IUCN Publications Services Unit
219c Huntingdon Road, Cambridge CB3 0DL
United Kingdom
Tel: +44 1223 277894, Fax: +44 1223 277175
E-mail: info@books.iucn.org
www.iucn.org/bookstore
A catalogue of IUCN publications is also available

Table of Contents

Foreword	vii
Acknowledgements	ix
Glossary	xi
Acronyms	xvii
Introduction	1
Part I Interventions against desertification	7
1.1 Is desertification control a technical issue?	8
1.1.1 Types of interventions against desertification	9
1.1.2 History of the management of natural resources in the Sahel	9
1.1.3 Weakening of the community regulatory mechanisms	10
1.1.4 Multiple and many-sided interventions	10
1.2 How are the technical methods introduced to the communities?	12
1.2.1 Limitations in the involvement of rural communities	12
1.2.2 Desertification control techniques	13
1.2.3 Rational exploitation and regeneration of natural resources	15
1.3 Towards the consideration of local dynamics	19
1.3.1 A challenge for research and popularization	19
1.3.2 Changes in the research targets	20
1.3.3 Local knowledge and know-how, the major factors in social sustainability	21
1.4 Taking the social dimension into account in formulating integrated programmes	22
1.4.1 Genesis of comprehensive approaches	22
1.4.2 An integrated vision and a sector-based implementation	25
1.4.3 Necessity of participation	26
1.4.4 The methods of the participatory approach	29
1.4.5 Global/participatory approaches and social sustainability	31
1.4.6 Successes and failures: Case studies in West Africa	34
Part II Do the legal and institutional frameworks support social sustainability?	45
2.1 Changes of the legal and institutional context	46

2.1.1	Stages in the establishment of the current political and legislative framework	46
2.1.2	Policies that did not take the natural resources into account	46
2.1.3	Introduction of environmental issues into policy-making in West Africa	49
2.2	Influence of the planning methods on social sustainability	50
2.2.1	Some worrying reports	51
2.2.2	Antagonisms between national frameworks and local systems	52
2.3	Reconciling the national frameworks with the Convention to Combat Desertification	53
2.3.1	The development of legal and institutional frameworks	53
2.3.2	The Convention to Combat Desertification: a reference framework	56
2.3.3	The different levels of intervention to consider	58
2.4	The role of community institutions and local regulations	60
2.4.1	Modifications of the role assigned to community institutions	60
2.4.2	Community institutions as the basis for social sustainability	62
2.5	Granting more power to local institutions	66
2.5.1	Rendering the legal provisions (about community management) operational	67
2.5.2	Reconsidering the role of decentralized offices and that of supportive structures	68
2.5.3	Clarifying the respective roles of the State and other actors	69
	Part III In search of socially sustainable intervention methods	73
3.1	To change the approach of interventions	73
3.1.1	To “involve” or to “enhance the autonomy” of local communities?	73
3.1.2	Thinking about the role local populations should play before structuring interventions	74
3.2	The conditions for social sustainability	75
3.2.1	The concept of sustainable development	75
3.2.2	Social sustainability approach	76
3.2.3	The social dimension of sustainable development	77
3.2.4	The concept of social capital	79
3.2.5	The role social capital plays in the fight against desertification	80

3.3	Promoting a dynamic of long-term change	81
3.3.1	The co-management approach	82
3.3.2	The patrimonial approach	89
3.3.3	The rural management approach	95
3.3.4	The local development approach	98
3.3.5	Ecosystem management	99
3.4	Tools for implementing socially sustainable interventions	102
3.4.1	Good governance	102
3.4.2	Social communication	105
3.4.3	Taking the gender issue into account	111
3.4.4	Alternative management of conflicts	115
3.5	Conclusion	124
	References for the definitions in the glossary	127
	Bibliography	129

Foreword

The projects undertaken since more than 40 years to combat desertification have all had but a qualified success. Soil degradation, far from being reversed, is worsening. And yet, a lack of wherewithal, in terms of goodwill and especially finance, to halt the scourge is no valid reason. Scientifically, detailed action-research activities, methods, high quality techniques and tools were developed in an endeavour to reverse the trend.

The causes of the failure of the projects against desertification are as multiple and various as the possible scenarios, each project being unique and involving different actors and specific contexts and constraints.

What is probably common to all the projects implemented in the Sahel is the fact that the technical, and even “all but technical”, approach was given priority over the social approach. Trees were planted in accordance with the technical methods taught at the schools of forestry, small dykes and other stony cordons were erected. Other efforts consisted in constructing several dams and in introducing grainfields according to the particular ecological contexts. The activities were formerly carried out under State control using a salaried local manpower (in a noble way). Then, it was later decided that the populations should be “**involved**” (those are the days of populations’ involvement).

A careful observer will note a very positive change in the decisions and planning and the increased willingness of decision-makers and planners to reckon with the populations henceforth.

The programme for “enhancing social sustainability in the fight against desertification” in West Africa (in French, “REnforcer la DURabilité SOciale des actions de lutte contre la désertification – REDUSO) came into being against this background with the overriding goal of giving further thought to the problem of desertification. Is “associating or involving” populations enough to ensure their complete commitment to the objectives of the projects? In other words, should the populations be persuaded to adhere to the objectives of the projects or should they be urged to engage in the fight against desertification?

How willing are the governments to **devolve the responsibility** for managing natural resources and to what extent are they prepared to do it? How better can the local authorities (local designated or elected representatives) demonstrate a higher capacity than the central power to manage the natural resources? What are the best mechanisms for settling the conflicts related to access to natural resources? What legal frameworks should be established to ensure the perpetuation of the interventions? Should co-management be taken for a panacea?

This manual is neither a toolbox nor a handbook. Instead, it seeks to guide a permanent reflection by highlighting the social dimension of the initiatives in favor of desertification control and, more generally, of a sustainable management of natural resources in the arid, semi-arid or sub-humid areas. It is meant to serve as a methodological tool for development actors and for all those who concern themselves with “**better preserving for a higher output; and better producing to improve the living conditions of the populations of the Sahel**”.

In addition, this manual provides its readership with valuable data that will help them continue the reflection and actions such as:

- fuelling the current debates in the different countries of the sub-region;
- arousing the continuation of exchanges and of research activities initiated by the actors;
- pursuing the awareness raising and the consideration of the social dimension of the fight against desertification, facilitating the assessment of desertification control programmes on the basis of their social sustainability.

Thus, in an effort to meet the strategic and practical needs, the conception of this manual largely imitated similar processes and used a rich documentation available with a number of partner organizations such as CILSS, the UNEP, the UNDP, the UNFPA, the Cooperation Suisse, the UNESCO and the IPD/AOS.

It will therefore be valuable to actors in several ways inasmuch as it will facilitate the conception, the implementation, the monitoring and the assessment of desertification control programmes. The manual will particularly benefit the following:

- People in charge of the definition, the formulation, the planning, and the conducting of desertification programmes and projects;
- Financial partners in the fight against desertification;
- Project implementation officers;
- Researchers;
- Trainers at specialized schools of applied sciences related to environment and development.

While we are perfectly aware that there is plenty of scope for improvement in this publication – which is a result of reflections, tests, and action-researches carried out over four years – we envisage making regular updates available to keep pace with the fast changing concepts and the emergence of new dimensions. Indeed, the fight against desertification, which consists of a combination of physical and social factors, is not an easy task.

Ibrahim Thiaw
Regional Director
IUCN Regional Office for West Africa

Acknowledgements

The writing of this manual has been achieved thanks to the financial support and assistance of the German Ministry of Economic Cooperation (BMZ) to which IUCN, through REDUSO, is indebted.

This publication is the result of a four-year methodical and regular work carried out throughout the Sahel by the REDUSO project under the aegis of the IUCN Regional office for West Africa. The last part of the manual was a collaborative effort by Mrs Juliette Biao Koudenoukpo, Mr Richard Pearce and Mr Koné Haïkayamba.

A measure of thanks is due to Mr M. Arzika, Mr Sani and Mr Hamado Ouédraogo who previously served within the team of REDUSO. The following executives played a vital role in the supervision of the work: Mr Ibrahim Thiaw, Regional Director; Mr Jean-Marc Garreau, Regional Coordinator; Mr Aimé J. Nianogo, Head of Mission, IUCN Burkina Faso; Jean-Jacques Nduita, Communications Officer.

An additional measure of thanks is due to the numerous people who contributed to this work during national fora and regional seminars. The compilation of the manual drew on the expertise of the following members of the scientific and technical committee who gave some of their valuable time to provide their knowledge and experience to help the project along: Mr Dabiré A. Bernard, Consultant; Mrs Koumba Barry/Boly, Office of Cooperation of Switzerland, Ouagadougou; Mr Bertrand Zida, CILSS; Mr Frederic Traoré, The EIER/ETSHER group; Mr Hermann Grell, the German support mission, CILSS; Mr Siaka Coulibaly, Legal consultant.

This work would not have been achieved without the precious contribution of experts and consultants who enriched reflections and debates. We are also truly indebted to Mr Ismaël Kanté, Saïdou Kane, Boubacar Ouédraogo, Cyriaque Adjinacou, Boubacar Macalou and Moussa Batchily Bâ. We are grateful to Prosper Akanni (MSc Boston University) for translating the original French into English.

Glossary

Agro-pastoralism	System of production in which the whole family and the livestock are geographically stable, and agriculture and cattle breeding are important activities. (1)
Arid, semi-arid, sub-humid dry areas	Areas not including the arctic and sub-arctic zones, in which the ratio of yearly rainfall to possible evapotranspiration is in the range of .05 to .65. (1)
Aridity	Natural phenomenon characterized by fitful showers, high differences in temperature, and a turbulence of the atmosphere. (1)
Awareness raising	Improvement of the understanding and the interpretation of a phenomenon or situation through a set of communicative elements describing bald facts and elements of analysis and interpretation arranged in structured groups aiming at a goal pre-established by the issuer. (1)
Carrying capacity of a pasture	Number of animals that can potentially exploit the resources of a pasture without causing its degradation in the long run. This notion applies to natural resources. (3)
Community participation	Processes by which a community, in touch with the development structures, identifies its problems and needs, determines its priorities for development, implements and ensure the monitoring and assessment of its programme according to the pre-established goals. (1)
Decentralization	Administrative system by which the State gives other recognised legal entities, the financial and management autonomy as provided by the law. It may take a territorial or technical form. (1)
Decentralized local community	Portion of the area that is freely administered in accordance with the provisions of the law, by deliberative organs and executives which have been elected or given a legal entity, a financial autonomy and a given patrimony. (1)
Degradation of environment	Exhaustion or destruction of a resource that can regenerate, as a result of a use that exceeds the natural pace of renewal. (1)
Desertification	Impoverishment of soils in the arid, semi-arid and dry sub-humid areas caused by various factors such as climatic changes and human activities. (5)
Desertization	The advance of the desert due to the combined effect of the climatic changes and human activities. (1)
Development	Process by which states and nations try to improve their populations' living conditions. (1)

Drought	Natural phenomenon that occurs when the rainfall are noticeably inferior to the levels normally recorded, and that causes serious hydrologic imbalances that are detrimental to the production systems of land resources. (1)
Drought alleviation	Upstream desertification control activities aimed at reducing the vulnerability of the society and natural systems to drought. (1)
Ecological balance	Concept used in ecology to refer to the capacity of an ecosystem to re-form in the long run (in spite of the short-term changes and fluctuations). (1)
Empowerment	Devolvement of decision-making and control powers to populations and /or to local institutions with regards to the development of their rural areas and the management of their resources. (1)
Fight against desertification	Activities pertaining to the integrated exploitation of land in the arid, semi-arid and sub-humid dry areas for a sustainable development that aims to: <ul style="list-style-type: none">■ prevent and/or reduce the degradation of soils;■ restore the most degraded soils;■ restore the soils which have turned into a desert. (5)
Gender and development approach	Approach that takes into account the roles, tasks and responsibilities of men, women and all the other marginalized groups of a community as well as their access to and control of resources. (1)
Governance	The set of intentional regulatory systems generated by a social organization (whether public or private), that maintains its viability (its survival) while interacting with: a) several other organizations; b) mutually established institutions (such as the markets, the States, the norms and values), as well as the natural organizations which are observable in the biosphere. (9)
Governance and action	The concepts of action and governance are closely related. The word “to run” or to “manage” is meaningless without the existence of an action. Without action, there is no problem of governance. (Matus, 1987) There cannot be any action (intentional activity) without a previous identification or passion and “rationalization <i>a posteriori</i> ” of the available information or reflection on the “negativity”, the choices and the purposes. (9)
Impoverishment of soils	Decrease or extinction of the biological or economic productivity and of the complexity of soils due to their use or to several phenomena, mainly the phenomena resulting from the human activities and the populating modes such as: <ul style="list-style-type: none">■ erosion of soils caused by wind and/or water;

	<ul style="list-style-type: none"> ■ degradation of the physical, chemical, biological or economic proprieties of soils; ■ extinction of the natural vegetation in the long run. (1)
Information	Knowledge improvement through both the communicative elements describing bald facts and a limited analysis the interpretation of which is left to the receiver. (1)
Interactive learning	Improving of skills, enhancing of the autonomy of an individual or a minority of a society through information, exchange and experimentation. The elements of knowledge, the understanding and the interpretation are experienced in real life and are therefore better grasped by the people targeted through the communication approach. (2)
Land	Bio-productive system including soils, vegetation, living species and ecological and hydrologic phenomena that occur within the system. (1)
Land security	Set of regulatory measures that guarantee to one or several farmers the permanent use of their respective land or resources. (1)
Land system	Rules related to land and institutions plus the relations that determine the enforcement and the practical application of these rules. (1)
Legitimacy	To legitimize consists in bestowing qualities, positive qualities on activities. A practice is warranted because it is useful and or /pleasant. The legitimacy of a practice refers to the social perception of this. Thus it is a subjective representation related to a mode of society. (10)
Local development	Voluntary approach focused on a small area, which views development as a bottom-up process whereby the indigenous resources are valued. It draws on local industrial traditions and insists particularly on the consideration of cultural values and on the recourse to cooperative terms. (7)
Local knowledge	Local knowledge consists of elements relative to the knowledge and the control of the nature, which are “tributary” of a social space. (12)
Natural resources management	To manage the natural resources consists in making decisions on the basis of targeted objectives, a set of utilization patterns, individual and common attitudes to ensure a sustainable use of these resources. (1)
Participatory research	Research process that values the role of beneficiaries in the research, and aims at improving the pertinence and the appropriation of the results. The researchers, the grassroots representative and the leaders should collaborate as a reference group in the research process from the choice of the research topic and keep their commitment for the

other stages of the process until the results are published and popularized to the community through appropriate communication media. (1)

Partnership

Association of two or more parties devoting itself to a collective activity, sharing the costs and advantages, with pre-established rights and responsibilities. Each party contributes resources to the common activity and is entitled to a share of the benefits. (1)

Pastoralism

Production system in which 50% of the output is generated by pastoral activities. In West Africa, it takes place with the nomadic populations who often engage in seasonal migrations generally called transhumance. (1)

Production system

Articulated way in which the farmer combines the available production factors to achieve his personal goals. Currently, it is advocated that the targeted objectives include the preservation of the productive potential of the basic natural resources. Hence the concept of natural resources management/production system. (1)

Resilience

Impact strength relative to the capacity of a system to resist during its functioning without significantly changing its qualitative structure. This is a sign of a resistance attitude expressed through reactions that are often positive and creative and through multiple changes and readjustments. (11)

Rural area

Rural space exploited by a community that holds (permanent or periodic) rights of occupation and use that are recognised by the neighboring communities. (1)

Rural area – or rural area management – approach

A set of methods whereby a rural community expresses its development strategies, puts them against the constraints and the available resources in order to develop action programmes aimed at improving its living conditions through the rational and sustainable use of resources (natural, human, animal, financial resources etc. (1)

Rural development

Development of a set of actions and measures for exploiting the rural resources in order to satisfy the needs of the populations concerned without impairing the productive capacity of those resources. The development may concern one or several kinds of resources. (1)

Social capital

The “potential” social capital concerns the relations and interactions existing between individuals in the form of good neighborhood terms, membership to networks and associations, and common norms and standards. Part of this capital may be advanced to allow a person to gain social entitlements and favors such as: transfers of money and good, access to credit, information, job etc...This social investment can be measured by the social income expected or capitalized over a given period. (4)

Social sustainability	The one that takes into account the adaptability of norms and practices to social representations, the necessity of ensuring equity within and between generations. A better sustainability can be achieved only through the involvement of the populations in the process of making the decision that concern them. (8)
Sustainable development	Development that meets the needs of the present time without impairing the capacity of future generations to satisfy theirs. (6)
Systemic or systemic research approach	Approach which analyses the elements and facts globally (instead of separately) as integral parts of a group the different components of which are reciprocally dependent upon each other. The classical approach has three phases namely: diagnosis, conception/planning, experimentation and pre-popularization. (1)
Training	Enhancing the skills of an individual, or a minority of a society through a number of organized communication elements aiming at a pre-established goal set by the issuer. (1)
Transhumance	Production system that is mobile within seasonal areas which are demarcated and used during a year; it may include a sedentary agricultural form or not. (1)

Acronyms

BMZ	German ministry of economic cooperation
CCD	United Nations Convention to Combat Desertification
CFD	Caisse Française de Développement
CILSS	Permanent Inter-State Committee to fight drought in the Sahel
GRN	Gestion des ressources naturelles (management of natural resources)
IUCN	The World Conservation Union
LCD	Lutte contre la désertification (fight against desertification)
NEPAD	New Partnership for Development in Africa
PAN	National Action Plan
PASR	Sub-regional Action Plan (from the French – Plan d’action sous-régional)
PRA	Participatory Rural Appraisal
REDUSO	Project “Enhancing social sustainability in the fight against desertification” (from the French – REnforcer la DURabilité SOciale des actions de lutte contre la désertification)
UNEP	United Nations Environment Programme



YOU FOLKS HAVE CERTAINLY HEARD ABOUT A NEW PROJECT TO FIGHT DESERTIFICATION...!

CILSS

TO FIGHT DESERTIFICATION IN A WAY THAT DIFFERS FROM WHAT YOU ARE USED TO. IT'S ALL ABOUT PLACING YOU PEOPLE AT THE CENTER OF EVERY ACTION.

CILSS

A FARMER ROARS WITH LAUGHTER. WHAT? PLACE US AT THE CENTER OF ACTIONS? WHERE WERE WE? AH, AH, AH.

THAT BEATS ALL! THIRTY YEARS OF DISTRIBUTION OF PLANTS AND SMALL DYKES, OF PUTTING FORESTS UNDER STATE-CONTROL AND OTHERS THINGS OF THAT ILK...

AND, AS IF WE WOULD BE FOOLED BY THAT, THEY ARE NOW SUGGESTING A SO-CALLED PARTICIPATORY APPROACH.

LISTEN, WILL IT HURT TO HAVE MORE MONEY TO GOBBLE? THEY WILL CERTAINLY COME TO A CROPPER.

OK, WE ARE ALL EARS. DO TELL US!

THE MOST IMPORTANT CHANGE IT IS THAT WE WILL HENCEFORTH USE YOUR KNOWLEDGE, THE EXPERIENCES YOU INHERITED FROM YOUR FOREBEARS. THUS, EVEN WITHOUT EXTERNAL SUPPORT, YOU WILL BE ABLE PURSUE ACTIONS TO FIGHT DESERTIFICATION ON YOUR OWN AND FOR A LONG TIME.

Introduction

The ever-increasing tangible wealth is compounding the environment-related problems worldwide. Poverty and hunger continue to wreak havoc on almost the quarter of the population of the developing world. Running water is scarce while greenhouse gas emission is increasing.

Because the production and consumption patterns of the developing countries have not significantly altered, desertification, which poses a threat to the poor populations, is undermining the development of their countries by deteriorating their living conditions.

In West Africa, desertification threatens the living conditions of more than 250 million people. According to the United Nations Environmental Programme (UNEP), of the total global area, up to 6.1 billion hectares are arid. According to estimations, 73% of the continental African land is more or less exposed to desertification.

In Asia where dry and sub-humid arid or semi-arid zones cover a total 4.3 billion hectares in area, desertification affects a population of 1.7 billion individuals.

In Latin America and the Caribbean, arid zones and deserts cover almost the quarter of the total land. Academia and scientific committees have recognised that changes in climate followed by an aggravation of drought and fitful rainy seasons, are cause for mounting concerns in the countries affected by desertification. Therefore, more and more individuals in these countries, especially in rural zones, are becoming vulnerable while the nutritional needs in are increasing

Awareness of the desertification effects and the necessity of coming up with relevant strategies to control them began to grow only as a result of the big droughts which took place in the Sahel between 1968 and 1969 and at the beginning of the 1980s. These strategies have been subject to considerable change over time. From the more global approaches of the first years, (such as the United States Action Plan to fight desertification, (1977) specific and more complex tailor-made strategies have been designed to include regional and local parameters.

In 1994 The United Nations Convention to Combat Desertification was adopted in line with the consensus reached during the Environment and Development summit held in Rio de Janeiro in 1992.

The CCD will emphasise the development of a comprehensive approach which guarantees the participation and empowerment of major parties and the establishment of more incentive partnership frameworks

IUCN became involved in the fight against desertification almost 20 years ago. The Sahel Programme has been established within that framework thanks to the support of donors in the middle of the 1980s.

The programme helped the writing of the document entitled “IUCN survey on the Sahel” the first volume of which was published in 1991.

Like many other contributors, IUCN strongly believes that if the results do not come up to expectations, it is due mainly to the low level of involvement and control over actions by the more directly involved parties.

Since the coming into effect of the CCD (on December 26, 1996), several processes and measures have been taken to devise and implement National Action Programmes (NAP) as well as Sub-regional or Regional Action Programmes (at a continental level).

These processes and measures should primarily identify, take into account and stress how institutions and local communities could and should help fight desertification. Within a context of globalization of markets, enterprises, information and decision-making regarding the environment-related issues, the participatory approach that empowers stakeholders, would strongly help the appropriation of local actions inserted in different cultures.

The result of efforts to fight desertification seven years after the CDD came into effect have shown a lack of appropriation by the beneficiaries. While small tangible success can be noted as a result of a number of actions, It remains true that the weaknesses observed are but a visible part of a more hidden set of difficulties pertaining to the effective involvement of population. The social dimension of the desertification thematic and the negative effects of drought have always been overlooked during the succeeding phases of conception, elaboration, implementation, monitoring and appraisal of programmes. This view was largely shared among all the parties. It becomes more and more apparent that on top of the legal, institutional and technical norms, the desertification control should concern itself with the gearing of these norms and practices to the level of the social representatives of natural resources users while having in mind the necessity of guaranteeing equity within and among generations. This element becomes key to a better understanding of several forms of involvement of different parties.

Enhancing the social sustainability of desertification control activities is a great challenge currently facing all of these nations, meaning a larger number of actors should quickly be empowered, trained and equipped so as to enhance the social sustainability thereby increasing their effectiveness in promoting a well-balanced and sustainable development.

It is within this framework that the IUCN Regional Office of West Africa and BMZ reached an agreement in 1998 over the development of the project called 'Enhancing the social sustainability in desertification control' (REDUSO). The goal is to emphasise the necessity of taking into account the social dimension in processes and approaches to fight desertification.

Through the initiatives of REDUSO, the West African Regional Office of the World Conservation Union seeks to harness the capacity and expertise of its members and partners over the issue of social sustainability, drawing its inspiration from the acquired experience of the South African Regional Office.

More specifically, the project should firstly contribute to exchanging first-hand relevant information pertaining to the effective consideration of social parameters in the implementation of activities against desertification, secondly help analyse and understand the social dimension of programmes and projects on actions against desertification, and thirdly promote a consensus on the social characteristics of the West African Sub-region and its potential development in relation to the natural resources management.

This document has been made available after four consecutive years (1999–2002) of intensive experimentation of approaches and development of tools that aroused exchanges on the social characteristics of the sub-region with a view to better involving grassroots communities in the desertification control activities. The experiment is based on tests carried out in seven West African countries including Burkina Faso, Ghana, Guinea Bissau, Mali, Mauritania, Niger and Senegal).

It is a reference manual which seeks to serve as:

- An information document for distributing and popularizing main strategies to control desertification in accordance with the guidelines of the United Nations Convention to Combat Desertification and the West African Sub-regional Action Programme;
- A forum for analysis – criticism of technical classical approaches as well as of new approaches seen as *vade-mecum*;
- A methodological base to combine the advantages of both the classical and participatory approaches that are necessary to the consideration of the social dimension in the development actions within a perspective of sustainability;
- A decision-making tool to help desertification project and programme designers.

This manual is intended for all the parties involved in the elaboration, the implementation, the popularization, the monitoring and the appraisal of programmes of actions against desertification.

The targeted readership consists of:

- Field officers and agents: not only will it add a lot to their daily routine but it will also provide them a valuable exposure to technical and methodological knowledge and tools to improve their practices;
- Decision-makers and officers concerned with the designing, the formulation and the animation of policies and programmes of actions against desertification. The technical and financial partners of these decision makers will also find the manual to be useful.

Without a doubt, the mass of information, knowledge, methods, tools, and case studies compiled in the manual will facilitate the works of trainers and researchers of the development of Africa.

The thinking behind this manual is the emphasis on how well the CCD cherishes the concepts of partnership, participation, cooperation, exchange of information and strengthening of sub-regional capacities. This manual, which is a result of an intellectual teamwork of sub-regional actors, has been written by a multi-disciplinary sub-regional group and will therefore lead to a profitable use of its content in favor of the disadvantaged and the ultimate beneficiaries.

Thus, this manual will serve as a source of inspiration for the major strategies of desertification control and poverty that generated it.

The writing of the manual followed a three-dimension approach as follows:

- A critical analysis of intervention approaches (part I);
- A critical analysis of legal and institutional frameworks (part II);

- A development of the social sustainability enhancing approach (REDUSO) to bridge the gap between the technical and participatory approaches.

Ultimately, the document seeks to offer itself as a launching pad for deeper researches and exchanges on new methodologies, techniques and approaches on social sustainability through the renewed REDUSO programme as well as with the aid of institutions and resources persons who are partners of the World Conservation Union.

However, the micro and macro-economic elements relative to actions against desertification have not been stressed in this manual. On the other hand, for the sake of clear analysis of the sustainability of previous interventions, selected case studies have been purposely included to illustrate the reason behind the lack of financial appropriation of actions by the beneficiaries.

Part I



S. Boujju

Man at the centre of dwindling resources



S. Boujju

The slightest patch of vegetation becomes attractive...



V. Lahtela

...when resources become rare

1. Interventions against desertification

The examination of the historical background of natural resources management and desertification control in the Sahel reveals the variety of consecutive approaches put in place and the related acquired experiences.

The constant change in the type of intervention over time is indicative of how difficult it is to tackle the issue, desertification itself being complex and dynamic in nature.

The approaches to the way out of the scourge have progressively improved thanks to a better understanding and grasp of the identified constraints.

At this stage of the continual questioning about the thematic, intermediate results are being assessed. The current major reflections consist in questionings sequential from a long and complex integration of the acquired knowledge and weaknesses. These types of actions have progressively integrated different aspects including agro-ecological, economic, political, legal and institutional.

This manual seeks to guide the reflection over the issue and is based on the acquired experiences of failures and limited successes. For alternative approaches and actions to be effective, social sustainability should be taken into account. Therefore, it becomes necessary to better set the social sustainability thematic or the sustainable appropriation within a fast changing political and institutional environment that is driven by socio-economic forces.

The acquired experience and knowledge form an important guideline for working out more suitable methodologies.

Awareness of the concept became largely shared only as a result of the Conference on desertification held in Nairobi (Kenya) in 1977. The disastrous repercussions of the two big droughts, which took place between 1968 and 1969 and in the 1980s, were the starting point of a serious reflection on the scourge of desertification. Hence, the necessity of working out strategies to control it became apparent.

Until quite recently, only biophysical factors were admitted to be the major causes behind soil degradation. The socio-economic causes have always been relegated to a position of second importance. This approach has not yielded much success over time. Recent studies have shown the correlation between poverty and soil degradation. It is quite difficult for populations to improve their living conditions while undertaking environmental-friendly activities that guarantee sustainable development. The reasons behind such a situation are various problems of environmental, technological, socio-cultural, economic and institutional nature.

It became progressively obvious that the technical approach alone was insufficient to guarantee the viability of actions. Thus, a better involvement of the rural communities in the management of their resources was felt to be more than necessary to sustain their production activities. The involvement of the communities has been gradually and became many-sided and large in scope. The first efforts to involve rural communities were limited to technical trainings in favour of producers. On very rare occasions, this

involvement has taken the form of empowering local structures whose actions are yet to be fully recognised legally.

1.1 Is desertification control a technical issue?



Several steps such as technical, conventional legislative and participatory actions have been concurrently taken to reverse desertification in the Sahel. While a limited success can be observed as a result of these approaches, their effectiveness is questionable. By not considering the social norms and values relative to the local areas concerned, they failed to ensure an appropriation of actions by the beneficiaries. Not only were they short-lived and not flexible, they could not help the environmental and social sustainability of the actions developed under them. Actions under desertification control have developed over thirty years and can be grouped under two main phases:

- Firstly, a stage of an absolute confidence in the capacities of the technical measures to reverse desertification on their own. Efforts here took the form of a sector-based project;
- Secondly, a phase whereby this confidence has been called into question by a new approach that seeks the collaboration of populations who would progressively take the lead as potential key actors of desertification control.

A mix of two criteria helps characterize the types of interventions in desertification control. It consists of a combination of the complexity of the technique of the required action and the level of involvement of the communities.

On the basis of the technical measures and the level of involvement of populations, it will always be possible to distinguish two main groups of interventions irrespective of the goal pursued. These two groups will be very useful in a second phase of analysis. These are as follows:

- conventional “interventionist” methods that target ecology as a means of improving the production. They consist of production-oriented projects and integrated programmes;
- actor-oriented approaches which are said to be participatory.

1.1.1 Types of interventions against desertification

The analysis of the different interventions against desertification aims at facilitating the identification of the conditions proper to a sustainable appropriation by communities of the actions undertaken.

This first chapter concerns itself with each of the categories of the approaches developed to assess their contribution to the reversal of desertification in the Sahel.

The analysis of the results and acquired experiences in terms of social sustainability presupposes the identification of the key factors behind successes and failures. It appears essential to have full exposure to these steps according to the general progress of desertification control. These following steps should be selected:

- i. conventional technical steps;
- ii. integrated programmes;
- iii. participatory approaches.

1.1.2 History of the management of natural resources in the Sahel

It is important to specify that historically, the rural communities of the Sahel have always been strongly aware of the risks and problems related to desertification.

They have put in place several resource use patterns that clearly show that the traditional management of natural resources had been the first method of prevention against desertification.

The natural resource management is structured around four main divisions including:

- a system of land use that is consistent both with the regeneration capacities of these resources and the socio-cultural conditions;
- the switching of the production systems to more extensive forms of resources exploitation;
- a state-controlled management based on coercive and exclusive legal provisions;
- a process of empowering all the actors.

The rural communities of Sahel are strongly dependent upon natural resources for their survival. These resources constitute an important basis for several economic

activities such as the itinerant agriculture, the cutting of trees and the excessive pasturage.

In the past, the community strategies of resources management were perfectly in line with the rationality system and the social norms and values. These management methods put in place by the communities are based on a general commitment to the sustainable management of the local resources. It is known that the customary systems favoured the preventive and the generally agreed-upon methods of management by several groups of actors and users.

The use of resources was primarily underlaid by legal provisions, mechanisms, and procedures put in place by the communities for their own control and regulation.

The analysis reveals that customary systems were characterized by social and moral values of equity, justice, sustainability and preservation.

Against this background, the social sustainability is perceived as being a common internal preoccupation of the customary system and deserves the attention of the whole community.

The social sustainability was ensured by the steadiness of the community-controlled management. It should be made clear that the production objectives were solely aimed at subsistence and self-consumption. It stands to reason that the anthropic pressure was commensurate with the regeneration capacity of the resources.

1.1.3 Weakening of the community regulatory mechanisms

Two main facts led to the twofold imbalance of the controlled use of the natural resources management:

- the introduction of the rural communities into the market economy and within the context of globalization created several other needs;
- new economic objectives were set and quickly generated extensive production systems.

This led to a rapid increase in the pressure on the resources and to the acceleration of the process of degradation and desertification. “The expropriation” of the natural resources and land by public authorities following the colonial administration is still continuing at the same time with the process of monetization of rural economies thereby worsening the imbalance of the traditional mechanisms for exploitation and the controlled use of natural resources.

It weakens the arrangement that previously maintained the resistance of the Sahel against desertification and exposes it to a rapid degradation of resources with the related consequences (see Part II).

Though producers (farmers and cattle breeders) were aware of the rapid degradation of their ecological resources, they had to contend with additional urgent problems of increasing their productions and improving their living conditions. This situation justifies the need for interventionist approaches to primarily ensure better outputs.

1.1.4 Multiple and many-sided interventions

In general, the technical methods for improving the production conditions are suggested by projects. Other various technical methods are related to the conservation and the regeneration of natural resources. Some of these are: prevention of erosion, land defence



IUCN/REDUSO

Exploiting plant resources



IUCN/REDUSO

and restoration, reforestation, new developments of shallows and fight against the salinization of certain valleys.

Faced with a variety of the situations encountered over time, the Sahelians have capitalized on a large set of alternative actions and strategies according to the local conditions and specificities.

The intervention strategies can be classified into four categories:

- strategies that favour the use of technical methods (corrective methods aiming at a curative treatment);
- strategies seeking to reorganize customs and guarantee better resource management;
- strategies pursuing the improvement of legal means of action and management (through increased institutional approaches); and
- strategies pursuing appropriate conditions that will facilitate a sustainable appropriation of acquired experiences. These strategies have to do with capacity strengthening programmes.

In practice, several strategies are combined. Projects are grouped according to a number of set objectives and couched in action plans with specific funding modalities and work methods. These interventions take many forms such as:

- Interventions specifically aimed at fighting desertification and developing new methods to treat the physical environment (reforestation, erosion prevention);
- Interventions more focused on the agricultural or pastoral development based on a rational use of natural resources;
- Development projects with a component of environment and resources conservation.

1.2 How are the technical methods introduced to the communities?

1.2.1 Limitations in the involvement of rural communities



Taking into account of the extent of the phenomenon, it has been deemed worthwhile to develop highly technical measures to tackle the problem of desertification.

Unfortunately, these measures have been mistaken for a cure-all and authoritatively put in place overconfidently. This was an approach of indoctrination of farmers. This is part of the conventional approaches adopted at the beginning of the 70s and pursued until the middle of the 80s. Using a top-down approach, they were based on the strong belief that technical methods are sufficiently suitable for halting desertification.

This belief is the rationale behind the interventionist nature of actions and the minimizing of the role of the populations

who were involved only as salaried manpower in the desertification control activities. The approaches at issue proved to be “all technical” in that they stressed the immediate improvements of the environment through physical and biological interventions.

In other words, these approaches did not care much about the social question when it comes taking the immediate preoccupations of actors into account. They cared less about creating alternative conditions for a better appropriation and an effective perpetuation of these dynamics at the local level.

The “all State” and the “all technical” philosophy coupled with top-down planning would always be the thinking behind the interventionist and technical speeches of the historical episode when the sector-based project approach became more than justifiable.

1.2.2 Desertification control techniques

The practical techniques of desertification control are related to physical and biological interventions. The physical interventions primarily include dune stabilization, creation of dykes and other anti-erosive works and mechanical treatment of soils (CES/DRS). The biological interventions can take the form of an assisted regeneration of plants, sowing and planting. All these measures have ignored the endogenous practices that were less visible.

In general, all the technical measures can be split into two categories:

- the first category consists of corrective measures aiming at halting the phenomenon and repairing the damages. They include dune stabilization, anti-erosive techniques, water and soil conservation techniques and reforestation;
- the second category concerns the measures that facilitate a better exploitation of resources, help increase their productivity and improve their regeneration. They consist of the formulation of improved and relevant practices concerning agriculture, cattle breeding and the use of biomass and soils.

The brief description and analysis of the technical approaches and measures (see Box 1) bring out the strengths and weaknesses of the sector-based project approach.

Technically, the achievements are unquestionable. The technical measures to control desertification have been thought and put in place by highly qualified technicians and technocrats. The limits of the technical approach reside not only in the narrowness of their spatial and institutional scope but also in their irrelevance to a such a dynamic zone as that of the edge of Sahara. Moreover, they do not lend themselves to an easy financial appropriation of actions by the beneficiaries. Thus, it is quite impossible to replicate them in the absence of external funding.

Box 1. Assessment of some technical measures

Features of the measure

Advantage, constraints and drawbacks analysis

Total exclusion

Total exclusion (*mise en defens*) is a simple but drastic measure that insures the protection and the conservation of pastoral, agro-pastoral and plant resources, by prohibiting any kind of use of the land. It helps both natural and assisted regeneration (through sowing and planting).

The benefits of this measure are more ecological in nature. Its implementation over large areas creates problems for the local communities for whom the priority is making a living. The measure is also prone to exacerbating the conflicts between parties. This technique has not always gained the support of the communities especially when it involves high costs.

Windbreaks

They are used to control wind erosion. During the Harmattan¹, and the dry season, they provide a protection to farms and houses against the monsoon winds of winter.

They contribute to the improvement of the agricultural production and increase forestry productions. The development and protection of windbreaks are very expensive and do not automatically gain the support of the local populations who do not view themselves as the owners of the plantations created.

Dune stabilization

The destabilized areas are often immense and subject to a continuous silting-up by mobile dune formations. The technique tends to be used within the framework of 'big projects' and as part of state interventions. It includes both mechanical and biological measures.

Dune stabilization and total long-term exclusion carry heavy financial and socio-economic constraints. It should be noted that the areas to cover are very extensive.

Breakwaters

This technique consists of bracing stone dykes and gabions into the bank which continue out into the river bed. The extent of the works will depend on the height of the bank, the width of the bed, and the tide.

This technique is valuable in several ways. In effect, the wave resulting from the rise in water level is stopped along the bank and is therefore protected from erosion. Upstream and downstream of the breakwater, there is an increase in the filtration and the sedimentation. To increase the effectiveness, small dams reinforce the works to help resist the heavy rains of wintertime. This technique is very effective and not very expensive.

Stabilization of "koris" using gabion doorsills

The gabion doorsill is laterally fixed into the banks and is generally accompanied by a basin which provides cushioning and dissipation.

Downstream, lateral stone wings of a width equalling the length of the flood-prone plain protect the banks.

The treatment of koris by gabion doorsill dams stops the erosion coming from the bed and encourages sedimentation. It also helps improve the filtration of water flows and their draining into cultivated soils. This treatment needs the commitment of populations for it to be effective.

Small dykes and stone cordons

Small dykes and stone cordons are used to control of water erosion. They are placed in contour lines supported by wings and overflow outlets. The space between the small dykes is commensurate with the slope while their length is a function of the width of the area being restored.

The development of glacis and plains using this technique is intended to slow down the run-offs thereby forcing them to infiltrate and supply the sheet of water that provides a source for wells. It also stops the sand and allows the regeneration of weeds, small shrubs and bushes. Anti-erosion works are only effective when the techniques and the costs of the works are affordable for the populations.

Cont.

¹ A dry, dusty NE wind from the desert.

Box 1. Assessment of some technical measures (cont.)**Half-moons or *demi-lunes***

These are semicircular holes made perpendicular to the slope and surrounded by a semicircular levee (or *lunette*) extended by wings. The semi-circle is cultivated and watered by run-offs gathered in the *lunettes*.

These half-moons are generally placed on former glacis which have become unfit for exploitation. The use of these techniques can help recover additional cultivable areas. The technique is affordable and easy to implement. It is beneficial to agriculture.

The *Zaï* technique

A *zaï* is a hole 10–20cm in diameter and 5–15cm deep. The holes are 0.5–1m apart. They are dug during the dry season, filled with manure and are then covered with a thin layer of earth in anticipation of the rainy season. Once the *zaïs* have collected enough water, millet and sorghum seeds are planted.

The *zaï* techniques allow the exploitation of sandy and silt-laden areas of outwardly hardened glacis.

With this technique, water infiltrates well, the soil becomes wet, and the plant grows quickly taking deep root and becoming more resistant to weeds. This is a very popular and undemanding technique.

1.2.3 Rational exploitation and regeneration of natural resources**Some important elements for working out relevant production systems**

The exploitation of the renewable natural resources through traditional production systems took place under particular circumstances and was based on an acceptable balance between inflows and outflows of the area. With the current in the size of the population and the progressive worsening of the phenomenon, this balance is always upset. Thus, it is necessary to shift from the use of available resources to a logic wherein the growing exports of the soil are offset by equivalent contributions mainly in terms of fundamental minerals such as phosphate, and nitrogen.

About this, people often mention the intensification and the diversification of the agricultural production as well as the rational exploitation of natural resources (such as soils, forests, waters and pasturage). There again, one must be careful in selecting the best alternative and avoid political and strategic mistakes that are often linked to the spreading of cash crops or monocultures (for example, one can cite the promotion policies of large irrigated perimeters in the Sahel). Panaceas or clear-cut models that easily tackle all of the problems are nowhere to be found. Guidance and advice inspired by experiences acquired in the North as well as in the South are available to bring about such changes.

Basically, for changes in the production system to happen, emphasis should be put on three main actions which are:

- Consider the regeneration capacity of the environment or that of the adjoining resources;
- Take the comparative advantages into account;
- Weigh and manage the main environment-related risks.

The capacity of the environment to regenerate

For long, the ecological thinking has been dominated by concepts of stability, balance and resilience rather than dynamism, imbalance, change and succession.

Nevertheless, the stock of available natural resources is never stable but increases or decreases according to the prevailing circumstances. It will naturally increase up to the

breakeven point all things being equal. On the contrary, it will decrease when good climate and temperature conditions are not favourable, especially, when deductions by far exceed the regeneration capacities of the environment in terms of resources.²

In a system of complex relationship where there is a constant interaction between the environment and the resources, the extent of deductions or the exploitation will be dependent upon two factors namely: the costs and revenues in one hand, and the status and regulations of the environment in the other hand.

The net profits are key incentives for any kind of exploitation. The higher the potential net profit, the more important the efforts for deductions and exploitations will be.

Like the net profits, the status and regulations of the environment are very important. In a system of individual or collective appropriation, landowners will want to maximize their profits, whether individually or collectively. They will progressively try to maintain the production potential by taking measures that favour protection, improvement and compensation. In an open exploitation system, the trend will grow towards a competition for maximum deductions, including allochtones, without much care to the potential of the environment and the possibilities for renewing its resources.

Basing the productive activities on “comparative advantages”

Countries and regions choose to produce the goods for which they are the most naturally endowed because the production costs are comparatively the lowest (A. Smith, 1723–1790).

Countries specialize their production by exporting the goods that they are more efficient at producing and importing the goods that other countries are relatively more efficient at producing (D. Ricardo, 1772–1823).

Basically, the law of comparative advantages is a simple application of rational use and exploitation that takes into account the actual nature of the environments and their resources.

Comparative advantages are key to choosing between different types of production according to their first destination and the constraints related to the environments related resources. They also guide the selection of production factors and models (for example: the choice for intensification, diversification, high-performance tools, and the most adequate periods, or necessary types of complementary contributions).

African farmers presented with alternative technologies or means of production are well aware of this. The question is only how to assess these comparative advantages.

Weighing and managing the human and environment-related risks

Such a principle would save large amounts of money that could help repair the damages. Indeed, impact projects aim at providing a better understanding of projects and their effects and dangers for the environment in order to optimize the use of resources and minimize the negative impacts.

² Vorhies, F., *IUCN Bulletin* 4/95.”



V. Lahtela

When the capacity for natural regeneration is disturbed...

How can local systems contribute to preventive management?

The best part of the economic activities of the arid, semi-arid and sub-humid countries is based on the exploitation of natural resources such as soils, vegetation, water, and wild or aquatic fauna. The already high demand of these resources will continue to increase with the rise in population and the growing needs in terms of agricultural, pastoral and forestry products. This trend will probably be maintained and may eventually rush the process of degradation and desertification. The acuteness of this phenomenon varies according to regions. While some regions face the silting up of their soils and rivers, others risk seeing the degradation of their cultivable areas as well as of their pastoral and forestry resources.

The use of natural resources by the traditional societies of the Soudano-sahelian area is driven by the small needs of communities in relation to the low level of exchanges and productive forces (such as archaic techniques, and the low level of monetization of the economy etc).

These societies enjoyed an important social control power. Thus, they put a great price on the personal control of the necessity of harmony between their activities and the natural environment. The organization of these societies was based on religious beliefs and spiritual values that insure their protection. Land was managed according to a set of prerogatives, social rules and legal regulations. A famous example of land management worth mentioning is the Ahmadou Sekou code in the Delta zone of Niger and Mali at the beginning of the 19th century (Diina).

The advanced level of degradation is due to various closely combined factors. The most important ones are anthropic in kind and are related to the extensive exploitation systems that often appear to be irrelevant.

The endogenous techniques are dynamic, multipurpose and more flexible than the conventional techniques of water and soil conservation as mentioned above. They adapt themselves to the changes of the local environment. To these may be added the potential for a progressive modification of these techniques to improve them. The smoothness of the technological change is the major characteristic of local and traditional techniques.

They are less costly in manpower. However, they need to be supported by the conventional technology that offers a simple diagnosis of problems and provides a standard solution at a large scale.

Several experiments have been and continue to be carried out in collaboration with populations and will result in the development of appropriate techniques for the restoration and the conservation of the local natural resources. Formerly initiated by sector-based programmes and projects, interventions have evolved through the development of a more integrated land management approach that takes into account the potentials of the environment as well as the priorities and needs of populations. However, though locally interesting, these interventions have not succeeded in reversing the trend at a large scale. Nor have they been able to slow down the desertification process.

Case Study: The management of pasturelands under the Diina Empire during the 19th century

As a big and centralized “Fulani empire” located in the central delta of the Niger River in the current Mali Republic, the Diina Empire had, during the 19th century, put in place a regulation concerning pastoral activities. These regulations were made of authoritative instructions that caused many changes in the conditions and organization of pastoral activities.

The Diina shared out the *bourgous* – grazing paths – between all the lineages. These *bourgous* had precise limits and were equitably allocated to each Fulani family for the season. At the end of the season, they would become part of the common grazing land regime. There were different kinds of *bourgous* including *harima* or collective *bourgous* and the *beit el mal bourgous*.

The former were located near a village and exploited by all the inhabitants. The latter were made up of pasturelands that had been confiscated by the State. These were State-approved and totally controlled by the State.

A tax was levied on the herds. According to a predetermined timetable, these herds had access to the *bourgous* in two ways. The first route stretched out on the peripheral dry paths of farms known as *burtol* (*burti* in the plural) and the other one directly penetrated the interior of the *bourgou* and was called *gumpol*. This arrangement was valuable in settling the frequent conflicts between farmers and cattle breeders in the region. Indeed, these paths allowed the crossing of farms without any damage. Failure to respect the paths and the timetable was cause for prosecution by the *cadi* – the judge – who would impose the appropriate penalty.

Source: Bintou Sanankoua, 1990.

1.3 Towards the consideration of local dynamics

1.3.1 A challenge for research and popularization

An analysis of the current situation in arid and semi-arid countries, especially of those situated in the Sahel, leads to the following observations:

- They have constantly rising populations that mainly feed on cereals;
- The agricultural and pastoral productions are constantly influenced by climatic hazards and turn out to be insufficient to cope with the needs;
- The production systems are still traditional and less efficient in general;
- The soils are continuously exposed to degradation, causing a decrease in the return and on resources.

This trend questions the validity of the reference to the local know-how and knowledge as well as the involvement of farmers as a panacea.

In reaction to these established facts, new solutions, consisting of modern techniques, have been suggested. The first efforts to improve the techniques of desertification control were shown through the development of sector-based programmes and projects. Unfortunately, they failed to take the social condition of the beneficiaries into account.

Strong actions were taken to restore and preserve natural resources in order to provide a support for the production of food and animals in favour of the populations of the Sahel. It was expected that the beneficiaries and their environment would adapt to the technologies proposed. In fact the reverse would have been the case if it hadn't been for the valuable contribution of the systemic research that highlighted the necessity of



Difference in perceptions between communities and technicians

understanding and taking the social conditions into account. It was only after this that the interventions were reconsidered through a set of innovative approaches and other arrangements such as integrated programmes and land management based on the promotion and the participation of the local populations.

The gulf between the technical messages and the preoccupations of the population is one of the major characteristics of the technical approaches of desertification control. It is also the greatest challenge of research activities.

Another challenge lies in the low level of regeneration and transfer of appropriate technologies by the research systems for resources management in West Africa and is related to the poor status of databases and information systems on the experimented techniques and technologies.

1.3.2 Changes in the research targets

The modifications of research targets are made to fit the changes in the rural development approaches. Formerly classical, thematic and purely scientific, the research objectives have been adjusted to match the changes in the agricultural production systems.

Classical thematic research is mainly characterized by its compartmentalization in scientific subjects. Much consideration is given to the understanding of the phenomenon rather than to the possibilities of putting the recommendations into practice. Often confined to research stations, classical researchers cared little about the needs of the actors who are supposed to be chiefly concerned by the experiment of the results. Thus, the technical messages were always inadequate to the solutions sought.

The reduced attention to the expressed needs of the actors, plus the high costs of the works involved is the major limiting factor of the classical researches.

The classical thematic approach provided solutions to several priority problems in various field. However, it becomes inefficient **when solely used** to tackle the current complicated problems. The need for more adapted solutions to suit the changes in the production systems and the increasing attention to the social parameters have lead to the choice of the systemic research.

Systemic research provides a source of inspiration for a new multidisciplinary process that is more concerned with the interactions rather than with the element of structures. Interaction studies are emphasised for a better explanation and understanding of cause and effect relations. The development of such research is justified by the concern for a reflection on the development perspectives rather by the need to offer precise diagnosis. Here, it's all about grasping the preoccupations and motivations of actors in order to reach the main goal of the systemic research that consists in "participating in the development process".

Systemic research, which is based on participatory approaches, is used for the analysis of the relations pertaining to different levels of organizations in order to better grasp the reality, to understand the current changes and to call the pre-established thinking models into question. Using an interdisciplinary approach, It helps overstep the boundaries of the compartmentalized scientific subjects.

However, less consideration is still given by researchers to the social demand in the planning of research programmes by researchers. Actually, the social demand should normally be identified, discussed and even reformulated in order to be correctly taken care of.

The systemic researches should avoid the commonly cited pitfalls related to the slowness, cost, length and complexity of the analyses. They should seek to be better operational. In effect, the objective here is to provide progressive answers at each stage of the research process, be they lengthy. This is done with the aid of complementary tools such as innovation tests, comparative analysis of real world situations. These complementary steps of the initial diagnosis are very useful in offering efficient and appropriate solutions to tackle the identified constraints. There again, it is necessary to have a link with the more sector-based works.

1.3.3 Local knowledge and know-how, the major factors in social sustainability

Local knowledge is usually empirical. It is related to the actual conditions of the environment. The initiatives that stood the test of time are related to the sustainable forms of preventive exploitation or corrective measures. They are based on rationality logic which makes them serve as alternative measures adapted to the socio-economic realities.

This is for example true of several soudano-sahelian societies where farmers have succeeded in introducing fodder trees into their production systems and developing original ways of coupling agriculture and pastoral activities. These techniques are meant to allow farming activities on frequently fertilized soils each year (Dufumier, 1992, 295).

The systemic research places the populations at the centre of development schemes. Because of this, it should try to enhance the knowledge of the technicians about the interconnections between the physical phenomena and the socio-economic conditions of the environment in which they take place.

Local populations are aware of the evolution of the desertification process that affects their environments. They usually acquire knowledge as a result of the observation of their environments and then try to adapt themselves with the so-called empirical techniques. These local systems of the production of knowledge and know-how are key to improving the conditions for the promotion of the social sustainability of the acquired experiences in desertification control.

For example, on a farm in a village in Burkina Faso, some land was destined for agricultural activities, others for pastoral and forestry activities, based on the soil quality and their distance from the village. A number of rural development measures (like anti-erosion small dykes) and management techniques (such as land fallowing systems, controlled grazing and selective cutting of trees) were applied for the conservation of the resources of the village environment. Also, when the demographic expansion of a village led to an overexploitation of the resources, the overspill would migrate in order to remedy the situation (Bognetteau-Verlinden, 1992, 76).

One of the most important features of endogenous knowledge is that it allows a quick adaptation to changes in the milieu. What needs to be done to control desertification is to come up with new intervention approaches and measures inspired by the logics behind empirical knowledge. A good grasp of the local conditions helps avoid the development of more global solutions to a problematic that changes as we move from one local area to another.

Very often development officers fail to offer the opportunity of discussion with the local communities. Thus, the desertification policies omit to take indigenous knowledge into account.

1.4 Taking the social dimension into account in formulating integrated programmes

Despite the limits demonstrated by technical approaches, it has been possible, through their development, to raise awareness of the concepts of “comprehensive approach” (regional seminar of CILSS on desertification in the Sahel in Mauritania in 1984), “participatory approach” and “integrated programmes”.

1.4.1 Genesis of comprehensive approaches

The comprehensive approaches should help fill the identified and discussed gaps related to the sector-based measures in the control of desertification. The sector-based approaches have been found to be too exclusive and neglectful of the priorities of the communities.

Rural forestry as the launching pad for the participatory approach

As of the beginning of the 1970s the administrative approaches for desertification control have been subject of change. The participation of the communities began to be sought in the development of rural forestry projects. It was all about increasing the

awareness of the communities of the importance of forests. However, the involvement of these communities was limited. In fact, efforts were made to incite the target groups in putting the pre-established projects in practice by simply adopting the proposals of the technical officers (Bognette-au-Verlinden, 1992, 74).

It was only during the 1980s, and especially after the regional seminar of CILSS in 1984 in Nouakchott, that a more serious reform of the intervention strategies was initiated. During this seminar, consensus was reached on the fact that the sector-based measures, based on the improvement of the production systems, would worsen the degradation of the natural resources. Therefore, a comprehensive approach, that encompasses the development objectives of all the rural areas of the Sahel, was suggested.

The involvement of target groups and the multi-sided measures are two concepts that characterize the new approach of the desertification control in the Sahel. This approach seeks to improve a long-term integration of the dimensions of the following nature: ecological (like land conservation), economic (such as production) and social (speaking of putting mankind at the centre of the development objectives).

This new conceptual framework includes the social dimension.

However, a number of difficulties surfaced in the implementation of this new approach. The need for the concepts to be more operational was felt and recorded in order to harmonize the different interventions following the Nouakchott seminar of 1984. It is during the meeting held at Segou in 1989 (see Box N° 2) that a more operational content was given to the notions of involvement and comprehensive approach.

Relevance and range of desertification control activities

The complex and dynamic nature of the environment and desertification calls for the development of concerted programs. Therefore, the so-called comprehensive approach follows this direction and goes beyond the simple physical measures to desertification control. Hence, as is shown in Box 3, it will, in a single programme, combine several sections that will take into account the development of local competences and participatory management models.

It is actually a fact that physical measures, such as creating windbreaks, erecting quickset hedges, and others, are insufficient to fight desertification. The geographic scope and the socio-ecological depth of the phenomenon are still not well known.

The comprehensive approach aims at harmonizing the specifically targeted actions against desertification with the promotion of other sectors of the village area. It requires a synergy of actions between the local actors, the technical offices of the State, and the international partners. It helps the emergence of a new culture about the social and environment-related sustainability of the activities to control desertification. It is based on the following principles:

- Integration of actions: the comprehensive approach of interventions is not a mechanical juxtaposition of several actions of different sectors. Rather, it is a coherent combination that includes the immediate, as well as the short term and long term needs. That integration enhances the value of the technical experiences human resources used at different levels.
- Consultation: it allows the participation of several individual and institutional actors at different levels. Towards this end, the approach suggests an internal

dialogue within the beneficiary communities in order to create legitimate organizations to promote development. Dialogue is also necessary between communities as well as among parties.

- Sphere of action and organizational framework: the comprehensive approach applies to a specific sphere and usually involves organized groups with key occupations such as participating in the conception, helping the formulation and supporting the coordination of actions. There are three different levels of intervention including the villages, the agro-ecological zone and the socio-economic area.
- Long-term and flexible assistance: in order to have significant impacts, assistance for development activities, especially the desertification control activities, must be long-term (15–20 years). It must be adaptable and financially flexible so as to always fit the continuously changing context.

At the conceptual level, it is supposed to fill the gaps of the sector-based and the technical approaches. This suggests that a number of partner actors will be engaged in a dialogue that will result in formulating and implementing desertification control programmes.

Beyond the village, the comprehensive feature of the approach is also applies at the national, regional, and international levels even though other parameters are taken into account. The comprehensive approach to desertification control creates functional relations between the strategies at all levels. The search for the national, sub-regional and regional action plans and their coordinating bodies to overlap in perfect harmony will allow a coherent planning as well as a correct implementation.

Box 2. The goals of the comprehensive programmes of sustainable rural development (“the Ségou orientations”, CILSS, 1989)

- To increase the awareness of the rural communities about their future;
- To combine the activities of the rural world, particularly, agriculture, cattle breeding, forestry and fishery;
- To encourage the optimal use of the environment and of natural resources;
- To improve the social relations between the different components of the rural world (namely, farmers, cattle breeders, traders, migrants, natives etc...);
- To guarantee a land security that will allow farmers to put a lot into the control of the degradation of their environment;
- To intensify the agricultural, pastoral and forestry activities;
- To promote local organizations within and among villages for land management (grazing, paths, forests, and ponds etc...);
- To provide the rural zone with socio-economic infrastructures;
- To coordinate all the activities within and among communities.

Source: Michel Bonfils, No more desertification in the Sahel.

Box 3. The relevance of the comprehensive approach of the integrated project of Guesselbodi (Niger) in the fight against desertification

Contrary to several projects developed with limited impact in West Africa, the activities carried out under the Guesselbodi project may be regarded as very successful. To illustrate the truth of this, one need only mention the regeneration of a number of savannahs in the region. The management of the forests allows some exploitation for economic gain while guaranteeing their regeneration. Several efforts are being developed to manage grass in the same way. In effect, it seems that cut and dried grass can also be sold as hay.

To sum up, the prospects are rosy for the project that may eventually become financially independent. However, a number of concerns still have to be addressed in the long run.

In the near future, savannahs would not have sufficiently regenerated to provide adequate revenues for the populations. Therefore the project would require the support of a financial institution for at least five years. This raises the question of whether it would not have been wiser to choose a more fertile area than the soil of Guesselbodi to allow a quicker regeneration. The closeness of Guesselbodi to Niamey is very important in that it offers valuable outlets for the sale of wood.

It will not be possible to implement the programme in the remotest areas of Niger. Also, it is still unclear whether women and children share in the economic profits and if the implementation of the project has not worsened the situations of the nomadic groups. Finally, the actual power of the cooperative is questionable. It seems that, in the case of conflict, the Forestry Department has the power to cancel the agreement and retake control of the exploitation of the forest.

The Guesselbodi project corroborates a number of lessons drawn from the implementation of the Amboseli project in 1977. The Guesselbodi project particularly shows that the use of money as the major incentive may, in the long run, jeopardise the continuation of activities.

On the other hand, the distribution of rewards, which consists in combining the exploitation measures with the economic advantages, has proved to be very helpful with the Guesselbodi project. Involving the users in the negotiations has been practical.

The official transfer of the rights of exploitation of the Savannah to local cooperative by the government show that the Guesselbodi example is positive. The Guesselbodi experience shows that the promotion of exploitations entitlements may worsen the case of certain groups. In this case, these groups basically include women and the nomadic groups.

Source: Extract from: Programme Réseaux des Zones Arides, Dossier : « La Participation de la Population dans les Projets Écologiques, dans les Pays en Voie de Développement », Carel Drijver, Centre for Environmental Studies, Leiden, The Netherlands, IIED, Dossier No 17, Mars 1990, p.13.

1.4.2 An integrated vision and a sector-based implementation

The integrated programmes are consecutive to the so-called productivity projects put in place by sector-based interventions. In effect, the desertification control activities, developed under this logic followed by a number of physical practices, have, technically speaking, yielded good results, though limited, at the local level. However, the extent of desertification should normally raise awareness of the uncertainty of the activities that do not consider all the underlying factors of the scourge. (for example, the anthropic parameters). The integrated programmes found their justification in the aftermath of the failures of the projects of the 1970s. Having stood the test time-for being inexistence for two decades (1980s–90s), the integrated approaches now appear as the new trend with its corollaries of involving and empowering populations in the management of natural resources.

A multi-sided logic that focuses on addressing the basic needs of the populations

With actions sections in several areas, the integrated programmes combine technical activities of production and development of resources with the building of socio-economic infrastructures at the local or regional level. Thus, aside from targeting a higher productivity, they seek to satisfy the immediate needs of the populations in terms of socio-economic development priorities including health, road infrastructures, education, access to potable water etc...

However, these programmes have been developed against a purely administrative background.

Lack of coordination among different sectors

The integrated programmes have concerned themselves with approaching desertification problems in a comprehensive way. It emerges from this that the different plans and strategies have generated sector-based programmes that sometimes had the same objective with the overall initiative. This resulted in uselessly duplicating programmes that confused the beneficiaries. Tensions often rose among technical officers, project managers, the official administration and the populations.

One of the weaknesses of these programmes resides in the fact that they are not based on a reference framework, as is a regional development plan. Therefore they only offer an array of short-term solutions to populations. Despite what was mentioned above as limit, the integrated programmes are technically coherent. They always have a “participation” dimension, but are most of the time limited to encouraging the populations to adhere only to the actions of the under the project. The implementation of these programmes suffered from the lack of coordination among the actors.

1.4.3 Necessity of participation

It is to cope with the successive droughts and desertification in the 80s that the first experiences using a participatory approach have been realized to implement the forest projects. The participatory approach was inspired by the meeting of the Permanent Committee of States against Desertification in the Sahel held in Ségou, in Mali in 1989, in order to fully embark on the achievement of “sustainable development”.³

The participatory approach aims at reaching a consensus whereby external interventions could support the local efforts thus involving the beneficiaries (the populations) as the key actors for community development.

³ CILSS/Club du Sahel/OCDE: “Les orientations de Ségou”, Rencontre régionale 22–27 mai 1989, p.2.

Box 4. The features of the new development vision based on a participatory approach

- The empowerment of the populations or the beneficiary target groups requires:
 - a freedom of speech at grassroots levels;
 - the participation of the beneficiaries in the conception, implementation, supervision and the assessment of projects;
 - taking short-term and long-term actions into account.
- Taking local realities into account:
 - the grasp, even, partial, of the change and transformation occurring in the milieu.
- Taking into account the economic, cultural, religious and social aspects in a development perspective.
- Taking into account all the components of society:
 - men, women and the other actors in the development arena;
 - consideration for the legitimate aspirations of all the components of society;
 - the help of the community for the fulfilment of its members;
 - equity in developing the whole society.

Involve the beneficiaries as the key actors of interventions

The participatory approach arouses a voluntary and spontaneous support from the populations in a sustainable and autonomous development perspective. Participatory

approaches stress the involvement of the populations in all the phase of the project implementation. They put the beneficiary communities at the centre of the development process by empowering them. The development perspectives (see Box 4) of these approaches are couched in the following concepts:



Empowering the people

- Self-reliance, meaning that the beneficiaries rely on their own abilities and efforts;
- Endogenous development: meaning that the driving forces behind development are the grassroots;
- Self-centred development: meaning a development that is compatible with the needs and priorities identified by the communities themselves.

Select solutions as a result of dialogue and consultation

The participatory approach, as an action research method, puts a great price on dialogue with the populations at all levels of intervention. It seeks to empower and increase the awareness of the populations in order to help them analyse their problems on their own, identify the potential solutions and select the best alternatives to be put in practices by them.

This development approach is based on key principles such as:

- the adaptation of the interventions to the local conditions, taking into account the cultural realities, the acquired knowledge of the populations of the environment problems and the experienced mechanisms and strategies of problem solving;
- facilitation of dialogue among actors to help them cooperate and identify the specific interests in order to strike a balance between the interventions;
- creation of a forum for multi-disciplinary exchange (ecological, economic, technical, financial, and socio-cultural)) and collaboration based on free access to information and transparency.

Promote a self-teaching process

In fact, the participatory methods were first adopted as a result of awareness by a number of agricultural technicians of the limits of the analysis, innovation and decision-making processes at local levels. They quickly noticed that only a better understanding of the social dynamic of the development process and the sharing of knowledge could help them effectively support the populations. The objective of the participatory diagnosis and planning was to provide a methodology of analysis, assessment, and selection of strategies to a large population (of farmers and others). What is sought is to encourage the collective learning process from the participants. The participatory process of apprenticeship and action in the field should result into three elements:

- identification of the strategies to improve;
- a motivated population ready to use the improved strategies;
- enhancement of the capacities of the participants to solve problems.

In order to enlarge the scope of intervention to include the views of the socially marginalized persons and have different development perspectives, it is often necessary to observe the local customs of communication and social interactions. The participation requires that a communication, debate and negotiation framework be put in place and based on local patterns.

Box 5. The principles of the participatory approach

The basic principles of the participatory approach are the following:

- Adaptation to local conditions;
- Consideration of cultural perspectives;
- Taking the local knowledge of environmental problems into account;
- Taking into account the traditional mechanisms and strategies for solving problems;
- Instituting a dialogue among actors to facilitate cooperation and harmonize the interests;
- Initiating a process of cooperation and communication to allow all the actors to formulate their objectives and interests;
- Necessity of transparency;
- Free access to information;
- Multi-disciplinary (ecological, economic, technical, financial, socio-cultural) collaboration.

1.4.4 The methods of the participatory approach

The practice

The participatory approach arouses a voluntary and spontaneous support from the populations in a sustainable and autonomous development perspective. It supports a professional practice that is essentially based on partnership. It is a practical concept that uses the ethics of respect and consideration for the other. It recognises the contribution of parties and, in the first instance, tries to explain its actions, and then suggests possible alternatives and related experiences. It respects and puts the actors at ease in order to help them achieve their aspirations, using their capacities and acquired knowledge.

The approach and the related effects

The development of research action activities through a participatory approach implies the consideration of the whole space of the village environment, and requires the appropriation of the method by the individuals. Priority should be given to the expression and the development of the commonly thought and planned projects of the community. This approach produces the following effects:

- **Partnership:** The participatory approach combines knowledge and know-how of individuals and groups. Thus, efforts and knowledge are harnessed, power is equally shared, and parties are mutually committed to each other. Since the populations have a better knowledge of their respective environments (in terms of know-how and social customs), their own perceptions of their development priorities should not be overlooked.
- **Collective management:** The goal of every participatory approach is, eventually, to achieve the appropriation by the beneficiaries, of knowledge, self-promotion and the collective management of the activities developed.
- **Integration:** It starts from the identification of the target communities and the recognition of their respective capacities to express and develop initiatives to control desertification. By suggesting negotiation and compromise, the development of the approach allows the settlement of conflicts and their reduction. This integration is characterized by the smoothness of programmes, and offers the opportunity of adapting to the projects as populations express them

The participation principle aims to free the technocrat logics from their constraints and make them become more flexible. This was, during the period between 1930 and 1950, the motive behind new studies about fallowing practices, indigenous land management logics, and diversified cultivation, to help farmers innovate.

Tools and methods of the participatory approaches

In relation to the perspective of enhancing the social sustainability of the desertification control activities, the following methodological questions need to be answered:

- What is best way of understand a milieu and its related problems?
- What is the best technique for arousing and keeping the participation of the populations?

The answers to these questions seem to have been provided by the participatory approaches.



UICN/REDUSO

Favouring the grassroots spokespersons



UICN/REDUSO

1.4.5 Global/participatory approaches and social sustainability

In brief, the participatory approach is basically supported by the following pillars: integration, discussion, rural development, appropriate support and organization.

The participatory approach seemingly satisfies a commonly expressed need. However, contrary to the views of several defenders, it should not be taken for a cure-all when it comes to addressing complex problems.

The predominance of false views leaves the door open to curious paradoxes in the use of Participatory Rural Appraisal (PRA/RRP) techniques (Guijt, 1996). Despite their original concern for the involvement and empowerment of the marginalized groups, a large number of practitioners, fully exposed to the concept of participation through training manuals, view this as a mechanical method that automatically confers a greater power of decision on the local populations.

Thus, a number of participatory approaches are still characterized by the lack of flexibility, little innovation, and the lack of self-analysis and local planning. In addition, the populations are illiterate. Not only are they not able to read and write their own languages, it is not always easy for them to understand the languages of the foreign experts.

The current criticism points to the limitations of the participatory approach. The approach remains silent about the potential changes that may occur as it develops. “Men and women ‘participate’ differently, at different times, as do the well-to-do and the poor, as well as researchers and farmers”.⁴

It standardizes and conceals the differences existing between the “internal” and the “external” actors. “By stereotyping all farmers as ‘internal actors’, the differences existing between the communities are overlooked, as well as the fact that the degree of participation varies from one farmer to another. The same is true of the ‘external actors’” (IIED).

The main weakness is the “tendency to think of it as a panacea” while addressing problems by encouraging a sustainable and absolute local participation. Now, for particular farmers like agricultural technicians, a hundred per cent local participation is neither workable, nor necessarily advisable (IIED).

In effect, beyond the technical questions, actors must be able to analyse both the social and physical issues in detail and negotiate the priorities. Therefore, they should strike a balance between the usefulness and value of cooperation in the analysis, and a compromise in selecting the priorities (Scoones and Thompson, 1994).

For all the demonstrated efficiency in several occasions, it is becoming more and more obvious that the participatory method alone is not sufficient to cause the appropriation of operative concepts and the capitalization of the experiences related to desertification control activities.

This “introductory” method that partially involves the beneficiary, has been a subject of criticism for its tendency to stereotype groups and standardize differences.

⁴ Irène Guijt et Laurens Van Veldhuizen (1998), *Quels Outils Pour l'Agriculture Durable ? Analyse comparée des Méthodes Participatives*, International Institute for Environment and Development (IIED), p.12, cahier 79.

Box 6. Participatory methodologies used in agricultural research and popularization (established since the 1970s and appearing in alphabetical order)

- Active research and planning;
- Adaptable methodology of system analysis;
- Agro-system analysis (AEA) by beneficiaries, citizen juries, community indicators
- Development and participatory diffusion of innovation;
- Participatory Action Research;
- Participatory Analysis and learning;
- Participatory Rural Appraisal (PRA);
- Participatory rural planning and appraisal;
- Participatory Rural Research;
- Participatory technology development (DPT), diagnosis and conception;
- Planning for real;
- Process capitalization;
- Rapid analysis of water dams;
- Rapid appraisal of knowledge acquiring systems in agriculture;
- Rapid food security appraisal;
- Rapid organizational appraisal;
- Rapid Rural Appraisal (RRA);
- Scene for development;
- Support and research group for a collective agricultural promotion;
- Team building for a leadership in education to support development;
- Technology of participation;
- Training on processing,
- Visualization for programmes.

An idealism of many decades has kept a lingering illusion over the fact that the local participation, coupled with the related “Rapid methods”, is sufficient to allow a full appropriation of the concept of sustainability. On the contrary, experience points at the manipulation of human resources to rush short-term achievement of projects that are most of the time sector-based and difficult for beneficiaries to understand.

The majority of the processes that explicitly refer to the concept of “participation” in the fight against desertification often seek a passive involvement of the actors concerned. The participation is often made of simple consultations and does not offer prospects of a better sustainability as it would, through a more complete involvement of the beneficiaries in making the decisions that concern them.

Box 7. Seven false assumptions about Participatory Rural Appraisal (PRA)

- Assumption that the methods are rapid: while several methods related to PRA are so quick in arousing debate, the participatory development processes are slow and difficult. The activities are carried out in the field for several months while the organizations must commit themselves for years.
- Assumption that the methods are easy and usable by all: the Participatory Rural Appraisal (PRA) methods seem simple. It is true that any individual can help draw a map, it is not certain that special care is given to learning how to draw a map or causing positive changes during the process. In order to be effective, several other competences are required, particularly those related to communication, animation, and social analysis and conflict settlement.
- Assumption that the methods are self-sufficient: The popularity of visual methods is but a simple element of a larger change process affecting several organizations and institutions. The needs for learning, innovating, changing the management and remuneration system, improved personal behaviour, empowerment, and for ethics surface as the programme develops. It is therefore necessary to reconsider the procedures and advantages that motivate the agricultural research and popularizing institutions.
- Assumption that the PRA has no theoretical basis: The development of the PRA method was based on practical field experiences. The PRA is inspired by the “Action- Research approach ” which provides professionals in the field with the intellectual means to challenge theory and practice by the use of experience and reflection. The debates on agro-economic and social sciences have been greatly influenced as a result.
- Assumption that it is a new invention that proves the uselessness of previously used methods: the PRA is inspired by several subjects ranging from anthropology to management. There are previous examples of participatory approaches. But the recent expansion of the PRA shows that it is suitable to address the problems related to the former methods. However, it is essential that new ideas be integrated into the current working methods. This is because the PRA will always need to adjust its methodology to suit particular situations.
- Assumption that training will spread the PRA method: It is always assumed that new ideas are spread out through training workshops. But inexperienced trainers do not enjoy any follow-up support. By not taking full advantage of the training they receive, it becomes impossible for them to transmit the knowledge acquired in the field. After workshops, a follow-up by organizations is more than necessary to support individuals within communities.
- Assumption that the users of PRA may keep political neutrality: farmers, researchers, and popularizers are never neutral. Their respective roles and positions in the society should be well understood. Indeed these elements greatly influence the type of information exchanged and the way information is treated. In every participatory process, conflicts and misunderstandings and tensions often occur. Agricultural researchers and popularizers should stand ready to address these potential problems, which implies that they play the political roles of mediators and negotiators.

Source: Inspired by Scoones 1995.

Speaking of global approaches, they are conditional upon a number of factors. Programmes inspired by global approaches cover wide areas. Thus, in order to harmonize the actions developed, these programmes are often bound to seek additional external support in terms of funding and techniques. In fact, external support is not

always available or operational when needed. The external actors sometimes have different objectives or even continue to hold a grudge against internal actors as a result of former misunderstandings, which is detrimental to dialogue and concurrence of ideas for easy decision-making.

In this process of creating a framework for continuous collaboration, the development of actions may be delayed or become less secure, leading to the discouragement of the beneficiaries and disorder in the programme implementation.

In view of these obstacles, the global approach may appear too conceptual and less operational to enhance the social sustainability of desertification control activities. In fact, it is utopian to think that the comprehensive approach can, alone, address the numerous problems related to sustainable development. Within the framework of a programme like this, what can importantly be expected is the establishment a strong mechanism for coordination and intensive dialogue among different actors and parties. For this to be effective, there should be a guideline for reflections and actions, meaning a rural development plan. Also necessary are a legal and institutional framework, and tailor-made support measures at the planned at the regional and local level by competent structures.

1.4.6 Successes and failures: Case studies in West Africa

The purpose of the presentation of case studies after the genesis of the critical analysis of classical and participatory intervention approaches is to illustrate the different theses about the issue in terms of identifying the key factors for success (or causes of failures).

These factors, think of them as indicators, are important parameters for those engaged in the fight against desertification and will help them conceive, elaborate, implement and appraise projects with a perspective of social sustainability.

Case studies are drawn either from training and internship reports of the REDUSO programme in the West Africa sub region or from evaluation reports, IUCN filed project studies and other natural resource management projects. Also, the presented results are primarily those of the authors of these reports. The manual just sums them up by exploiting the content of the reports.

Programme for the support of local management initiatives in the palm groves of Dallol Maouri (Gaya, Niger)

Background

The Programme was set up against a background of crises at the economic, social, cultural and political levels. The demographic pressure, the advent of cash crops, and food shortage have all been instrumental in the degradation of the natural resources of the region of Gaya in the south of Niger. Under the direction of IUCN and financed by Switzerland, the Programme integrates current approaches (rural management, natural resources management etc) to safeguard the specimens of palm trees in Dallol Maouri which cover a total area of 30,000ha.

Description

At the organizational level, it includes a vertical structure led by an enlarged steering committee, a restricted steering committee at the central level. It also has management coordination bodies at the departmental and local level.

Objectives	<p>The Programme aims, through participatory management of resources, to ensure the regeneration of the specimens of palm trees and their management by the populations.</p>
Approaches	<p>Based on the participatory approach, the Programme has increased support for these initiatives by applying the “Rural Management” approach to 78 villages in the palm groves with a redevelopment of their space for an integrated development. By using an approach that favours local management of resources by local populations, it was possible to bring together villages in 33 rural areas.</p>
Strengths	<p>The fan-palm, which is one of 15 protected species in Niger, has been completely saved.</p> <p>A movement for the voluntary protection of the environment has grown up: namely, the Ecoguards.</p> <p>The creation of rural areas has contributed to the decentralization process.</p> <p>The involvement of all in the organization of the socio-economic activities, the regeneration of the palm trees, the creation of local management structures and their consideration by the populations are also important achievements related to the experience.</p> <p>Among the numerous participation indicators, women have been elected to the head of local management structures (Takalafia).</p> <p>Desertification has been slowed down by a systematically assisted regeneration in the north of the area covered.</p> <p>The rural markets allow the sale of the palms without much harm to their populations. This is done through agricultural and forestry activities carried out by the populations themselves.</p> <p>Biodiversity contributes a lot to the improvement of living conditions simply because the resource has been able to redeem its true value by being sheltered from overexploitation and pressure.</p>
Weaknesses	<p>The new dynamic of the palm grove has not given much consideration to local herdsman whose animals have been diverted to poor grazing in the north of the forest.</p> <p>The presence of women in the sphere of decision-making remains low.</p> <p>The low level of knowledge of programming tools of rural development plans greatly slows down the timely and cost-effective realization of a number of works.</p> <p>The programme enjoys financial support which does not offer guarantees of continuation by the populations if it were stopped.</p>

The local structures remain shaky and are prone to collapse if the traditional owners of power are reappointed at the head of local institutions

The Forest Reserve of Maro, Burkina Faso

Background and presentation of the project

The rational management of resources, as one of the basic principles of agricultural, pastoral and forestry production, is a major stake in the sustainable of Burkina Faso. The fight against poverty in rural areas is one of the main lines of the decentralized rural development policy.

The national forest policy, the basic structure of which is built on four elements – the participatory approach, the programme approach, the rural management approach and the ecological zone approach – is the basis of the forestry code. It constitutes the general framework of forest management in Burkina Faso.

The forest reserve of Maro, which covers an area of approximately 53.000ha, has been the object of participatory redevelopment with the support of PNGT since 1993. It spans the two provinces of Houet and Tuy.

In 1993, a diagnosis of the area revealed the increasing degradation of the natural resources, particularly the forest reserve, because of the following factors: agricultural encroachment, bad management of the land, low level of organization among rural communities, and low level and diversification of revenues. Therefore, it was difficult to mobilize adequate financial resources to modernize the production factors and to create or maintain the basic socio-economic infrastructures.

Goals and approaches

Redevelop the forest to ensure a rational management of natural resources. This redevelopment is part of the framework for a combined rural and forest management, which has the following steps:

- Information about the goal and the approach of the combined rural and forest management;
- Joint diagnosis of the areas bordering the forest;
- Collecting of supplementary technical data;
- Defining the objectives of the management taking into account the constraints and the socio-economic and biophysical potentials of the area;
- Organizing and strengthening the capacities of forest management associations.

Results

Nineteen bordering villages, organized as mixed forest management associations, manage the forest under the gradually decreasing technical supervision of the forestry department.

The Forest Management Associations Union came into being in 2001. The forest exploitation yielded more than

215,000,000FCFA between 1993 and 2001. The proceeds were redistributed amongst the lumberjacks (approximately 132 millions FCFA), the State (35 millions in terms of forest taxes), and the forest management fund (948 millions CFA). This fund was deposited in a bank account that is operated by the Union of Forest Management Associations. It is used to finance the protection and regeneration activities of the forest. It also funds investments (9 millions for the office location) and the financial overheads of the Union. The additional revenues of lumberjacks of the tree-month exploitation vary between 25.000FCFA and 150,000FCFA and prorated to personal dynamism of each member of the Union.

Impacts

At the socio-economic level, the working capitals generated by the contributions of each Association of forest management are used for the funding of development activities in favour of the villages, and to support income-generating activities in the form credits to women particularly. In addition to the development of local economy in progress, the revenues are invested in the intensification of the agro-pastoral production and the satisfaction of the diverse socio-economic needs such as education of children and health.

At the ecological level, 18.6% of the forest (almost 10,000hectares) was covered by cotton fields in 1993. The management helped restore the vegetation and the fauna habitat to a large extent, and increase the biological diversity of the forest as a whole. Some of the previous occupiers of the forest switched to the occupation of lumberjack within the Association as a result of awareness of the pertaining advantages. Others chose to move their farms to the areas where agricultural supervision was intensively provided in order to gain compensatory productivities.

Success factors

The success factors of the experience of the Maro forest lie in:

- The actual involvement of bordering populations in the process of managing and exploiting the forest through their organization as village or inter-village committees for rural management;
- The existence of a management plan elaborated in collaboration with the bordering populations of the forest;
- The strong will of the bordering populations to work for the success of management operations;
- The exploitation of the forest provided the populations with resources to meet their basic needs.

These results show that there is a possibility of combining the fight against poverty and the sustainable management

of natural resources (which seem contradictory at first sight) while empowering the rural communities through a participatory approach.

In addition, the dynamic of the decentralized rural development as, is the case of the management of the Maro forest, is an example that can fuel the reflection on the mobilization of resources and the organization of communities in a sustainable human development perspective.

The project to combat silting up in Tiguent, Mauritania

Presentation of the project

In 1986, the population of Tiguent (a village 100km south of Nouakchott) decided, under the direction of a local worthy called Mohamad Ould Beddy, to fight the silting up of their village. This silting up is due to the mobile dunes that invade the houses and the mosque. The people of Tiguent sought the support of the project known as Fixation des Dunes de Mauritanie (FDM) to carry out their project.

After the consent of the project, a support agreement was signed in 1987 between FDM and the local community who were represented by a management committee. The signing of the agreement was supervised by the public administration represented by the “Chef d’arrondissement” of Tiguent.

Goals and mission of the project

The support agreement provided for technical support of up to 70% of the cost of the works by the project in the form of training on the creation of nurseries, building wicker fences, and on reforestation techniques. The local community would bear the remaining 30% of the cost. The protection works against silting up consisted in the erection of green belts (basically made of *Prosopis juliflora*) around the villages surrounding Tiguent, namely Lebeired, Teyssirem, Teskhir, Hsey, Amar and Tiguent N’Khale. One objective was to generate revenues in favour of populations through the exploitation of the ligneous species of the green belts (firewood and timber).

Results

The protection works proved very successful. The same is true of the second section of the project that also met success to such an extent that the management committees could not totally satisfy the demands.

In addition, the following facts are worthy of mention:

- The green belts around the villages of Tiguent and the surrounding villages generate income for the local people;
- The establishment of a partnership is a credit to the project;
- The creation of management committees for the green belts contributes to local institutional capacity.

- Success factors**
- Involvement of local populations;
 - Progress of the process;
 - Complementarity of all the actors;
 - Historical value of the site called Mahadra.
- Constraints**
- Risk of perpetuation relative to the drawbacks of the selected species;
 - The high mortality of *Prosopis* and its negative effects on the other species;
 - Lack of means to continue the project after the withdrawal of the State;
 - Little awareness of the necessity of perpetuation the fixing of belts by using local species;
 - Ignorance of the advantages that can be derived from partnerships.

Critical analysis of the project

In general, the implementation process of the Tiguent project illustrates, to a certain extent, the participatory approach in the sense that the people took the initiative and the administration provided the technical support (this has been withdrawn in the meantime but the activities are continuing thanks to the organizational capacity of the local communities).

However, the results, at first sight convincing, seem to be due more to the strong involvement of the State (70% over the period 1986–1993) and the commitment and personality of a local leader.

Would these projects have had the same results without this commitment, based simply on community participation?

The rural management project of Kishi Beiga (Burkina Faso)

Background and presentation of the project

The project for the management of the rural areas of Kishi Beiga was initiated by the Burkina Sahel Programme (Programme Sahel Burkinabè or PSB) which is a desertification control programme working for the development of the Burkina side of the Sahel region. The PSB is an offshoot of the national policy that was put in place in 1986 on the basis of the analyses of the previous natural resource management interventions and regional strategies (of CILSS) based on the comprehensive approach. The PSB gets funding from partners which, among many others, include the Federal Republic of Germany through the GTZ.

Objectives and approach of the project	One of the purposes of the Kishi Beiga project ⁵ was to test the applicability of the approach in the Sahel environment because of the agro-pastoral nature of the project. The approach of the project initially focused on the elaboration of management and redevelopment plans and then changed on the basis of the acquired experiences and lessons. The approach used a methodology based on photoreading, the identification of the nature of soils, and the long-term planning of the redevelopment measures.
Results	The project was launched in 1991 at Kishi Beiga. The first steps consisted in creating village organizations for rural management, erecting several infrastructures, experimenting a participatory diagnosis, and initiating a number of actions for desertification control (small dykes, reforestation, total exclusion).
Analysis of limiting factors	<p>The assessment of the activities under the project reveals the following limiting factors:</p> <ul style="list-style-type: none">– Lack of representativeness of the organization, and failure to take into account certain groups like the migrant shepherds. Thus, the organization became the privilege of a select few, mainly the indigenous people. The project did not make it a point to grasp the complexity of the relations between several groups;– Also, the following elements were overlooked: mismanagement of the community resources (like cereal banks) and the community infrastructures (pumps, <i>boulis</i>), a relative anarchy concerning the use of natural resources (ponds, <i>cure salee</i>, field installations);– A number of factors are the main causes behind the above-mentioned shortcomings. These are mainly: leadership problems (since the revolution, the traditional power of the Touaregs has weakened and allowed the emergence of new powers at the local level), the messing up of the environment, mismanagement.
Analysis of the approach and the results	<p>The approach of the project was initially influenced by the redevelopment-oriented nature of the bills containing the rules and regulations pertaining to the agricultural and land reform.</p> <p>The approach was meant for closed rural and agricultural areas. It lacked flexibility and was based on a logic of systematization. Therefore it was not possible to</p>

⁵ Matthias Banzhaf, Boureima Drabo, Hermann Grell (2000), *Les pasteurs et agro-pasteurs de Kishi Beiga (Burkina Faso) optent pour la cogestion de leurs ressources naturelles*.

consider all the aspect of grazing practices and the complexity of the socio-ethnic and political situation of Kishi Beiga.

Followed by the book, the rural management approach led to the exclusion of herdsmen. Little care was taken to avoid the shortcoming that surfaced during the implementation of the project. The logic behind the development of the project was not made to lead to a concerted and sustainable management of the resources.

Part II



Legitimacy and legality: substitution of a negotiated order for an imposed order

2. Do the legal and institutional frameworks support social sustainability?

The use of legal means for organizing and regulating natural resources constituted another dimension of the interventions of desertification control activities. This set of means consists of political, legal, institutional and organizational measures that characterize the official framework of natural resources management and desertification control activities

The analysis of the changes that the legal and institutional framework went through gives us a chance to better appreciate the factors that influenced the sustainability of the actions undertaken in fighting desertification. The acquired knowledge and experience will help define the complementary measures that are necessary for enhancing the social sustainability of desertification control activities.

Box 8. A legal and institutional analysis approach for natural resources management in fighting against desertification

Etymologically, the word “institution” refers to the action of instituting or establishing. Thus one can define as an institution:

- socio-political organisms, and
- the mechanisms deployed to ensure their functioning.

The two elements make up the institutional framework. It is *a priori* a reference framework for the subtle “arbitration” of the different interests likely to arouse dormant conflicts which are related to the management and the enhancement of natural resources.

The institutional framework is created by an authority, but upon meeting the consent of the majority of the social body. For fear of weakening, the definition of the institutional framework for fighting against desertification should take into account the strong influence of traditional customs that are determinant factors to consider in order to win submission to the constraints that the institutional framework imposes over the organization of the society and its members.

The institutional framework cannot be separated from the legal one. Indeed, it is the institutions that prepare, adopt and enforce the laws, rules other judicial acts including the legal acts about the creation, attributions, organization and functioning of the institutions themselves.

The legal and institutional frameworks are also defined by the systems and political choices on the topic but to a certain extent they are also influenced by the international agreements. It is then necessary to approach the analysis by looking at how relevant are the specific sector-based strategies, the policies documents, the conventions and international mechanisms stated in the desertification sector.

The two inseparable elements (institutions and judicial) are separately dealt with in setting the scene to have a better control of the analysis and simplify the reasoning line.

2.1 Changes of the legal and institutional context

The West African states, during the colonial and the post independence periods have been dominated by a centralized conception of management. This management based upon the “all but the state” has imprinted the natural resources management that the administration has appropriated. This top down management logic was the answer to the political determination of the newly created States which badly needed to secure financial resources. One of the main tasks of the civil servants and other public agents was to see to the development of “productive practices” for the exploitation of natural, forest and agricultural resources which had to be the main sources of income for the newly born States.

2.1.1 Stages in the establishment of the current political and legislative framework

Generally speaking there are four main stages in the evolution of the politico-judicial systems:

- the pre-colonial period which is dominated by a system of customary law;
- the colonial period during which there was a coexistence of customary law and modern or positive law with a preference for the latter;
- the independence period, which is a continuity of the coexistence, tainted with ambiguity in the face of the failures of the “all state” approach;
- the period of the recent public administration reform marked by a strong awareness of environment related issues, globally speaking. It should be stressed that this last period has three phases.

These different periods and their features are recorded in Box 9.

The process of the modernization and development of the newly independent states went through other types of changes under the influence of international cooperation:

- The system of international aid and cooperation has, from 1960 to 1985, supported both the centralized and the sector-based trends of the young African administrations.
- It was still under the impulse of the international cooperation that the national development plans would change into structural adjustment programmes, as of 1984 in line with the perspective of liberalization of the national economies.

2.1.2 Policies that did not take the natural resources into account

The former colonial, and then independent, states of West Africa imposed their right of ownership over the land and natural resources (forest laws, agricultural and land acts, water supply laws etc).

In the face of the “irrational” practices of the local populations, the governments’ emphasis was on rational management but above all on the value of natural resources mainly to raise funds for the state budget and finance development programmes.

The first sub-regional development plans were designed following independence, in the 1960s. The newly independent countries had inherited economic systems featuring by absence of flexibility and relations that made it difficult to systematically question

Box 9. Synthesis of the historical framework	
Periods	Distinguishing features
Pre-colonial	<ul style="list-style-type: none"> – Oral tradition – Membership of individual to the community – The right of the community members to access to land and natural resources – Collective ownership
Colonial period	<ul style="list-style-type: none"> – Oral tradition still prevailing – Introduction of writing – Introduction of rights to private ownership – First appearance of modern land – Transformation of traditional land rights into property rights
Independence (1960–1970)	<ul style="list-style-type: none"> – Creation of rural development ministries: agriculture, stock breeding, water, forest, fisheries; – Accent placed above all on improvement of the productivity and production of natural resources by means of a strictly sectoral approach ie the agricultural body would only deal with agriculture, the stock breeding body would only focus on its sub-sector etc; – Some actions to protect natural resources were separately undertaken and without collaborating with the grassroots populations; – There was no research programme on combating desertification; – The activities within the framework of the environment and natural resource protection and restoration were carried out by the central administration.
Administrative reforms (1970–1980)	<ul style="list-style-type: none"> – The creation of ministries of environment or agencies in charge of the environment and the transformation of other rural development sub-sectors into ministries; – Limited perspective on fighting desertification. In several countries of the sub-region, it is only the ministry of environment that has the responsibility for such actions; – Initiation and multiplication of contradictory actions on the field by technical state agencies, each of them working separately without any attempt to consult the others; – Designing the elements of Environmental Impact Assessments (EIA) but without any application in the field.
Administrative reforms (1980–1990)	<ul style="list-style-type: none"> – Broader environment perspective with some attempts at designing a National Action Plan but mostly under the influence or pressure of partners rather than from a real political will; – Clearer perspective of the actions and the observance of the multi sector-based dimension which was to meet with the insufficient financial means; – Emergence of the NGO in the field of environment but with several handicaps mainly technical and financial and a lack of coordination with the State;

Cont.

Box 9. Synthesis of the historical framework (cont.)

Periods	Distinguishing features
Administrative reforms (1980–1990)	<ul style="list-style-type: none"> – Stronger resurgence of the notions of decentralization and community management, still with a very strong role of the State (i) in designing and approving rural management policies, (ii) in controlling all or almost all the development actions, (iii) in training the population generally and the producers in particular mainly through the “training and visits” approach.
Administrative reforms (from 1990 to date)	<ul style="list-style-type: none"> – Designing of the legal acts regulating decentralization and the management of natural resources with a delay in the establishment of the institutions or in the actual transfer of expertise and the means to the new authorities in charge of the grassroots development, including environment management in fighting desertification; – The state gives up its commitment in several sectors or activities without any alleviating measures; – Withdrawal of the state from certain fields without a prior preparation of the actors to take over (agricultural inputs etc); – Development of programmes and planning management policies, certainly with the population participation, still only taking partially into account the concerns of the populations; – Several conventions related to the natural resources management have been endorsed but with a commitment which does not go beyond a mere statement of will, therefore without material, financial or human support; there are also increasingly frequent institutional conflicts; – Weak coordination of the different conventions initiated or implemented in the environment field; – Partners have become more demanding on the participation but are not aware of the reality which consists in getting the population involved by providing more means.

their wisdom. Besides, the needs of securing financing funds and mostly the new administrative obligations that the States had to face have led to maintaining the strategies of an unbalanced externally-oriented trade with a particular emphasis on cash crops and on taxes which were the principal sources of revenues for the States.

The urban sprawl, the development of economic and social exchanges have gradually, but surely, led to an important diversification of the activities to generate new sources of incomes and/or investment. Therefore, the urban populations (civil servants and traders) encroach more and more on rural spaces through the creation of cash crops plantations, generally on the more fertile soils and through pastoral activities.

Meanwhile the rural populations diversify their activities by making room for the products meant for foreign markets in order to meet the monetary needs resulting from new the obligations of modernization.

This new situation has led not only to a rapid degradation of the ecosystems worsened by drought and demographic growth, but also to the deterioration of social relations.

Although it has been admitted theoretically and methodologically that economic spatial planning at a large scale seems to be the most indicated way to associate economy (generally a short-term vision) and ecology (a necessarily long-term vision), the consideration of the ecological dimensions in the planning, programmes and projects of development became theoretically effective much later. Several factors account for this marginalization of the environmental aspects of development. We can mention:

- The maintenance of the planning method through projects based on micro-economic profit making criteria;
- The weak financial and technological intervention means in relation to the highest cost of operations for restoring degraded ecosystems;
- The absence of a policy and rural management graphs;
- The weakness of the decentralization power which does not facilitate the responsible participation of the populations in the planning process.

It is only recently that plans and programmes have set the priority of dealing with the problems related to desertification in a broader way, and have made it a point to advocate, for the most part, the involvement and the empowerment of populations.

2.1.3 Introduction of environmental issues into policy-making in West Africa

Consideration of environment under international pressure

Since the 1970s, with the birth of the ecological movement in the USA (1970), in France (1976) and above all the periods of drought (1965–1974), the Nairobi Conference of 1977 and its desertification acts, we have witnessed growing concerns for environment and desertification control in the programmes of certain countries of the Sudan-Sahelian zone.

The national authorities have been made, under the impulse of the international cooperation, to consider the environmental dimension of the natural resources management as an official priority. In this move and mainly after the Summit on land, this topic has been either the main focus of several projects, particularly desertification control projects, or at least an important component of these projects.

This new orientation for the integration of ecological concerns has manifested through one-off actions of the type of “preservation and restoration of soils” “fighting against deforestation” “water supply control” etc. But it is hard to find planning systems which really defined a coherent strategy and the adequate means to face, in the long run, the degradation of the environment.

The integration of desertification control strategies in the new framework of strategic programming

Some other planning approaches developed these last years at the national level. After the periods of failure of the structural adjustments plans at the social level, the African planners have been made to implement alternative development planning and management method and tools. It is what is referred to as the Strategic Document for the Poverty Reduction with sector-based programmes and a sustainable human development action plan.

The set of these new tools to improve the mechanisms of development planning aims at taking into account the basic socio-economic needs for a Sustainable Human Development. The new policies thus formulated have hardly ever integrated the environment and the management of natural resources. No matter how good their intentions, most of these programmes and projects of desertification control continued to be just slightly taken into account in the rest of the development activities. They tend to fall under the biophysics field only, even when they call for the concept of participation, it's only with difficulty that they manage to serve as a factor for integrating all the activities dealing with the natural resources and even less when it comes to other activities.

2.2 Influence of the planning methods on social sustainability

The mechanisms for designing the strategies of national policies and sector-based programming should ensure harmonization to create favourable conditions for their appropriation. The natural resources that provide these populations with incomes to earn their living also constitute the foundation of their survival strategy. Thus, for these populations, the fight against desertification becomes a fight against poverty.

The social sustainability of desertification control thus suggests not only a number of ecological measures but also the satisfaction of some socio-economic objectives. The satisfaction of socio-economic preoccupations of the bordering residents of the degraded areas becomes then a condition of social sustainability.

Box 10. Changes in planning approaches at the national level

The period between 1950 and 1970 is characterized by the design and the implementation of development policies based upon a sector-based investment programming. The majority of these policies and development plans designed at the national level was oriented towards productivity and did not include the consideration of the social concerns of the under-privileged societies.

Period between 1970 and 1990 was dominated by the famous structural adjustment programmes which aimed at restoring the macro-economic balance of several indebted countries. The implementation of the programmes worsened the social situation in the countries. The social costs of the structural adjustment programmes were very high.

Towards the end of the 80s, a new strategy for the promotion of the "Social Dimension of Development" through planning mechanisms favoured the consideration of social impacts in the Structural Adjustment Plans.

It was during the 1990s that the new initiative "Social Dimension of Development" evolved to provide a basis for the formulation of policy documents and national plans relating to the reduction of poverty.

Box 11. The importance of non-timber forest products and continental fisheries in Senegal

In Senegal, the statistics of the national economy only account for the major production derived from the exploitation of forests and rivers. IUCN showed the importance of the contribution of the wildlife resources to the economy. A research and survey process covering several years and closely combining the expertises of a number of local and national organizations demonstrated the role played by forest non-ligneous, and wildlife products and that of continental fishery in the economies of several categories of the rural populations, and their importance at the national level. The surveys show that forest crops, not including firewood and timber, represent about 50% of the income of the poorest household. This confirms the importance of the natural resources and that of the well-being of the ecosystems in the programmes against desertification particularly in the most rural countries in West Africa. The exploitation of wildlife resources in Senegal does not contribute to the economy of subsistence as thought. However, it plays a key role in the monetary economy of the country. At the national level, it has been noticed that the forest wildlife resources that is not accounted for in the current statistical records yields more than 6 million Us dollars for the economy of the country, that is to say 14% of the forest economy in the year 2000. Also, the continental fishery, which is not being given enough consideration nowadays, yield something between fifteen and nineteen million US dollars to the country, say 19 to 26% of the maritime fishery that is an important sector of the national economy. The study shows the urgent necessity of improving the management of the natural wildlife resources which constitute not only the basis of the survival of a large part of the rural populations, but also the capital for a substantial urban market and an important contribution to the economy of the country.

2.2.1 Some worrying reports

The most significant consequences of the malfunctions recorded are:

- The lack of suitable policies capable of ensuring between sectors a coordination that has gradually led not only to a rapid degradation of the environment but also to a deterioration of social relations;
- The implementation of the policies thus formulated has resulted into the creation of a number of agricultural popularization offices using some technical standardized data sheets, and a forest administration with the form of an army body using repressive methods;
- A climate of antagonism towards the technical institutions in charge of implementing the national directions. This rejection was evidenced during the General Assembly of rural area help in 1991 in Mali where the rural populations showed their hostility and requested that the water supply and forest management departments be suppressed. This must be understood as the expression of a real need for reorganizing national mechanisms to promote development and most particularly, in the area of the protection of natural resources.
- Lack of harmonization between the economic orientations and the measures of protection of natural resources;
- The priority given to the national resources management in the sector-based strategies was not backed up by a favourable and conducive environment: Lack of a policy to finance agriculture, difficult access to agricultural inputs etc. The rural populations are kept in socio-economic conditions that are hardly favourable to a harmonious enhancement of the natural resources;

- Lack of legislative and institutional framework suitable to particular areas such as water supply management, development of paths, and the use of pieces of land, jeopardises the correct implementation of the convention on desertification. Therefore, it is worthwhile to think about the institutionalization of the rules and the principle of management through a legal framework.

2.2.2 Antagonisms between national frameworks and local systems

As a matter of fact, all the countries affected by desertification have been confronted with two issues.

- i. What political and legal framework is necessary to favour the social appropriation so as to ensure the continuity of actions?
- ii. How can desertification control be carried out in conformity with this legal framework?

The latter should involve all the actors at different geographical levels and offer some advantages to grassroots communities, particularly in terms of sustainable development.

The featuring of the legal arsenal with regard to the regulation and control of the management of natural resources leads to three major observations. These observations are indicative of the development and institutional mechanisms and legal provisions that these countries experienced even before the colonial period.

- **First observation:** the legislative and institutional vagueness created by the dualism between the traditional land law and the modern land law.

This dualism caused some disturbances in the occupation of space, the distribution methods and the appropriation of the territories. The traditional authorities are deprived of their prerogatives and the substitute instruments and institutions have not been efficient to solve the problem. This new situation resulted in not only in the rapid degradation of the environment worsened by drought but also in the social deterioration of the relations which led to open or dormant conflicts between, on the one hand the farmers and the cattle raisers and on the other hand the rural communities and the structures of intervention (administration, projects as well as urban economic agents.)

- **Second observation:** the local methods of enhancing natural resources are likely to be influenced by external factors with regard to the local communities and to be determined by a larger socio-political environment.

In fact, the conservative measures are accepted only when they guarantee security to the actors at the social, cultural and economic levels. In a more global way, to achieve social sustainability, environmental-friendly exploitation solutions should be restored in relation to the economic, social, cultural and political specificities of intervention context.

It is almost an illusion to think of a community approach to the management of natural resources in the absence of a favourable political framework. The room for manoeuvre relative to the selection of an option of an environmental-friendly and sustainable exploitation can be restricted to the unfavourable socio-economic and political conditions. There is interdependence between the factors that influence the choice to be made by a local community and the more global political context in which the community is integrated. The methods of exploitation and the

systems of management of the area are based on locally accepted standards, norms and values.

- **Third observation:** The crises, tensions and conflicts have aggravated more the weakening of the collective rules of natural resources management with regard to the new challenges with which the rural societies are confronted.

2.3 Reconciling the national frameworks with the Convention to Combat Desertification

The analysis of the legal environment aims at defining the needs for adjusting a legal framework. It can be achieved in two ways:

- The identification of laws and existing regulating act texts and other privileges;
- The analysis of the advantages related to the new laws of the decentralized management by the community.

2.3.1 The development of legal and institutional frameworks

The management of land constitutes a major area of legal facets of desertification control. It has undergone remarkable changes these last few years. The analysis of the changes and the limits of their impacts on the rational management of natural resources shows some considerable gaps. The ongoing changes in this field aim at offering a functional basis to the management of natural resources.

There are several phases to the land management process.

The pre-colonial period

Access to land and natural resources was governed by unwritten laws. Access to these properties derives from the membership of the individual within the community generally defined by blood relationships or, in the case of secondary or transferred right (land loan, share-cropping), through agreements with those who hold primary rights.

Overall, community membership entitled the individual with the right of access to land and natural resources.

Box 12. Natural resources management institutions

The main feature of the institutions operating in a country is to be multi-faceted, to have different roles and missions and to be present at some levels of responsibilities (in terms of zone coverage and competence). This feature is generally enhanced when it comes to a field such as environment and natural resources issues. Therefore, it seems important to have the parameters which will highlight the main institutions' features through their field of interventions.

Definition and importance of the institutional framework

The premise is that the institutional framework should globally reflect the authority of responsibilities for the development of the sector-based policy and environmental action. The institutional framework is not limited to the State only but also includes the responsibilities given to the non-trading company and mainly the NGOs.

Cont.

Box 12. Natural resources management institutions (cont.)

The analysis of the roles and competences implies the selection of a certain number of elements that should be taken into account. Three of the institutional aspects are fundamental, namely:

- The role, the responsibility and the missions of the structures;
- The field of action or the geographic competence limit of the organization involved;
- The object of the competence of the organization.

The role, responsibility, and mission of the institution are related to the functions assumed by these institutions in the process of making decisions relative to the policies and to their implementation. In managing natural resources, the institutions can execute the following functions:

- Formulation of, and environmental decision-making about, options related to natural resources;
- Consultations/advice on specific or general issues concerning environmental or natural resources;
- Implementation of environment-related and natural resources policies;
- Planning of resources;
- Information, education and communication;
- Penalties for misconducts in issues pertaining to the environment and the natural resource.

In the fight against desertification, the institutions' geographic coverage can be local, national, sub-regional, regional and universal or global.

As for institutional competence, it results from the combination of two elements: a specific field dealing with water, soil, the fauna etc, on one hand, and the specific functions of the structures involved, on the other hand: decision-making, implementation, research, information and communication.

Various actors or participants should be involved in the management of natural resources and in the analysis of the assignment of roles and competences:

- State organizations;
- The private sector, including the formal local structures and the informal ones that have a certain legitimacy;
- The current institutional development processes;
- Rural management policies and strategies.

Land legislation during the colonial period

In Africa, the colonial period generalized state control over soils, land and the related resources.

Pre-colonial Africa ignored the notion of private property as provided for in the item 544 of the French Civil code. But as of July 1899, the French Republic has set as objective, the generalization of private land ownership.

Towards this end, France will try to adopt a legal regime based on territory and land ownership. It aimed at getting the lands under unwritten laws incorporated in the public property in order to privatize them through registration which is the first step towards the delivery of land title deeds.

Thus a first decree on land property dated July 1900 integrated into public property “all the vacant lands left with no owner” and all “the conquered territories” as well as those resulting from agreement signed with the local populations not in the pursuance of the unwritten laws. A second decree dated October 1904 acknowledged the existence of “lands owned by virtue of the customary law” but the decree of November 15, 1935 adds a restriction to this notion of lands owned by virtue of the unwritten laws by inserting the notion of absence of exploitation. In practical terms, the restriction is manifested through the transfer of the land into public property.

As for the oral customary laws, two of the three decrees made it compulsory to have rights put into written form and the related properties ascertained.

What the colonizer was aiming at was the changing of the traditional rights into property rights. The rested with the owner to provide the undisputable evidence that the land was not vacant, abandoned, unexploited and without any owner.

This presumptive State ownership of vacant lands with unknown owner was disproven in the decree of May 20, 1955 which clearly acknowledged the traditional rights and made a provision for their evidence in a land book. Thus it was the responsibility of the State to register all the recorded lands of its property, after firstly showing evidence that they were not governed by customary law.

Independence

After independence, the African countries passed land and natural resources management legislation which emphasised public and state ownership.

This inclination for public ownership of land and natural resources was grounded on the idea that public ownership offers a better guarantee for the management of the wealth of the nation. The State thus becomes the owner of all the natural spaces, the manager and the “keeper of law”. The people are only entitled to their use.

That is how in Burkina Faso, the first legal acts on Land and Agricultural Reform provide that “the nation’s land is rightfully under the exclusive ownership of the State”¹.

As for Mali the land owned by the state includes almost all the territory of Mali. Land ownership was subject to a title under state name including all the unrecorded lands, the so called “vacant and without owner” (to which no unwritten laws applies), and those bearing the traditional rights.²

For the legislator of Niger, natural resources are part of the common heritage of the nation. All the citizens of Niger have equal right of access to them, irrespective of sex, or social origin.³ This determination of the States to have the sole responsibility of managing the natural resources and land through its rules and regulations soon came up against restrictions and constraints:

- Restrictions in the sense that the difficulties of the task were underestimated, thereby rendering impossible the enforcement of the rules in the field;
- Constraints in that the state soon became confronted with the lack of means, financial means in particular.

¹ *Ibidem* Article 3 Ordinance of 1984

² Item 37 of the land ownership code of Mali 1986.

³ Article 4 de l’ordonnance n° 93-015 du 2 mars 1993 portant Principes d’Orientation du Code rural.

This failure of new rules and regulations to come into effect has favoured the survival of the customary laws that govern the management of land and natural resources.

This is a dualist system of the laws that govern the management of land and natural resources, meaning the co-existence of the traditional and modern laws relative to land and natural resources.

2.3.2 The Convention to Combat Desertification: a reference framework

The Convention to Combat Desertification (CCD) suggests pertinent measures for enhancing the social sustainability of the desertification control activities (participation and partnership, integration of actions in national policies, designing and implementing actions plans, financing mechanisms and regulation and incentive measures)

It is essential to restore the mechanisms of CCD and its importance as a reference framework at the national and international level. The major axes of the reforms at the institutional and legal levels are defined in accordance with the directives of the convention with a view to achieving the social sustainability of desertification control activities. The CCD has been dominated by the will of promoting a participatory approach. Through the principles and with the obligations of the parties, it appeared without any doubt, as the environmental agreement that brings together environment and development more closely. It poses in clear terms the necessity of interdependence among economic policies, development plans and natural programmes for the preservation of the environment. It meant to promote a change of approach by encouraging governments to commit themselves in terms of public policy, and by defining the legislative and regulatory frameworks that will enable the populations to organize themselves for the management of their natural resources. There was room for hope then.

The lack of appropriation by the actors as a motive behind the little progress achieved

Progress in the implementation of the Convention against desertification is not significant. Various processes have been taking place in defining or implementing National Action Programmes and Sub-Regional Action Plans but the implementation is still confronted with some problems. The results of the year 2000 indicate in Box 14 that the lack of appropriation by the actors seems to be one of the main reasons behind the little progress recorded in fighting desertification.

Two major constraints limit the correct functioning of the mechanisms and of the approach suggested by the CCD. We have, on one hand, the low participation of the citizens in the elaboration of policies and action plans; and on the other hand, the lack of appropriation of the topics for fighting desertification by the populations involved. On top of all what has been indisputably acquired as a result of developing certain actions, these weaknesses revealed serious difficulties when it comes to the actual involvement of the population. It became obvious that the social dimensions of the topic for fighting desertification and the negative effects of drought were not sufficiently taken into account in the approaches, the design, the implementation, the monitoring and the assessment of programmes. This fact has been noticed at the level of all the partners, at both the internal level as at that of the activities.

Box 13. The United Nations Convention to Combat Desertification

Desertification is one of the major ecological problems in several areas of the world and precisely in Africa. Desertification threatens the existence of many populations. It is for that reason that the international community organized itself to set up a legal instrument for fighting this phenomenon by endorsing the Paris Convention on June 17, 1994. This convention aims at reversing the process of desertification and alleviating the effects of drought.

The word desertification refers to the erosion of lands in arid, semi-arid and sub-humid dry zones.

General principles

To combat desertification, the convention poses a certain number of principles meant to guide the actions of the parties involved. The Act of the convention is dominated by four major principles:

- The participation of the population and local communities in decision-making and in the programmes to control drought;
- The enhancement of the spirit of partnership, cooperation and coordination at the regional and international level;
- The development of partnership among states, local communities, NGO and the private sector in order to promote a sustainable use of natural resources;
- The consideration of the situation and the specific needs of developing countries.

Obligations of the parties

Speaking of the obligations of the parties to the conventions, a distinction is made between the obligations which common to all countries, obligations that are specific to the countries affected by drought and the obligations of developed countries.

As for the general obligations, all the parties have to fulfil their obligations vis-à-vis the convention, the necessity of adopting long-term strategies being emphasised, just as the necessity of efforts coordination. By fulfilling their general obligations, the developing countries can benefit from aid.

As for the countries hit by drought, emphasis is laid on the necessity for them to design strategies and to define priorities of actions. Likewise, these countries should undertake actions to raise the awareness of populations, and create a political environment and favourable legal and institutional conditions.

Finally, the developed countries are urged to support the actions of developing countries, chiefly by providing financial resources and any other forms of aid. By so doing, these countries would the developing countries a chance to access the appropriate technologies.

National action plans

The countries hit by drought commit themselves to elaborate and implement national action plans to fight desertification. The action plans aim to:

- Clearly identify the desertification factors;
- Define concrete measures to be adopted in order to take action against desertification and alleviate the effects of drought.

The action plans concisely state the role of each of the actors (the State, the local regions, and the populations) and assess the resources available and necessary. They anticipate long-term measures and define preventive the ones. The implementation of the action plans should involve the participation of the populations. Regular reports are written on these plans.

According to the provisions included in the appendixes of the convention, the countries hit by drought are urged to consult one another to design regional and sub-regional action plans; and generally speaking, the member countries of the convention are invited to cooperate at all levels (scientific, technological information exchange) to achieve more effective action.

Cont.

Box 13. The United Nations Convention to Combat Desertification (cont.)

Supportive measures

The supportive measures aim at creating favourable conditions for getting tangible results from the fight against desertification. These measures are related to information, awareness raising, and education of populations on one hand, and to the enhancement of local capacities to fight desertification.

Included among the supportive measures are, chiefly, the participation of populations, the enhancement of the popularization agencies, capitalization and the use of local knowledge. Supportive measures are also inclusive the measures which are necessary to ensure the mobilization of adequate resources.

Financing mechanisms

The limit of the financial provisions of the convention is that they are not compelling. Again, there is no indication as to what is the level of contribution of the respective developed countries.

The fact leads us logically to investigate:

- How the legal and institutional frameworks can contribute to the effective participation of the populations and to the creation of opposition organs;
- How the community mechanisms of natural resources management should be integrated into the legal framework and be better articulated according to the scales of interventions in accordance with the other functional measures;
- How we should translate the orientations of the CCD as basic principles for reforms and reconstructions of an appropriate legal and institutional framework.

2.3.3 The different levels of intervention to consider

The analysis will have to concisely answer questions about the necessity of designing an organizational framework in conformity with the decentralization process in one hand; and the principles of sharing decision-making and the undertaking of development works with the grassroots communities on the other.

At the legal level

- Almost all the countries have passed legislation on land and natural resources management.

At the level of the institutional context

- The National Action Programme is the first national mechanism. Its definition and implementation are based on a set of measures that are not always ensured in the countries.
- At the sub-regional level, various institutions intervene directly or indirectly in the protection of natural resources. Some of them are intergovernmental institutions, while others are NGOs.

There is a problem of articulation between regional and national actors. Indeed, the interventions of regional institutions in natural resources management constitute, in principle, an element for the enhancement of national policies. But in reality, what takes place is more the piling up of actions than the enhancement of the effectiveness of actions in favour of the management of the environment.

Finally, one should not neglect the negative impacts of the low consultation among regional institutions. Given that each of them has its own financial means, a useless duplication of actions and a poor communication related to the actions underway are observable.

On the basis of directives, answers can be provided to the three following major questions:

- In opting to share the decision-making powers with the grass root communities, which organizational arrangement will facilitate the integration of different actors at the community level, in the process of decision-making?
- The socio-cultural and economic dimensions are also important to achieve the social sustainability of desertification control activities. What legal status should be granted to grassroots community organizations for them to go beyond the simple legitimacy and make sure that their interventions is legal, while safeguarding their cultural heritage?
- Which operational modes will ensure a sufficient financial basis in relation to the new responsibilities?

Box 14. Assessment of the results of implementation of the Desertification Convention	
Achievements	Major shortcomings
Increased awareness of the States of the sub-region of the urgent necessity to give the highest priority to the fight against desertification	
The starting off of a participative approach The significant improvement in organizing the producers, and of the development of professional producer organizations	The low level of participation of different groups of actors at all levels of the implementation of programmes for fighting desertification The low level of functioning and lack of dynamism of farmers' organizations and NGOs in several countries
The improvement of the state of resources knowledge and that of the process of their degradation or destruction The promotion of new techniques and technologies (improved stoves, solar energy, biogas, butane gas etc) The quantitative and qualitative enhancement of the human resources to promote research and development	Inadequate quantities of data and diffusion of techniques and technologies experienced through an appropriate system of environment information The low rate of generation and appropriate transfer by the research system in West Africa. It involves the following challenges: <ul style="list-style-type: none"> – to guarantee the sustainability of the productive capital – improve knowledge at the level of environment degradation – improve the knowledge on the impact and the knowledge derived from the human actions the volume and quality of natural resources
	Cont.

Box 14. Assessment of the results of implementation of the Desertification Convention (cont.)

<p>The enhancement of institutional diagnosis</p> <p>The designing of tentative rural management schemes</p> <p>The appropriate implementation of legislation and rules for a better management of natural resources</p>	<p>The problem experienced by the states in the context of decentralization, in reconsidering the roles of technical departments and in reorganizing them laying the emphasis on the rural world initiatives support rather than on the training</p> <p>The low level of consultation and coordination among the structures in charge of fighting against desertification</p> <p>The great number of plans, policies of natural resources management diversity poses indeed, some problems of redundancy and coordination that the different ministerial departments, the intergovernmental organizations, the NGO and the financial partners have not succeed in solving</p> <p>Inadequate planning capacity and low level of the complementary actions undertaken</p> <p>The survival of legislations and rules that are not adapted to the realities and a few initiatives of consideration of natural resources management by the local actors</p> <p>The low level of coordination of actions and policies in terms of shared or trans-border resources management</p> <p>The low level of the national resources invested in fighting desertification</p>
--	---

Source: PASR/AO June 2000.

The analysis reveals, at the administrative level, a twofold malfunction of the legal framework:

- i. The low level of participations of private actors and communities, even though the necessity of sharing legal powers and functions among the different actors is apparent. This sharing of functions should take place on the basis of the natural interdependence of the actors and of the principles of subsidiarity;
- ii. The lack of coordination and the absence of mechanisms adapted to the specificities of desertification control.

2.4 The role of community institutions and local regulations

2.4.1 Modifications of the role assigned to community institutions

Definition, historical changes of the concept of community management of natural resources

Local management of natural resources is understood as the transfer of the decisions powers to the local communities in the diagnosis and the natural resources exploitation planning as well as the monitoring and the assessment of management plans. Thus, what is today referred to as community management has gone through several steps:

Box 15. Progress in the implementation of the CCD in Burkina Faso

The implementation of the fight against desertification in Burkina Faso⁴, is based on activities that should lead to the design and implementation of a national action plan on the basis of consultation and participation.

A three-step strategy has been designed by the proper authorities:

- The setting up of a participation mechanism;
- The design and adoption of a national action plan;
- The development of the national action plan.

The implementation of the first step centres on the following actions:

- Definition of the concepts;
- Definition of the strategic framework;
- Definition of the legal framework;
- Definition of the institutional framework.

The first phase is the one during which the grassroots populations have managed their resources themselves without an external intervention. That is referred as the traditional management. The notion of management was limited to a few measures of preservation and conservation. These measures were based only or almost on the knowledge of the, the know-how and the techniques of the local population. Part of the knowledge is still in use in several areas. It is true of those under superstitions in certain regions of Mali for instance, where, it is still believed that every time that a green tree the size of a human being is felled, the person who felled the tree loses a member of his own family!

The second phase is dominated by the intervention of the central State through its decentralized structures. It consisted in the “teaching” of techniques and technologies to the populations at the grassroots, who are supposed to ignore “the good manners”. This phase has mostly dominated the first two decades that followed the African independences.

The third phase in the history of the community management approach came into being as result of failure of the State control approach. It developed from the sub-regional (CILSS) and international (United Nations) initiatives related to desertification control, which were taken over by different governments. The operational programmes implemented were mainly based on a strong and expressed determination to empower the grassroots populations.

Context reminder and justification

For more than a decade, the politicians and the technicians of the sub-region of West Africa have been talking more and more of the “participation of communities”, of “the empowerment of grassroots populations” and of “the involvement of local populations” etc.... Indeed, the appearance of these concepts and the quest for their implementation are sequential from the notice of the apparent failure of the approaches and methods formerly used by the young States born after the independences.

⁴ In Senegal and Mauritania the process of designing national action plans is real; some forums have been organized and the final writing of the plans is in progress according to the coastal zone training session held from January 7–17, 2002 in Somone.

As far as the natural resources management is precisely concerned, it is generally admitted that there are three reasons for this failure:

- i. The state ownership of almost all the natural resources. Almost all the governments have reviewed the legal acts or designed new ones and thus became the owners of the natural resources. This has, of course frustrated the traditional customs landlords and deprived them of their rights and power exercised over generations and even centuries. It goes without saying that the grassroots community will always give little attention to resources “when only belong to them when the State does not need them”;
- ii. The paternalistic management of resources by the State: in most States, the preservation in the first instance, and then the management of natural resources management were under the exclusive responsibility of the public administration, particularly the forest departments. But instead of following an approach that aims at convincing the populations of the necessity of protecting or managing the resources for their benefit and for the benefits of future generations as well as for the whole country, these departments rather considered the resources as their own property or as belonging to the State and protected them as private properties. It all happened as if the communities should or could not play any role in their preservation. That is why, in their interaction with State agents, the populations commonly refer to the resources as “your tree”, “your stream and water points” “your resources”;
- iii. Failure to harness the traditional knowledge of the communities: all the communities training programmes were designed and implemented as if the population did not possess any know-how in the protection and restoration of the resources that they have been exploiting over generations whereas there have always existed for species and vital spaces some traditional protection and conservation measures even if they were linked to superstitions.

It is as a result of these observations that the States, at the regional level (Nairobi Action Plan 1994) and then sub-regional level (CILSS, Nouakchott 1984, Segou 1989 and Praia 1994) and finally at a national level (National Conferences, Rural World General Meeting), decided to assign an essential role to the communities in management of their rural areas and natural resources.

This commitment of the States is a decisive turn in the history of natural resources management. However the States should find the institutional, methodological and legal means for an effective management of resources by the communities.

2.4.2 Community institutions as the basis of social sustainability

The endorsement and ratification of international conventions and agreements related to natural resources protection for fighting desertification (United Nations conventions on biodiversity, and to combat desertification) have led the African States, particularly Saharan Africa, to give authority to the communities in the choice and implementation of the related projects. This strong support to local management is based on three main assumptions that constitute the principal features of the realities of the grassroots communities:

- The populations who depend on a resource have good reasons to exploit it in a sustainable way;

- The rules set by the legitimate local instances are likely to be enforced than the laws which are incompatible with the realities of the populations;
- Privatization is not necessary the most adapted solution in West Africa where the modes of exploitation of natural resources are rarely exclusive. (The same space can be exploited by several internal and external users, even if the latter are almost never considered as engaged in the community management.)

This is how several initiatives of community management of natural resources were taken by all the States of the West African sub-regions. The results are satisfactory in some cases, mitigated here and there, and disappointing elsewhere.

Box 16. The big issues of community participation: Five important issues to be considered

1. The preservation of the capacity of production and regeneration of the natural environment: the type of extensive exploitation of natural resources jeopardizes their regeneration capacity and their sustainable exploitation. This results in an unbalanced relation between human beings and the environment, which can only be restored by firstly revising the exploitation modes, hence by questioning even the practices of the communities;
2. Food shortage is still acute: the satisfaction of nutritional needs remains a priority for the West African populations;
3. The harmonization of the various and diverging interests of those exploiting natural resources: farmers, traders of forest products, lumberjacks, nomadic or transhumant shepherds etc, the rural and urban population, the State and the decentralized regions, the communities and the local regions;
4. Ensuring a peaceful exploitation of the natural resources: with the community management of natural resources, social peace should be preserved. It is certainly a difficult exercise in view of all that was mentioned above;
5. Reaching full participation: The participation of the grassroots communities is gradually appearing as a big stake. It is more and more targeted by the technicians who seek to get away from criticisms hurled at the dirigist and State-control approaches mentioned above, but and mostly, to ensure the sustainability of the actions developed.

“Everything that is done without us is done against us” (quotation from a farmer at the National Conference in Mali, August 1991).

The role and place of community institutions in the regulation of natural resources

In the light of the previous clarification, it can be said that community management can be distinguished from the other management methods by the place and role granted to the communities. Contrary to other approaches according to which the grassroots populations had no knowledge and know-how, with the community management, it is assumed that the populations have always more or less managed their resources well with the techniques and technologies specific to them.

By “specific” it must be understood, the techniques and the technologies that they have acquired from a generation to the other and of which the applications are socially acceptable (or compatible to their habits, traditions, beliefs etc) and the costs affordable

to them. The whole process is facilitated by a structure that is a supportive technical and financial partner that may be public or private or non-governmental.

The traditional management, on the contrary, is that which is conducted by the population of a given geographic area, according to the prevailing customs and usages.

Customary law, the balance in the regeneration and the use of natural resources

The customary or traditional law that still governs the relations between the land and the people in several African societies, is still specific to the context of absence or non-involvement of the post colonial State in the management of land. This law is enforced where the positive laws have no governance. This applies in general to rural environments or peripheral urban environment with no economic stake (ie mines, huge hydro-agricultural territory management etc) where the recourse to State representatives is not necessary for mere land exploitation. It is essential to point out that in traditional law, while issues of access to resources and the possible related conflicts are dealt with, the issues of property deeds are almost never mentioned. The unwritten laws chiefly regulate access to resources, exploitation conditions and conflict management. Unwritten laws, thanks to their regulation through prohibitions, social taboos and even superstitions without forgetting the fear of collective repression, help preserve the natural resources and ensure the ecological balance within these fields of application.

The local actors and institutions of the community management of the natural resources

The management of the traditional natural resources at the grassroots level is featured by the existence of local institutions (people, families, or groups of families etc) or organizations in charge of handling all the questions related to land and natural resources. This management consists in applying the consensual rules specific to the community or possibly related to the other communities in the same cultural area. These rules include some access and exploitation modes, some repressive measures for the lawbreakers as well as for the traditional organizations that must see to their application.

With the community management of resources, the local regulatory mechanisms are made up of institutions and organizations including traditional institutions, representatives of the central power as well as any other actor to whom a specific role, influence or legitimacy has been acknowledged. The organization should function as an observatory with a sustainable and peaceful management of natural resources as major concern.

The traditional institutions

The traditional institutions include, at the level of one or several villages, the traditional chiefs – and people who assist them – who are in charge of enforcing the agreed-upon rules of access to the land and of settlement of conflicts resulting from the natural resources exploitation, between two or among several parties. In general, they belong to the founding families of the villages and enjoy a strong influence in the management of community affairs whatever the field. The people referred to are important personalities but whose powers only cover rural zones without stake and with a low presence of State administration.

Despite all this, it is particularly essential to associate them to land management issues, chiefly when it comes to making decisions related to the sustainable exploitation of natural resources. This is all the more important that it is not possible to decide to use

any land without their consent, at least in the management framework that gives power and authority to the community. The participation of the traditional institutions is essential for the success of the community management.

However, in case of conflict in which the competence of these organizations is questioned, the parties involved resort to the representatives of the state authority in their jurisdiction.

Constraints and risks of community management

The limits of the community management of natural resources are essentially technical, social, sociological, organizational and legal.

From a technical point of view, it must be mentioned that knowledge and know-how exist everywhere, they have to be improved, overall. This is, for example, the case of the erection of stony cordons without the identification of the contour line owing to the lack of information or technical equipments related to the development of this technology.

From an organizational point of view, the development actions undertaken by the populations are only short-term whereas fighting desertification or managing natural resources should be medium or long-term.

From the social and sociological point of view, four situations are worthy of mention because of their frequent occurrence:

- The exclusion of the *allogenous* populations;
- The growing incapacity of traditional authorities in settling their conflicts, the increasing resort to legal administration to render justice to the protagonists;
- The absence of intra or inter community solidarity;
- Some instances of “manipulation” of the actors deliberately entertained by the communities to adapt the content of interventions to their own strategies which unfortunately are short-term.

From the legal point of view, the primacy of the positive law over unwritten laws, remains the limits and the constraints of management by the communities of the natural resources. As the result of this, there is a virtual right and state of representation that should be entertained by the community organizations. There is a problem of legal status of community organizations of the management of natural resources. They enjoy a limited responsibility. The legal framework should change so as to grant an official recognition and clear regulations in terms of formal and adapted procedures.

From the financial point of view: considering the current conditions of community management promotion, through interventions of project type (there is a real problem of financial appropriation. The process totally depends on external financing and comes short with the intervention. Generally speaking, they are costly enough and the cost/benefits quick ratio is less favourable to the investment of local funds. It is necessary to remind the professionals of some of the risks related to community management. We can mention three of them for the sake of the analysis:

- The first is “following fashion” which led to a spontaneous adoption of participation and induced the populations to follow the pace of the technicians, which is dangerous because it can result in manipulation by pushing the communities to voice what has been suggested to them.

- The second risk is the wrong application of the natural resources management approach. Indeed, it happens that on behalf of it, the technicians, claim that only the populations have the last word, which is true of course, but anyway, they must decide with full awareness of the risks. Therefore whenever necessary, the populations should be given the basic elements for decision making, that is, the advantages and inconveniences inherent to the making of each decision.
- The third risk can be related to having deadlines set by representatives or silent partners as far as the achievement of results is concerned. The natural resources management being complex by nature, it is incompatible with such practices when it has to be carried out with the participation of communities. The result will be the setting of a pace by the technicians to which the communities must get adapted whereas the reverse of the process would be ideal.

Table 1. Types of participation

Forms of participation	Involvement of the community	Relation between research and activities with the community
Manipulative participation	Some symbolic representatives are chosen but have no contribution or real power.	The community is subjected to it
Passive participation	Some activities are assigned in exchange of tangible incentives. External professionals set the calendar and conduct the process on behalf of the community.	Is done on behalf of the community
Participation on the basis of consultation	The views of the community are gathered and external professionals analyse them and come up with the appropriate actions to develop.	Is done for and with the community
Cooperative participation	The community works together with the external professionals to identify the priorities. It devolves upon the communities to implement the process.	Is done with the community
Interactive participation	The community and the external professionals share their knowledge to bring out a new agreement, and work together to design action plans in collaboration with the external professionals promoting agents.	Which is done through and with the community
Collective mobilization	The community sets up its own calendar and tries to implement it when there is no external initiator or promoting agents.	Is done by the community

2.5 Granting more power to local institutions

It is worth recalling that the historical analysis has revealed that for various reasons (lack of means, massive illegal exploitation etc.) the State management of the natural resources could not prevent the overexploitation worsened by recurrent periods of droughts and the increase of the *anthropic* pressure. Therefore, to comply with the multiple international treaties and agreements related to the sustainable development and to the preservation of the environment, the West African governments, more or less massively, set out transferring the responsibility of the management of natural resources to the local populations.

At the international level, most of the environment-related conventions and agreements (in particular the United Nations conventions on biodiversity and on combating desertification) advocate local management of natural resources.

Box 17. Main orientations of the Praia declaration

- The designing of the outline legislations by the States of the Sahel, in terms of land and natural resources, laying out the principles while leaving the responsibility of the definition of the implementing measures with the local populations;
- The necessity of promoting a decentralized approach to land management through the acknowledgement of the legitimacy of the grassroots communities and the transfer of power and competences in terms of natural resources management;
- The necessity of taking into consideration the rights and legitimate interests of all the participants, mainly those who are counted out when it comes to land management, such as women and pastors;
- The necessity of giving more attention to the prevention and the management of land conflicts;
- The necessity of taking into account the environmental dimension of the land management issue.

2.5.1 Rendering the legal provisions (about community management) operational

In June 1994, the CILSS and the Club of the Sahel organized a regional conference in Praia on the land issue and decentralization in the Sahel. That conference clearly insisted on the fact that some options related to land management policy are biased in terms of exclusion, intolerance, and eventually in terms of the destructions of the Sahelian societies. The Sahel has then been urged to quickly gear its policies towards equitable, peaceful and decentralized land and natural resources management options. The Praia declaration particularly indicated the main orientations (see Box 17) and urged the member States of the CILSS and their partners to implement them.

Since the Praia conference, the Sahelian countries and the West African countries in general have also made new commitments at the international level: the Rio convention, climate change, biodiversity and desertification; Johannesburg Summit on sustainable development, the millennium objectives. New initiatives were also taken at the national, sub-regional and regional level:

- Decentralization policies;
- Revisions of land management laws;
- Adaptation of natural resources management policies;
- The Sahel 21 process;
- Designing of strategic framework for food security; designing of national and sub-regional action programmes;
- Designing of strategic frameworks for fighting poverty;
- Regional integration process;
- NEPAD.

All these initiatives go along with the Praia agreements and advocate giving more power to the populations to take charge of management of land and natural resources in order to ensure a sustainable development.

Therefore, more and more power is being transferred from the central structure (the state) to the decentralized structures (generally the local families and mainly rural communities). Decentralization is now accepted as one of the main incentives to induce the participation of the populations in the development process. In the framework of decentralization, the local regions are given a legal status, provided with a patrimony and endowed with actual decision-making power. What the state is practically aiming at through this approach is to build at the local level (villages and inter-villages) the capacity of the rural communities to take charge of and ensure their self-development, which suggests the following:

- The grassroots promotion of viable organizations capable of ensuring the multiple functions necessary to the implementation of approach (related to the village committee of the management of rural areas and other organizations);
- Providing the rural populations with the necessary technical support: (training, information, discussions) so that they can grasp the ins and outs of the initiative;
- The transfer of a real power of decision and action at the economic, financial and political levels. This will help ensure a self-dependence to the grassroots communities to enable them to design and implement local development projects while giving them the possibilities of managing some financial and tax resources.

Decentralization, if it is supported by the transfer of assets and human, material and institutional resources, should serve as springboard to new sustainable development strategies of the rural sector of the West African countries.

Several sector-based and legislative reforms have also been carried out in the framework of decentralization:

- The new forest laws usher in the principle of co-management, the acknowledgement of the existence of rural wood markets and make a provision for a distribution of the taxes derived from wood exploitation among the different actors of the field (technical departments, local agricultural traders and regions);
- The water supply codes hold the users responsible for the resource and advocate the establishment of basin agencies made of different categories of the actors involved in the use of the resource;
- The pastoral codes should hold the local regions and the organizations of producers responsible for the management of the pastoral resources and the control of the herd movements.

However these reforms did not succeed and are hardly implemented in real life. Generally speaking the actors involved (state departments, new local families and the users of the resources.) are still waiting for the implementation decrees. In other cases, the problem is about the gap of information and communication. The lack of real capacity to fulfill the functions transferred by the laws or other regulatory acts is a hurdle to remove.

2.5.2 Reconsidering the role of decentralized offices and that of supportive structures

If the new institutional and legal natural resources management approaches have contributed to the populations getting more power in controlling and exploiting the natural resources, it still remains that the transferred competences are yet to be

exercised. The main reason for that is the insufficient technical capacity of the instances, meant to intervene to back up the populations. In addition, the agents of the technical offices who are supposed to back the populations find it difficult to position themselves in the framework of decentralization just as the reforms within their ministries are having hard times to take place. In spite of the changes in legislations, most of the agents of the technical departments are still depending upon the operative mode of former policies.

Some training organizations are attempting to give a chance to populations being in charge. To achieve this goal they use a number of approaches:

- highlighting the knowledge of farmers;
- facilitating active training among the farmers themselves and beyond the village;
- building up the combination of both the knowledge of the farmers and that of the agents;
- designing and distributing adapted information instruments.

The NGOs of the North and South and the aid agencies are multiplying their direct interventions with local populations aiming at different objectives, for many of them look at the State as the symbol of corruption, red tape and abusive use of power. Indeed, some of them do it under the false umbrella of decentralization and claim “let us get democracy rooted”; others, under the pretence of local development, say “let us back up the grassroots initiatives”.

As for the new actors of the civil society (associations, producers organizations, private business owners, counties etc) they are striving to build up new relationships with the administration for they still, rightly feel dependent upon technical offices to effectively implement their new responsibilities.

If it is obvious that the Sahelian civil society is getting consolidated and is confirming its legitimacy and capacity of participating in the search for the appropriate solutions related to the issue of land management and decentralization, it is regrettable, on the other hand, that in several countries in West Africa, the capacities of the central and local administrations are rapidly diminishing. This weakening of State offices is a major handicap for the implementation and the success of the local management of the natural resources and of desertification control activities.

2.5.3 Clarifying the respective roles of the State and other actors

At all decision-taking levels, the different actors should play important roles for a successful community management of natural resources.

The state

Its role should mostly consists in designing, in a participatory way, reference documents for desertification control activities, with possibilities of adapting to the realities that are specific to different geographic, cultural or socio-productive areas. The State should also ensure the existence and the good functioning of legal and legitimate instances of natural resources management. Therefore the acts should make provision for the existence of unwritten laws and value them.

It is also worthwhile to mention the conditions under which the big investments in favor of natural resources should be made.

The technical departments must make more use of participatory approaches and techniques, highlighting the value of traditional knowledge. As for the judiciary departments, they should render justice considering the inherent customs practices.

Regional authorities

By devolution, as a result of a transfer of power from the State to the local regions, these regions should regulate the management of natural resources by ensuring legality without ignoring the legitimacy of the traditional institutions in the local context. The regions should also see to the application of the principle of subsidiarity and avoid, as much as possible, any form of exclusion. As far as resources are concerned, the resources of the region should be distinguished from the patrimony of the community. All this should be made against a background of peaceful and equitable management of resources.

Communities

Without giving up their responsibilities for the management of natural resources, the communities should acknowledge the legitimacy of the local regions which are actual emanations of the State. The traditional methods of natural resources management should make allowances for the requirements of positive law.

Civil society

They should guarantee the defence of the interests of the populations in the management of land. If need be, they will have to plead and lobby with the State for a sustainable management of resources through, among others, the creation of the appropriate legal framework.

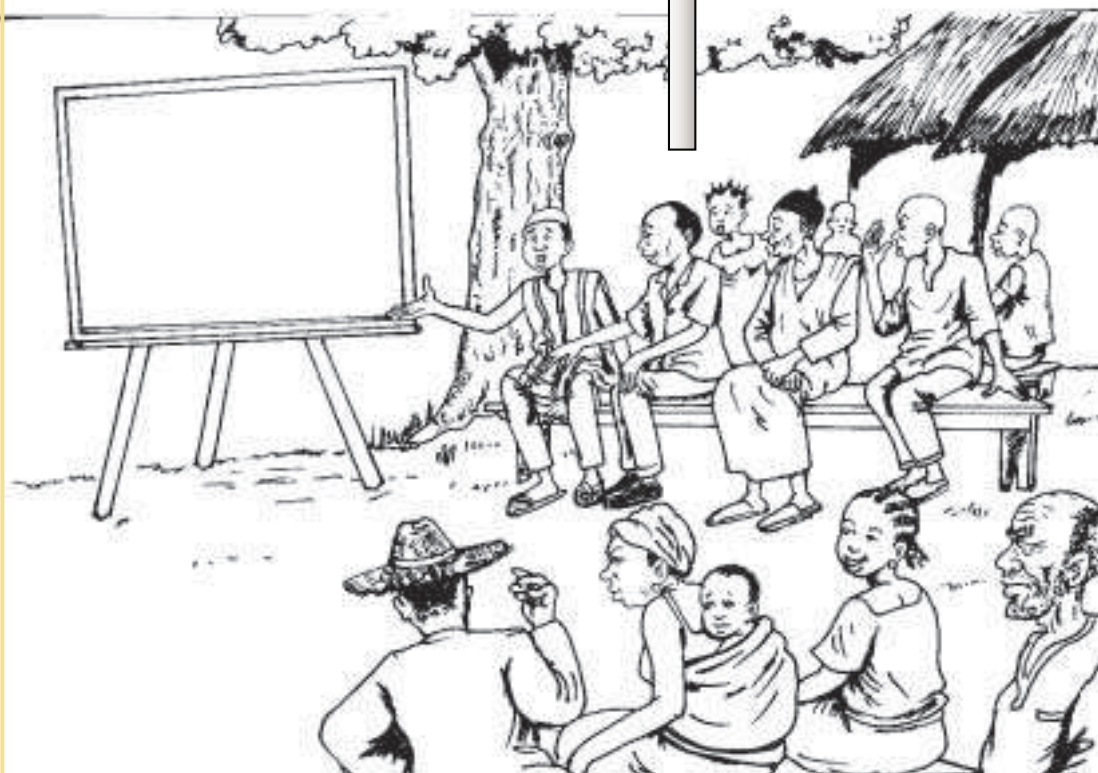
Technical and financial partners

The role of the technical and financial partners should consist in supporting the initiatives towards the rational management of the natural resources through the actual enforcement of the legal and consensual regulations in effect. The support should help the local development initiatives that will lead to an actual endogenous development.

Part III



...so that they can develop their initiatives.



Strengthen the capacity of communities...

3. In search of socially sustainable intervention methods

The analysis of the desertification control approaches shows discrepancies between the approaches suggested by decision makers, technicians and partners in one hand, and the needs and expectations of the more directly involved actors mainly communities and their organizations in the other hand. Such a thing has prevented the strategies, plans and policies so far developed from reversing the degradation of soils in the arid and semi-arid zone as well as in the dry sub-humid zone.

The fight against desertification in the more affected areas remains the precondition for the success of all the other conservation strategies (biodiversity, climate changes etc...) However, lessons should be drawn from the strategies and approaches which have been experienced in order to better promote and support the appropriation and the perpetuation of the desertification control activities. The purpose of the third part of this manual is threefold: firstly, it provides a justification for the necessity of enhancing social sustainability; secondly, it suggests a number of operational steps towards this end; and thirdly, it tries to devise implementation tools.

3.1 To change the approach of interventions

3.1.1 To “involve” or to “enhance the autonomy” of local communities?

The systemic analysis uncovered the complexity of the relationship between human beings and the natural and economic environment, and the necessity of understanding the decisions of individuals, families, and communities made under extremely complex dynamics that need to be examined with a consideration for social and natural uncertainty and variability factors which are notable particularly in the arid and semi-arid areas. The social sciences have been a major contributory factor in showing the diversity of perceptions and views that underlie various scales of values and social organizations within human societies.

We are forced to notice that, in this environment that is characterized by movement, variability and uncertainty, it is quite difficult to integrate the technical, participatory and institutional responses to the potential threats into the complexity and dynamics of the prevailing situations. Also, for Weber, this is the apparent motive behind the failure of the development projects because of the assumption that it is possible to initiate, from outside, changes in the social dynamics of groups on the basis of sector-based objectives. The complexity of the relationship among individuals, and between nature and human beings, is often expressed through the exploitation of single elements such as cotton and rice that are considered the keystones of an integrated development.

Practically, the populations who are involved in natural resources management and rural development projects often see the legitimacy of their strategies rejected, and are led to adopt a so-called technical rationality imposed by experts at the expense of their own decisions.

Curiously, the so-called rational techniques are said to be resulting from the participatory studies undertaken with the collaboration of the same individuals the attitude of whom are looked down on. Paradoxically, it is asked of the same populations to “empower” themselves in order to take charge of their own destiny.

Here, it is not the question of looking down on the array of the technical solutions which have been developed so far to fight desertification, nor is there any point in minimizing their contribution to the success of the desertification control activities. What matters is rather the use to which they are put and how they are introduced to those who are asked to implement in earnest. Also, necessary are the evolution of the institutional and legislative frameworks, and new strategies and intervention plans at national and regional levels to set the development goals that offer suitable conditions that can insure the success of the actions developed by individuals.

And yet, despite the strong will of developing participatory approaches, government structures and partner agencies are more concerned about implementing preconceived patterns through the existing administrative facilities. Instead of trying to impose their views on local actors, these structures and partner agencies should think about transferring central structures to local institutions and populations (Bertrand, 1996).

Technicians, lawyers and specialists working with different institutions should contribute to the creation of these legal, legislative and institutional frameworks which facilitate the progress of the economy. This multidisciplinary feature is key to identifying high performance and sustainable measures to exploit animal and plant resources, water, and soils, in favour of the rural and poor populations of the arid areas. But the solutions should not be imposed on populations. This should be avoided even during the participatory surveys the findings of which are taken into account to render the initial project more appropriate to the needs of the populations concerned.

3.1.2 Thinking about the role local populations should play before structuring interventions

At the core of this problem lies the fundamental question of which role is to be played by the local populations who are affected by desertification:

- i. Do projects offer a “participative position” or are they dedicated to enhancing the capacities of actors to take on a certain autonomy?
- ii. Should local populations adopt the solutions devised without much consideration for their priorities or should they be involved in the search for suitable solutions?
- iii. Can an adoption and an appropriation of the selected technical solutions be achieved without respect for the autonomy and the competences of the individuals, the community and the society?
- iv. Can a man adopt for his family new perspectives and attitudes that do not include considerations for his personality and constraints; can he be fully committed to a project he is not at the centre of?

Certainly not! Therefore, It’s only by attaching credit to the principle of autonomy, by respecting the central role to be played local actors that suitable actions would be correctly selected. All the projects and programmes, be they field activities, bills, strategic frameworks and planning, should follow these principles. In fact, they guide the new approaches of desertification control activities presented here, which are based

on dialogue with local populations. These principles guarantee free choice and autonomy of decision to rural communities.

3.2 The conditions for social sustainability

3.2.1 The concept of sustainable development

In the 1970s, when the model of industrialized development became a subject of severe criticism, the big international institutions were urged to take a clearer stand in defining the concept of development. The concept of sustainable development was elaborated within IUCN in the 1980s (Dubois). Simply put, it means a change process based on a production logic aimed at growth and the improvement of living conditions. The preservation of the production capital represented by the natural resources is a key element for a sustained production. This definition is based on the management of natural resources and so, includes desertification control.

The origin of the concept of sustainable development can be traced back to 1972 during the United Nations Conference on the environment held in Stockholm in Sweden. Indeed, it was during that conference that a full content was given to the concept. A link was established between the environment and the development, and led to the notion of eco-development which seeks to reconcile development with ecology. This will, 15 years later, found expression in the works of the World Committee on Environment and Development known as the Brundtland committee.

In effect, the concept of sustainable development became popular in 1987 with the Brundtland report which defines it as “a development that meets the needs of the present generation without mortgaging the potential of the succeeding generations to satisfy theirs”. The Rio conference and its proceedings, and the World Summit on Sustainable development held in Johannesburg would continuously use this concept that had become central to all the works of the international community.

Some important events like the Earth summit on environment and development led to Agenda 21, the world summit on social development held in 1995, and the general assembly of the United Nations in June 1997. Assessment was made of the implementation of the Agenda 21. This assessment contributed to a closer definition of the concept of sustainable development before the year 2002 Johannesburg World summit devoted to it. According to a Canadian government document: “It takes more than classical measures of economic well being to achieve sustainable development. Quality of life and well-being are determined by several factors including income, health of the population, education level of the population, cultural diversity, the collective dynamic, quality of environment, and beauty of nature. All these notions help define sustainable development”. (*Source*: www.rfi.fr “Sustainable development: an attempt at definition”, page 2, August 16th, 2002).

The following quotation was drawn from the same source: “The idea of sustainable development suggests the necessity not only of creating wealth and conserving nature, but also of ensuring equity in the distribution of wealth. Care should be taken to equitably share the costs and benefits of the development among countries, generations, and between the poor and the rich”.

Thus, as in the fight against desertification control, sustainable development aims to guarantee natural, ecological and productive capitals to present generations. The ecological

capital should be transmitted to succeeding generations in such a quality that would provide them with good conditions and standards of living. It can therefore be inferred from this that sustainable development seeks the satisfaction of both the current and the future needs of human beings (Japp van den Briel *et al.*, 1994) The analysis of past experiences shows that the environmental dimension, which aims at the sustainable preservation of the natural resources, cannot be achieved without taking into account the social dimension of that sustainability.

The environmental or ecological dimension, which targets the conservation of the natural resources (the natural capital), should be combined with the economic and socio-institutional dimensions that are becoming important considerations for the sustainable management of natural resources.

This part focuses on the analysis of the conditions needed for effective desertification control and better management of natural resources that do not harm economic growth nor cause socio-institutional instability.

The stake of appropriation by the populations of the desertification control activities requires that, beyond the preservation of the ecological capital, the actions and interventions be initiated to reinforce two other capitals that will be discussed further, namely: the human capital and the social capital.

Sustainable development and sustainable management of natural resources include three important preoccupations:

- an **environmental dimension**: protect natural resources;
- an **economic dimension**: ensure growth;
- a **social dimension**: improve living conditions, protect individuals, and enhance the institutional capacities.

Specifically, the social sustainability, as one of the most important components of sustainable development, ensures that economic growth is not achieved at the expense of social stability.

The creation of a conceptual framework for defining strategies of social sustainability requires an analysis of the functional links and relations existing with other dimensions including the fight against poverty, the reduction of inequalities, the reinforcement of democracy and individual freedoms etc.

3.2.2 Social sustainability approach

The concept of social sustainability reveals the intricacy of the notion of sustainable development and the difficulties surrounding its concrete implementation. One should first note that it refers to the concepts of:

- satisfaction of needs;
- usefulness of ecosystems;
- the temporal aspect that suggests a long-term vision for the activities carried out.

The socially sustainable appropriation of the desertification control is part of the sustainable development perspective that is the reference concept of the reflections on the conservation of the environment.

The gaps in the classical approaches mentioned above raised the issue of what positions should be taken by men and women in the development activities. The need for a social management to help the appropriation of actions by the beneficiaries became strong on the basis of:

- The lack of interest of actors in taking over the environmental subjects suggested to them;
- The rejection of legislative tools put in place to modernize economies;
- The persistent conflicts between actors;
- The limited results yielded by large-scale projects.

As a result of the work of IUCN, the concept of social sustainability for conservation became clearer in 1997 with Borrini Feyerabend¹ who widely explores the notion with its associated meanings:

- maintenance or improvement of the living conditions of the individuals over time on the basis of an equitable sharing of the costs and benefits of the production systems;
- management of resources that facilitates the regeneration and the reconstruction of the resources depending upon the resilience of each ecosystem;
- an inter-generation compromise under which the current actors will guarantee to future generations the right to the same resource capital and style of life.

3.2.3 The social dimension of sustainable development

Several challenges are linked with the search for social sustainability. According to Grazia Borrini-Feyerabend,² the challenges can be divided into three categories including the achievement of well-being, the organization and mobilization of populations to engage in actions, and the long-term planning of actions and their effects.

This notion implies a number of considerations the relative importance of which is determined by the specific contexts. Among many other considerations, we have:

- The security of access to quality resources and the security of access to land, both representing important elements upon which depend the means of subsistence of a large part of the rural populations;
- A variety of economic advantages provided by the exploitation of natural resources to local actors and external actors;
- The capacities of local institutions in terms of resource management;
- A local system of governance made of rules and regulations, justice, traditional and customary laws, and systems of resources management;
- The recognition of all the actors involved in the conservation initiatives or in competitions for the resources in question;
- Local and external conditions that foster dialogue and negotiation among a large group of actors and external factors, particularly, those that ensure freedom of speech to the populations affected by the conservation initiatives.

¹ Borrini-Feyerabend, 1997

² Borrini-Feyerabend, op.cit.

All these conditions fully apply to the problems related to desertification control where, more than elsewhere, the role that is played by the natural resources is essential. These are the prerequisites that need to be solved by the promoters of desertification control activities at the local technical level as well as at the national institutional and legislative level.

The social sustainability is naturally centred on the individuals and their access to resources that serve as the basis of their subsistence. It requires institutional and legislative stability, and the capacity of actors to influence the decisions concerning them. In this regard, the human capital and the social capital may alternately be targeted as goals to achieve or as preliminary intervention frameworks.

That is to say, that the assessment of the social environment of all interventions of desertification control should help the analysis of both the institutional and the organizational capacities of a given community.

The human capital is one of the determinants of the social sustainability of development in general, and of desertification control and resource management in particular. It considers human being as the actors and the beneficiaries of development. As such, he must generate the resources which are necessary to the satisfaction of his needs. There are two fundamental conditions that determine the capacity of a human being for promoting and taking advantage of development. These conditions include the quality of human resources and their availability. Thus the education level, or generally speaking, the system of knowledge and local know-how in one hand plus health and food security in the other, determine productivity. They are viewed as important parameters of the human capital. The enhancement of human capital should fully take into account the fundamental components and the categories of the population of a community.

Box 18. The well-being of populations

The well-being of populations depends upon many things, among them:

- i. adequate and secure access to resources;
- ii. the existence or the creation of economic opportunities, meaning the resources should sustain and even improve the economic opportunities offered to populations;
- iii. participation in the decision-making process: populations should actually participate in making the decisions concerning them;
- iv. justice: creation of an adequate and fully operational system, as well as establishment of a system of equalization of the costs, benefits, rights, responsibilities, and the incentives.
- v. Inheritance and identity: respect should be guaranteed to the rights of populations to cultural values, behaviour, land tenure, and material goods.
- vi. Security and health: the exploitation or the residence or the use of the natural resources should not be made at the expense of the security, the mental and physical health of populations.

The organization and mobilization of populations into action

The author lists eight conditions that must be met by any group for the management of natural resources within a perspective of sustainable development:

- i. a clear delimitation of resources;
- ii. a capacity for preservation of resources

Cont.

Box 18. The well-being of populations (cont.)

- iii. existence of conflict settlement and decision-making organs;
- iv. availability of expertise to follow the development of resources;
- v. existence of functional organizations or specific committees to foster a good communication among actors;
- vi. existence of incentives and advantages for a good management;
- vii. availability of inputs: populations should possess the necessary manpower, technology, information, capital and other for sustainable management;
- viii. a common perception of the management of natural resources.

The sharing of advantages between several generations: perpetuation, social equity

This can be assessed through the following parameters:

- i. stability in the well-being of populations;
- ii. maintenance of the social capital;
- iii. existence of equitable inheritance systems;
- iv. secured land access and property;
- v. existence of profitable opportunities to the succeeding generations.

Source: Borrini-Feyerabend, G. (Ed.), 1997. Beyond Fences, Seeking Social Sustainability in Conservation. Vol I: A Process Companion.

There is an interdependent relationship between social capital and human capital. “Social capital” serves as support for the accumulation of human capital and its transfer from one generation to another. The conservation of social capital and human capital from one generation to another can be guaranteed only if it is supported by a sustained economic growth (Dubois, 2001).

3.2.4 The concept of social capital

By definition, social capital represents the relationship and interactions existing among individuals and can take the form of family relationships, neighbourhood, membership of associations and networks, shared values and norms (Coleman [1988] quoted by Dubois). Within the context of desertification control, it refers to the rural community which is the support cell at the local level.

People often make mention of “social peace”, “peaceful society”, “peaceful locality” where “solidarity and concord prevail”, etc. All of these are generated by social capital. The overriding goal of social capital is less to be found in the production relationships than in the social relations even though the former can generate the latter. This is the case of social capital in a work environment.

Thus defined, social capital represents a set of systems relative to confidence, solidarity, mutual aid which find expression in other systems of mutual assistance between individuals, families, lineages, partners, employees, etc. Several factors may determine social capital: shared interests and membership of the same social rank. It is therefore obvious that the building of social capital is by no means hard and fast. It takes time to build confidence in the first instance, and then to see the establishment of relationships among individuals, groups, families, associations, etc. In these circumstances, the importance of social capital may be assessed through mutual confidence

relations, the attitudes and values acquired by the individuals and the group of actors which are to be perpetuated by future generations.

The capacity of a community to mobilize for a concerted and sustainable management of natural resources, and so, for the collective fight against desertification, is commensurate with its human and social capital potentials. This potential of a community for finding internal resources to engage in a sustainable management approach determines the possibilities of appropriation, of a social sustainability of desertification control. This internal capacity to manage diverse groups of socio-professional actors engaged in the management of natural resources, of their stakes, their strategies and approaches is dependent upon the quality and the value (amount) of human capital and social capital possessed by the community.

Sustainability is an important goal in itself. It can also be viewed as the precondition or, as a support for the sustainable fight against desertification. It helps maintain the harmony of the community and its capacity to mobilize populations for concerted objectives. It also contributes to providing answers to specific needs expressed by households. The consideration of essential social factors facilitates the sustainable appropriation of the activities developed.

3.2.5 The role social capital plays in the fight against desertification

The interventions should target the protection of human capital and the mobilization of social capital for the social sustainability of desertification control. The effectiveness of the fight against desertification is based on the improvement of the well-being of communities and as well as on the enhancement of the capacities of both current and future generations.

Social capital, as defined above, may stand for an obvious potential for the success of the socially sustainable actions. In effect, it may represent an actual ferment for the implementation of the management approaches developed at 3.3 (patrimonial, co-management, local development and rural management approaches) as well as for the use of the different tools mentioned at the same point. In concrete terms, in the search for a socially sustainable management of actions, social capital can be a major contributory factor within the following contexts:

Long-term planning. The elaboration of a long-term vision of the management of natural resources (patrimonial approach) requires the strong capacity of actors and a consensus among them. Negotiation is key to reaching consensus. So, mutual concessions among actors are a prerequisite. It is obvious that the stronger the social relations of solidarity, mutual aid, confidence and of mutual esteem, the easier the achievement of consensus. Consensus will later facilitate a better participation in the implementation of the selected actions.

Reaching social management agreements. A good **social capital** should be able to generate identical or consensual interests or at least help achieve compromise with the use of solidarity links existing among different groups and types of interest. This is very important, for example when it comes to elaborating local conventions and local codes to manage large-scales or rural resources. Indeed, it avoids the waist of time in the negotiation/settlement of conflicts, and in the reconciliation of opposed parties.

Prevention and settlement of conflicts. The prevention of conflicts is, among others, the corollary of consensual agreements. Indeed, the more satisfied are the parties with

the procedures and potential actions for the management of natural resources the better the respect of the regulations thereof; this, because the regulations apply to everyone. Thus, the motives behind the failures to observe the clauses of the management agreement would dwindle thereby facilitating a perpetual exploitation of resources. It can also happen that conflicts emerge despite the consensual agreements between parties. Here again, the social capital may serve as a tool for reconciliation or mediation to avoid the conflict. This may be possible through the deep feeling and abiding attitudes that prevail within the social networks of relations. This sees to it that there is no conflict that cannot be resolved internally, because mutual concessions, solidarity and tolerance are the rule.

The integration of non-indigenous populations. Further, we will note that one of the hindrances of the sustainable management of natural resources and the social sustainability of the desertification control activities is the failure to involve all the parties in the elaboration of the management rules. This applies for example to the farmers who come from outside the rural areas concerned, as well as nomadic populations, transhumants, or populations of the poorly endowed areas.

Such being the case, the populations concerned are prone to periodically migrating towards the more endowed areas for relatively long periods. These populations are thus full parties to the exploitation of natural resources and the fight against desertification. But, they tend to be systematically rejected everywhere. There again, the *social capital* is one of the factors that help avoid this situation. Thanks to the solidarity links resulting from friendship and close or remote family and blood relationships, these “outsiders” can be admitted and integrated into the management of the businesses of the community. That way, a major problem that may harm the possibility of agreement on the sustainable management of resources can be avoided.

3.3 Promoting a dynamic of long-term change

The social sustainability lies in the appropriation of actions-corrective actions, ecologically sustainable management methods of natural resources – in the organization of the work and in the social and technical practices. It became clear that the demonstration of a technical or economic relevance was not sufficient. Compulsion is not the best solution. Paying to have the work done amounts to paving the way for another to better grasp the usefulness, the relevance and the vision of the assignment. Society should evolve from within according to its perception of its own future. This, however, is not meant to exclude the external interventions but shows that their approaches, and particularly their objective, should be readjusted. Success indicators are not the mere achievements but especially those decided internally and supported by partners. Such approaches are time-consuming because they target the appropriation of the change process by the interested parties who, by themselves, decide to make their situation change.

Several approaches have been developed during the last two decades, showing that there is a variety of situations that can be encountered and approached on the basis of the local setting and the social context.

3.3.1 The co-management approach

Co-management consists in sharing the administration of a business between different actors, which are entitled to specific rights and responsibilities.

“The World Biodiversity Strategy” defines co-management as “The sharing of power and of responsibilities between the government and the users of resources” (see Saskatchewan, 1996); it is a collaboration between contributors who work together to manage resources in a sustainable way in order to achieve the goals of all the parties according to their respective roles.

Co-management is a generic term with several synonyms. It sometimes means participatory management, consensual management, common management, dual-system management etc.

Borrini-Feyerabend defines co-management as a “situation wherein at least two social actors enter into negotiation, define and ensure a fair distribution of functions, rights and responsibilities of the management of a rural area, a zone or a set of natural resources” (Borrini-Feyerabend *et al.*, 2000).

Co-management is a *consensual approach* of natural resources management, and involves several *partners with special rights and responsibilities*. Partners generally pursue the common goal of preserving the environment, exploiting the natural resources in a sustainable way, sharing the related benefits and responsibilities equitably. Co-management is *par excellence* a political and cultural *process*. In fact, it suggests “democracy” and “social justice” in the management of resources.

It is a *complex process, which is often lengthy and sometimes confused*, likely to cause frequent changes and surprises. It often conveys contradictory information and therefore suggests a reconsideration of opinions.

Box 19. Principles and key values of co-management

- Recognise the **diversity of values, interests, and urgent issues** relating to the management of a rural area, a zone or a set of natural resources;
- Recognise the **variety of entitlements** on resources that go beyond the official ones;
- Seek **transparency and equity** in the management of natural resources;
- Allow the social society to assume the increasingly important roles and responsibilities;
- Harness the complementarity of the capacities and comparative advantages of different parties;
- Combine **rights and responsibilities** in the context of the management of natural resources;
- Admit that the process carries benefits which are more important than the short-term results;
- Learn by doing, by **constantly reviewing and improving** the management of natural resources.

Source: Borrini-Feyerabend *et al.*, 2000.

It expresses a kind of maturity of the society who becomes aware that *there is no “clear-cut solution”* to the management of natural resources but rather, a variety of alternatives which are compatible with the local knowledge and convictions and capable of meeting the development and conservation needs. There is also a variety of negative options that are harmful to the environment and the development process (Borrini-Feyerabend *et al.*, 2000).

In addition, it is good to point out that a co-management process is a form of negotiation, thus a set of concessions between partners. Therefore, it yields good results only when the parties are ready to give up interests and advantages when needed.

The golden rule of co-management is to “to achieve as much locally controlled management as possible with the minimum of state regulation”. Beyond the values and the principles, the co-management process consists of three main phases:

- Preparation of partnership;
- Negotiation of participatory management plans and agreements;
- Implementation and review of plans and agreements (learning by doing).

More of a state of mind than a structured approach, co-management aims, with simple measures, to create a dialogue from which future perspectives can emerge. Beyond the perspectives, the beneficiaries and the technical and financial partners will negotiate the sharing of roles, responsibilities, and benefits. Within a mutual recognition context, technicians and experts are often less prepared to tolerate the imperfections of the solutions adopted by local communities, and often fail to see the trial and error method as a way of learning. Co-management requires above all that project managers and local populations learn to make allowances for each other.

Co-management, as a learning process of new ways of working between partners of varied backgrounds, is achieved through three key phases.

3.3.1.1 The phases of the co-management process

In general, the partners involved had no previous experience of working with each other, nor had they been involved in a negotiation to reach agreements. This is why the process should start with a diagnosis made of questionings before proceeding to the negotiation and the action taking stages, hence the three important phases.

The recognition phase

Before engaging into a negotiation, it is necessary to agree on the importance of the process and set a framework for the negotiation:

Why: What are the resources, the rural areas, the stakes involved? What is the purpose?

Who: Who are the partners involved?

How: what are the rules of the negotiation?

At this first stage, the boundaries of the discussion are set between partners. The legitimacy of the process and the scope of the following phases are conditional upon the quality of the preliminary work.

The negotiation phase

Once the problem is raised and recognised by the parties involved, it is essential to set the preliminary rules to smooth the process. The following facts should be noted:

- The fact that it is a project the outcome of which is dependent upon the availability and the will of parties. Therefore, it would not be advisable to rush the negotiation phase lest it might harm the rest of the process;
- The parties involved are not all capable of participating equally in the process.

The most important thing lies in the appropriation of the process and the decision-making, neither in the quality of the decisions nor in the technical value of the solutions suggested. The initiator's role is to see to it that the process is respected not to guarantee the observation of technical norms.

The reaching of an agreement is not the end of the process that, actually, is a dynamic learning process. The decisions made should be implemented in the field and would progress according to the lessons drawn. Thus, there is a need of constant follow-up to adjust the process according to the potential difficulties.

The stages of this phase are, in general, the following:

- Agreement on the rules and procedures of the negotiation: Who should be involved?
- How should it be worked that all the parties are represented and recognise each other?
- Are there any fora for dialogue? Who convenes meetings? Who chairs them? Who records the proceedings?
- Who mediates between the different partners in situations of conflict or of diverging visions?

Elaboration of a common vision: the starting point of a negotiation is hard to decide, the problems are often so complex, the views so divergent on the causes of problems, the expectations so varied, and the interpretation so various! It is useful to start from the re-reading of the historical background of the rural area at issue, of big trends and of big events that affected the area.

This process that is particularly explained through the notion of heritage (see in the following section), facilitates the setting of a concerted vision, meaning a "social consensus" between all the actors involved in the process. This common vision should serve as a reference for settling conflicts.

The ritualization of the common vision: In order to be shared by all the actors or recognised as the commitment of the whole society, the vision should appear legitimate to all. Also, it is essential that this reference be recognised beyond the borders of the rural area, by institutions and particularly by third parties. It's about conferring a social authority on this vision which may lead its creators beyond their imaginations. Each society has its own moments and rituals. Therefore, it would not be advisable to suggest a single form for this ritual celebration. This stage is essential in the process in whatever form it might take.

The choice of strategy: Long diagnosis processes are tiresome to populations who eventually find them useless. It is necessary to have a number of supporting diagnosis

tools such as maps and inventories. Instead of going into too much detail about the outstanding problems, it would be useful to set priorities, select issues and rural areas, and urgently focus on the threats commonly perceived by all the parties.

Negotiation of management plans, agreements and covenants: Up to this stage, only objectives and outlines have been set for the future. No action has been planned while compromises are often followed by a commitment to equity and compensation of parties who might be wronged or whose rights might be encroached upon. Negotiation begins only when it becomes necessary to describe in detail the modalities of the achieving the goals set. At this stage, it is necessary to have a number of tools, methods and resources capable of generating new solutions. Some of these are:

- Elaboration of scenarios on the basis of the suggested solutions;
- Conflict mediation (see below). To mediate is not to judge conflicts. To mediate is to manage conflicts by leading the parties involved to understand and find an equitable compromise on their own;
- Provide parties with adequate means that can help them achieve a number of priority actions. Make available a fund that will allow the managers of a rural area to fill the gaps in terms of expertise, to undertake necessary the works, to achieve a mutual understanding and cooperation between parties, hence the settlement of certain conflicts;
- Seek the support of resource persons capable of briefing parties on legal and regulatory, institutional, and technical aspects. In certain cases, the technical aspects of resource management go beyond the competences of the local actors. Communities themselves cannot afford to consult specialists of the management of big irrigated perimeters, specialists of the water supply system of basins from the river Senegal, or even to specialists of the Diawling National Park of Mauritania;
- Exchange visits to the rural areas where a number of difficulties have been solved, and to the communities that are engaged in similar processes.

All of these should lead to management plans, regulation in favour of access to resources, equitable sharing of responsibilities, rights and duties.

Creation/reinforcement of implementing institutions: For agreements and covenants to be respected, they should be regularly updated and followed up. The parties involved should transfer their authorities to the institutions created during these agreements or those previously existing and capable of facilitating the implementation of the resolutions contained in the documents.

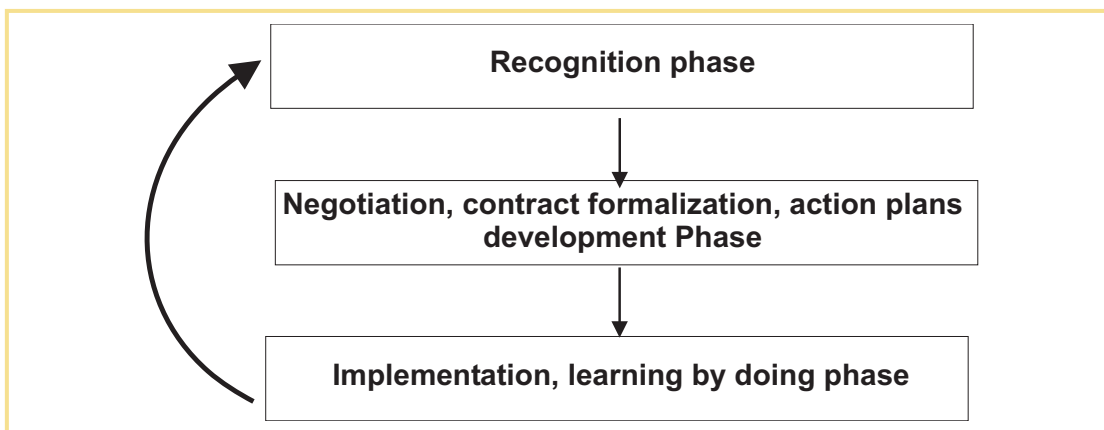
Officialization and recognition of plans, agreements, and covenants: The ritualization consists in engaging in a long-term process for a vision. The plans are more precise and more restrictive in clauses and resolutions and may encounter difficulties and reluctance in their implementation. It is important that the individuals and the institutions put in place be in keeping with the laws and enjoy the support of the representatives of the official authority. An official recognition by the government agencies, the clear distribution of the respective roles of the community and the government structures empower the communities who then are recognised as partners of the government. It is recommended that such agreements be introduced to the environment lawyers and judges, so that justice can secure their implementation.

The implementation phase

Contracts are not ritualized because they are ordinary tools. The implementation phase is not the culmination of a process but just a stage whereby parties make experiments. Borrini-Feyerabend speaks of a “**learning by doing phase**”.

Co-Management process: The development of the activities contained in the first plans incite into improving the existing contracts and suggest the negotiation of new partnerships and new contracts.

The first element that is expected from this phase regards the improvement of the management conditions of natural resources, the rural area, and the institution concerned by the agreements. It may imply the realization of redevelopment works or infrastructures, the application of more restrictive rules of access to resources. Small partial agreements are better value than complicated agreements.



Borrini-Feyerabend *et al.*

Control of the process: Agreements often contain loopholes because they are written by individuals with no experience in the field. The titles often do not carry a precise description of the roles and responsibilities of the individuals appointed. It is often perceptible that parties have the impression that the process is eluding them by being appropriated by the persons in charge. It is essential that the persons in charge of the process give account of their activities.

The creation of a follow-up system: One of the big gaps identified with the covenants and the agreements is the absence of performance indicators, the lack of a monitoring system, and the absence of a system of environmental follow up. Simple indicators and follow up modalities should be agreed upon to clarify an number of differences in the interpretation of the objectives and the priorities of the process. Emphasis should be laid upon the indicators of participation, performance, and of appropriation of activities.

3.3.1.2 Lessons to be drawn from the co-management experience

Various lessons can be drawn from the co-management; the process is so multi-sided and inspired by different concepts. It is particularly interesting to note that, through various methodological processes inspired by the concepts to be covered in the next chapter, the lessons drawn from field experiences result in general into the same recommendations. These should be borne in mind when selecting options, strategies and

programmes to control desertification. It can be inferred from this that what matters most is not the technical and institutional solutions adopted but the role assigned to the protagonists and the respect of their autonomy in the co-management process.

All the parties should be involved in the process. The exclusion of a group of users labelled as illegitimates, a minority of the local population less concerned about the future of the area, may lead them to gang up on the quality of the achievements or to even call the whole process into question. This often happens with migrant shepherds who are rejected in bulk and unanimously by farmers. Their exclusion from the negotiation process amounts to applying rules without their consent and even against them, while they are not bound to abide by them.

Box 20. Local covenant for the management of the Dentaka forest in Mali: An answer to the prevention of conflicts and the sustainable management of natural resources

The internal delta of the Niger River is the second largest wetland in Africa after the Okango plain. It covers 35,000km² with lakes, rivers, hydrophilic meadows and *bourgoutières* (a local plant species which thrives on flooding and is an important food source for the livestock) in the heart of the Sahelian area. It is a centre of rich and unique biodiversity in the region and is also the focus of a large part of the region's economic activity because of the resources it contains.

These resources are used by farmers as well as by fishermen and cattle breeders who all want to benefit from the same water bodies and the same land, often at the same times of year. This leads to conflicts, sometimes bloody, which increase the social tensions in the country. The decrease in rainfall during the last thirty years has increased pressure on the resources and caused their degradation and conflicts related to their exploitation. The flood-prone forests in *Acacia kirkii* suffered particularly from the situation. The new dams which are in the pipeline could have important impacts on the modality of access to the resources in terms of water, wood, pasturages, fruits, roots, and other non ligneous products.

About ten years ago, IUCN initiated a dialogue between populations on the future of the forests and the economy of these rural areas. This consultation process between actors of diverging and even contradictory interests helped integrate to all levels of reflection and implementation all the actors including the indigenous fishermen and farmers as well as the nomadic shepherds who lead their herds to the *bourgoutières* during the dry season. According to the persons involved, the project succeeded, for the first time, in creating dialogue between fishers, farmers and shepherds.

Together, they were able to draw up **management plans** and to sign **local covenants** with the public administration. The restrictive rules enacted by the populations, the new activities undertaken such as market gardening and the technological progress made in the drying of fish have all contributed to reducing pressure on the resources, and particularly to restoring the 575 hectares of the flood-prone villages of Akka and Dentaka. Both villages are among the last of the Delta, covering an area of 216ha of *bourgoutières* to which up to 3,000 heads of cattle belonging to the Fulani shepherds have, at certain moments, a secured access negotiated with the "bozo fishers".

At the same time, market gardening developed significantly in the previously marginal lands that were recovered thanks to the establishment of a network of quickset hedges. Market gardening yielded about 12 million CFA (40,000CHF) to the bozo and fulani women who traditionally sell dried fish and milk. This progress in the economic exploitation of natural resources also benefited biodiversity.

Cont.

Box 20. Local covenant for the management of the Dentaka forest in Mali: An answer to the prevention of conflicts and the sustainable management of natural resources (cont.)

The forests, in the heart of the Sahel, still provide a habitat for an important population of migrating birds coming from Europe, Asia, and to the hippopotamuses and the scarce manatee. The manatee is an aquatic mammal often referred to as fresh water calf as opposed to the seal. The process was fully developed by the local actors who made significant progress in learning how to control their destiny, to conduct negotiations with the users of resources and with public offices in order to reach compromises that will allow them to live together by abiding by the legislation and the local rules.

The project created new skills in the control of local projects with populations concluding their own agreements for the construction of local infrastructure such as wells, using investment funding received from the project. The process led to a reinforced social cohesion, with people finding new ways of discussion, of mutual understanding and of settling conflicts. These achievements show the strong links that are established, through the same dynamic, between the preservation of the environment and the fight against poverty. They show above all that, by placing the priorities of the populations at the centre of action in favour of conservation, it is possible to tackle development problems by exploiting the natural resources protected by communities in favour of biodiversity. Such a local management process is facilitated by the context of decentralization of power as that of Mali. Communities are moved to act only when their seriousness and skills are recognised, through local covenants for example. It also demonstrates that the technical progress and the legislative and institutional plans find their usefulness and justification only in a context of dialogue between all the actors.

Avoid focusing exclusively on the concrete and visible results in the landscape. A better management of resources is not always quickly visible. The process at least targets the appropriation of the decision-making, actions, and the changes in behaviors relative to organizations and conflict resolutions. These are all tangible results of the co-management process.

Avoid concentrating solely on the results of the conservation activities. The degradation of the natural resources is not always due to an overexploitation but often to an anarchic exploitation permitted by the free access to these resources. The protection of the environment is not always among the priorities of the populations. Nevertheless, a better management of the resources in a number of sectors would indirectly reduce the pressure on other more fragile resources. Focusing on quick results concerning the most endangered resources is not always the most sustainable method of improving the situation in a region.

Accept the pace and the priorities of parties. Following what has been described so far, the most difficult thing to do is often to allow the process to keep a pace and path that were not foreseen in the beginning.

Despite the lesson drawn from the co-management process, one should admit that the methodology offers room for improvement. Interventions following a precise and rigorous process stand a better chance of initiating internally driven changes that reconcile the diverging interests of parties. The advantages of co-management are somewhat: transparency, mutual recognition, a new articulation between legality defended by the State and legitimacy advocated by the communities who engage in confrontations without knowing or understanding each other. This tandem between the

legal and the legitimate offers prospect of security for the actions to initiate and is an important factor of social cohesion. In this capacity, it is full of advantages and should therefore give consideration to all the volunteer contributors while using precise methods.

Indeed, the management system is often criticized for its lengthy, costly, political and necessarily experimental aspects whereby solutions are identified as the process runs. This set of values is often difficult to adopt by promoters and financial partners who can only define processes with an uncertainty about the activities, the investments initiatives to carry out, the pace of the progress, and the results which depend on the local actors involved.

3.3.2 The patrimonial approach

Definition and justification

Patrimony is a set of material and immaterial elements that contribute to safeguarding the autonomy and the identity of their owners, and its continuous adaptation in a changing universe (de Montgolfier, Natali, 1987).

The concept of patrimony appears as “a notion that is being privileged, especially in the field of environment law and land issues” the origin of the word has a domestic connotation: it was understood to be the “portion of the goods of the farther that is bequeathed to the son (the goods include material elements as well as the status and the symbolic aspects) (Marthy, 1996).

To make it clearer, Ollagnon (1991) will later define it as “a set of material and immaterial goods that contribute to maintaining and developing the identity and the autonomy of its owner every time and everywhere by adaptation in a changing environment”.

The notion of patrimony, far from being restrictive, can apply to the different levels of a society: the individual, the family, the community, the country. It encompasses several dimensions of these units including the material, cultural, spiritual, geographical and temporal dimensions.

Patrimony differs from property in four elementary ways:

- The usage obligation that is manifested in the predestination of goods as opposed to the mobility of goods in the case of the property;
- The fact of considering the usage value by referring to the past, as opposed to considering the current market price in the case of property;
- The fact that patrimony confers more obligations than rights on its owner (unlike property);
- Patrimony plays a particular part in society, thereby symbolizing part of the identity of an individual (Bertrand, 1999).

The patrimonial management suggests a dual-purpose idea expressing the “search for a common interest” in favor of different groups and the “quest for an up-to-date rational management”.

Patrimonial management has more to do with relationships concerning affection, rights and obligations than membership relationships whereby the distinction between the object and the right to it becomes blurred.

The concept has the advantage of providing a diversified long-term vision of usages and users as well as a reference to the heritage of the past, the needs of the present time and the potential needs of future generations. Thus, it may strongly contribute to enhancing the social sustainability of the activities of desertification control because it is grounded on a compromise between generations whereby current users of resources feel the (moral, organizational, institutional, and legal) obligation of guaranteeing to future generations the right to a resource capital and a similar style of life (Borrini-Feyerabend, 1997).

This process provides an adequate answer to the so-called traditional system of natural resources management. It should be stressed that this concept will eventually be echoed in the rural areas where the problems are often discussed before decisions are reached and where solutions are never definitive as opposed to the rigid and externally driven solutions. The patrimonial approach is a co-management process which is relatively complex. As with co-management, it is more important here to think about a well-organized process than to target short-term solutions.

Features of the patrimonial approach

The first advantage of the patrimonial management lies in making “constitutional options”, to paraphrase Ostrom (1999), options that will then be held as sacrosanct and as permanent references for actions to be taken. These long-term objectives will be institutionalized, holding their initiators answerable to them. This reference to the future is valuable in as much as it cancels the outstanding conflicts and shifts the focus of the persistent ones. Because they ought be “patrimonial”, non-negotiable, and “constitutional”, the long-term objectives require a strong legitimacy and a ritualization (Weber, 1996).

The longer-term vision, without which any local action is bound to difficulties, requires negotiation, and so, mediation between representatives of past, present and future generations. Therefore, it is almost impossible to separate the notion of patrimonial management from the concept of mediation, hence the adjective operational/common that is used before the notion of mediation and patrimonial negotiation. Patrimonial management is a negotiation tool par excellence in a context of a search for sustainability for actions relative to the preservation and the conservation of natural resources.

The patrimonial process, or more exactly, the patrimonial negotiation process is based on the definition of long term objectives that allow a society, however complex it may be, to preserve its identity while maintaining its patrimony. It involves parties in a long-term common vision that is manifested by a negotiation on the change modalities, technical processes of the management of the common and endangered resources, followed by a contract establishments that assign roles to the parties involved.

The patrimonial approach therefore appears as a dialogue and negotiation process the results of which should include:

- longer-term objectives (a generation);
- medium-term management scenarios accompanied by ecological, economic, social, and institutional feasibility assessments;
- establishment of a negotiated management structure.

The major steps of the patrimonial approach are very similar to those of co-management in the following:

- Joint establishment of a diagnosis on the conditions of the local exploitation coupled with a prospective trend continuation exercise;
- Choice making process between several future alternatives by actors;
- Collective identification of common long-term objectives; identification of the conditions for the achievement of the selected future alternative;
- Assessment of the current practices of land and resources management, in light of the previous analysis;
- Adjustment proposal: adjustment and formalization of contracts between different categories of users for finding adequate and concerted solutions.

Contract formalization consists in defining the roles of parties and so, in transferring management powers to users to enable them to decide their own future (Bertrand, 2000).

More practically, patrimonial negotiation is based on the four following methodological stages: the launching, the establishment and legislation of longer-term objectives (patrimonial), the elaboration of natural resources management scenarios and the creation of organizations to implement these scenarios (Weber, 1998).

The phases of the patrimonial negotiation process

The launch

It includes the identification of actors, the debate on the trends of natural resources and on the acceptability of these trends, “communication” of different viewpoints.

The interest of this phase is that it allows the actors to express their perceptions of the present and future situations, to exchange views and share clear information about them.

Indeed, the launch presupposes that the actors actually involved in the of subject of mediation be identified. It should be convenient to identify the < absent third parties >, meaning those whose roles are important for the future of the ecosystem but who do not feel closely concerned about local problems, namely the conservation NGOs, public administration officials, and traders. The actual actors are involved in the patrimonial mediation. They negotiate on an equal footing.

The actors are expected to debate on the evolution, which they see as the most probable, of the ecosystem and their situation, should the current trends, that they should identify, be pursued. Once a map of perceptions is established and discussed, the actors are then invited to debate on the ecological, economic and social acceptability of the continuation of the current trend.

The establishment and legitimization of longer-term (patrimonial) objectives

This phase consists in the ritualization of the patrimonial objectives to make them inalienable, non-negotiable and difficult to break. Most of the time, the actors do not admit the potential consequences that a continuation of the current trend could have on the future of their children, let alone the conflicts that may oppose in the present days. The beauty of the phase is that the discussions are more focused on the long term. The actors can presently debate on what they would “ideally” like to bequeath to their children in terms of environmental products and surroundings. It is not always necessary

to have recourse to technical expertise because the purpose, here, is to help the actors arrive at a long term charter representing a kind of “social contract” whereby ideas and material things are exchanged.

A collective disagreement on the continuation of trends, or a desire to see just a number of them extended provides a basis for discussions about the constitutive elements of a desirable future. Consensus on the longer-term objectives allows the long-term and mean-term definition of the management modalities.

As shown in Box 21, the patrimonial negotiation aims to raise the awareness of the parties on the fact that the future of the whole community depends upon the sustainable management of this common patrimony represented by the natural resources, and to help them make concerted decisions compatible with a long-term vision.

The elaboration of scenarios for medium-term natural resource management

The stage following mediation consists in the elaboration of medium-term scenarios by actors in order to achieve the patrimonial objectives. The actors have the self-control of this stage as of the previous one and are still assisted by the mediator. This stage is based on the definition of the acceptable uses of resources, the forms of access and control, the agreements on the tools, the methods, the responsibilities and the technical assistance.

Box 21. Participatory management of the forest resources in Belambo-Lokoho, Madagascar

The idea of a better management of forests and the opinion in favor of a collective management of forest resources by inhabitants themselves are not new, speaking of the Fokonolona of Belambo-Lokoho, a locality of 2000 inhabitants. Very early, a number of alert old men noticed the rapid shrinking of the forests of the village area as a result of wanton destruction by land clearers and offices of the forestry department.

They were more interested in preserving the resources that are necessary for the local economy than in ensuring a continuous wood supply of region. As of 1978, the inhabitants of Fokolona officially asked the Forestry Department to allow them to decide about the management of their own forest resources. No good came of that request. The access to 800ha of forest was only conditioned by the terms of the prevailing forest legislation that is not scrupulously respected by the forest department. With a strong determination, the inhabitants renewed their request 17 years later, in 1995. It was only then that it was examined and approved. A technical support structure was given the responsibility of assisting the community in its strong willingness to save and manage the resources concerned.

Source: Jean-Marc Garreau: « Gestion communautaire à Belambo-Lokoho », in *Aménagement et gestion participative des forêts*, Rapport de l’atelier, 14–16 octobre 1998, Antananarivo, Madagascar, pp. 107–108.

It is at this stage that the scientific expertise, particularly the economic expertise, comes in. It is not the responsibility of experts to decide what it is to be done but to assess the compared feasibility of the scenarios established by the actors. The recourse to scientific assessment for the scenarios allows their fine-tuning until they are viewed by actors as adequate to meet their needs at an affordable cost and in consistency with the longer-term objectives.

The elaboration of the scenarios should change the desirable situations (of patrimonial objectives) into the possible (ones). It should be shared by all, and requires legislation.

The scenarios should however be adaptable and flexible in order to fit the constantly changing context. They should not become ritualized.

The establishment of natural resource management organizations

This is the stage for making decisions regarding the executive, decision-making and consultative bodies and their functioning rules (based on the discussions during which several possibilities are examined), and to legislation (not ritualization) about the natural resources management bodies and their functioning rules and strategies. This stage calls for a legislation that is strictly limited to its social area of work, not for ritualization. What matters most is that management structures must be able to take different forms from one community to another while retaining certain common functions.

Some tools and methods to facilitate the situational analysis and negotiation

- **Brainstorming.** A method that is used to seek the opinions and impressions of a particular group of individuals on a specific subject. It is based on a free expression of ideas that is triggered by the open and provocative questions asked by the facilitator. The opening speeches and questions should be in general terms, meaning they should not focus on a particular point of view that might influence participants. If all the participants are literate, it is possible to use a **structured brainstorming** format. In that case, the facilitator asks a question, allows each participant to reflect on it, and then gets them to write their answers in capital letters on coloured cards and show them to the rest of the group. Once a card that represents an idea has been illustrated, it is posted against the wall for the group to decide where it should be placed so that ideas of the same kind are kept together. The final result appears as a “bunch of cards” about each major topic.
- **Analysis of problems.** From the questions asked, the participants may identify a list of questions and situations or problems to solve. In any case the question, situations or problems should be clarified and analysed by the participants. “To clarify” means to offer a common coherent understanding of the issue being discussed. “To analyse” means to place the question, situation or a problem within a context that is characterized by the major causes and consequences, speaking of the future ideal as agreed on by all.
- **Conceptual framework.** A conceptual framework is a simplistic illustration of the relations that exist between a question, a problem or the elements contributing to posing the question or the problem, and the consequences resulting from their existence. It usually takes the form of a diagram containing boxes and arrows or a problem tree linking causes to effects. Ideally, a conceptual framework should be coherent and exhaustive. The discussion on the conceptual framework should continue until everybody is satisfied about participation in identifying the principal causes behind a problem as result of considering and analysing all the ideas expressed.
- **Splitting up large problems.** A very large and complex problem is often difficult to analyse and tackle. A stopgap measure consists in splitting it up into smaller questions or problems that can be discussed in small groups. It is useful to set a time limit and stick to a common vision during the discussions.
- **Analysis of strengths, weaknesses, opportunities and threats (SWOT)** The SWOT analysis is an efficient tool that helps a group, an organization or a public

Case study: Merging the traditional and the modern in the ritualization of the vision

The wildlife reserve of Conkouati is located in the coastal region of Congo Brazzaville and is characterized by a high ecosystem density (savannah, forest, lagoon, etc...). As of 1990, the Congolese government and IUCN have supported a participatory management process financed by GEF. This process helped the participants elaborate a common vision about the future of their natural resources, agree upon the fundamentals of a management system (zoning in particular), and establish a co-management authority.

This vision of the desired future was developed through a number of meetings between parties and facilitated by IUCN staff. It was then legitimized and ritualized during a ceremony organized on May 8th, 1999. The legitimization process was inspired by the usual arrangements of the rural, administrative and political ceremonies. Also, it was characterized by a mixture of traditional and modern forms. On the one hand, there was an organization committee, prepared speeches, banners, tee-shirts, and slogans etc. On the other hand, there were songs in which spirits were invoked, and where oaths were taken by the local traditional authorities (the headmen or *Fumu si*), and dances normally seen at other ritual ceremonies. There was a merging of rituals: a modern ritual dominated by the signature of the charter on the co-management of the natural resources and a social ritual characterized by the fertility cult for which clan spirits are worshipped.

The patrimonial mediation method was used during the process that led to the signature of the covenant but, contrary to its classical evolution, the ritualization of the vision took place at the same time as the legislation of the covenants and the management authority, and thus after and not before the negotiation between parties. Three arguments were put forward to justify this:

1. The vision is basically an anticipation of the time. As the populations of Conkouati never speculate about time, the exercise of a guided future-oriented projection has turned out to be particularly difficult;
2. The vision relates back to an abstraction, as is the case with the promises of political parties to which populations were formally used but towards which they now have a lukewarm and sceptical attitude;
3. The last most important nationwide ritual, namely the “hand-washing ceremony” by the political class in June 1991 was not respected in spite of its sacrosanct nature. The armed conflicts that plunged the country into mourning show that the oaths were broken and transgressed.

By organizing the ritual immediately after an agreement has been reached, the project stood apart from the abstract considerations and used a concrete reasoning which make the respective commitments manifest and reassuring for all the parties involved.

Source: Co-management of Natural Resources: Organizing, Negotiating and Learning-by-Doing. Borrini-Feyerabend, G. et al., (2000), p.42.

administration office examine an urgent situation, particularly a project, and identify the possibilities for action and modification. Basically, it is done by a group of individuals who suggest ideas about the positive factors (strengths), the negative factors (weaknesses), the possible improvements (opportunities), and the obstacles (threats) relative to the initiative and the entity at issue. All these methods and tools aim to take into account the internal and external conditions that facilitate dialogue and negotiation among a large group of actors. When applied to the context of desertification control activities, these methods and tools help create the conditions for an appropriation and a perpetuation of actions by parties, hence their social sustainability.

3.3.3 The rural management approach

“By rural management we mean the development and the sustainable use by local communities of space including the agro-ecological, socio-economic, and organizational dimensions”. (Source: *GTZ: Atelier de formation « Gestion des ressources naturelles et planification locale et régionale », M’Bour, Sénégal, 30 avril–5 mai 2000 : Documentation, page 110*).

The rural management approach emerged in the 1980s in the Sahel, particularly in Burkina Faso, Mali and Niger. The first initiatives were isolated and poorly organized before the approach spread to the sub-region and became harmonized accordingly. As a multi-faceted approach, rural management combines several activities including rural activation, desertification control, action research, field promotion, diversification of activities, creation of income-generating activities, etc.

A set of integrated actions in a defined space

Rural management aims at the rational management of rural natural resources through the development of multi-sectoral actions in a development perspective. By rural area, we mean the exploited areas which are managed, and controlled by rural communities for the achievement of their objectives including agricultural production, cattle breeding, wood production, and for the satisfaction of their basic needs.

The development objectives of the rural management approach were clearly mentioned during the Ségou meeting in Mali in 1989. They are manifested through the following eight general orientations:

- The ecological rehabilitation that aims not only at the preservation of the milieu but also, and especially, at the improvement of the production and the creation revenue sources in order to cover the expenses incurred by the producers;
- An optimal zoning of the rural space and an efficient organization of the rural populations to “seriously tackle” the problems related to their rural area;
- The decentralization of the decision-making and action levels, for more effective actions in the rural area;
- Protection of investments in the rural areas in order to allow an optimal mobilization of the land capital, otherwise, no investment by the rural populations for land improvement would be carried out;
- The increase in investments at the local level through a functional local system of credit and loan;
- The promotion of women’s activities by an increased exploitation;
- The enhancement of the quality of training and information necessary to change the attitudes and the mentality of farmers;
- The control of the future, taking into account the loading capacity of the rural areas with regards to the land pressure, to ensure a balance between resources and needs.

The rural management approach and social sustainability

The approach is a local process that seeks to provide answers to the important questions relative to local problems such as :

- How can the use of natural resources be rationalized on the whole (waters, soils, vegetation, and fauna)?

- How can the rural communities be given a sense of responsibility about the analysis, the choice and implementation of options?
- How can they take charge of the inter-sector coordination of the rural area?

To answer these questions the approach uses a process that is based on a few principles and characteristics the most important of which are:

1. The management of rural areas must remain flexible in order to adapt to its local environment in its content and its working process;
2. It is based on local systems of knowledge and empirical experiences, and on the different mechanisms for the resource management, the prevention and the settlement of conflicts;
3. It is structured as an iterative process which is based on dialogue, negotiation, and harmonization of interests and objectives of different actors;
4. As a comprehensive approach, it integrates the ecological, economic, and socio-cultural aspects.

The purpose of the rural management approach is to ensure a well-balanced, self-centred and self-maintained development by the rural community. It follows a sustainable development logic. It becomes operational through a participatory process that aims at the elaboration and the implementation of a Rural Management Plan.

The Plan includes:

- a Rural Development Plan;
- a local code;
- organizational arrangements; and
- a financing schedule.

This set of implementation documents helps the rural management approach to focus its interventions in three main directions:

- The development and the integrated management of the natural resources of the rural area (waters, soils, vegetation, and fauna);
- Actions to increase awareness of the rural communities in the management of development and of the resources of the rural area;
- Establishment of a framework for interventions in the rural area.

The rural management approach applies to the different levels of the problematic. But the village and inter-village levels are the most common areas referred to.

In the fight against desertification, Rural Management carries two essential advantages:

- i. It provides a reference framework for the identification of the actors that need to be involved in the process;
- ii. It serves as a link or a historical, cultural and patrimonial reference between two or more families, villages, lineages etc – a important social capital factor that is one of the determinants of the sustainability of desertification control activities.

In practical terms, the management of rural areas consists, within the defined space, in initiating and conducting, in a participatory manner, actions aiming to:

- i. restore the natural patrimony of production;
- ii. intensify the agricultural, pastoral and forest productions as well as the diversification or income-generating activities that should be identified case by case;
- iii. enhance grassroots capacity for self-promotion.

The methodology

In broad outline, the rural management approach is carried out using the following steps:

- i. choice or selection of the rural areas;
- ii. technical diagnostic;
- iii. awareness raising of populations on desertification and the degradation of natural resources;
- iv. participatory diagnostic or village diagnostic;
- v. establishment of a rural development schema;
- vi. establishment of a rural development plan;
- vii. establishment of rural management plan;
- viii. implementation of the rural management plan, follow-up, assessment and review of the planning documents.

It should be pointed out that this process has evolved considerably because of its iterative nature.

The development of natural resources through a multi-sectoral and participatory approach

It should also be stressed that the interventions relative to the management of natural resources should be associated with the group of rural management projects. Generally they target the following:

- measures to correct the degradation of resources through a multi-sided approach more often. It may concern the fight against erosion, resource development, reforestation, and domestic energy etc;
- these interventions may also be open and include a better definition of the rules of exploitation of the natural resources of a particular area. These rules will facilitate the maintenance and the correction of the situation of the production resources in a long-term perspective.

The limits and constraints of the global approach to the management of rural areas with social sustainability

Implementation of the rural management approach has nevertheless shown the following limitations:

- an often mechanistic process that discourages the populations who are more concerned with issues pertaining to immediate achievement of outputs and equipments;

- a diagnostic and activation process that the populations often find too lengthy and tedious and not leading quickly enough to a true solution to their problems;
- the complexity of the intervention structures that goes with an administrative framework and limits the autonomy and the smooth development of projects;
- difficulty of adaptation of outsiders;
- unfavourable economic and institutional context characterized by:
 - a funding arrangement that does not provide an incentive to long-term investments on land;
 - a fall in the global market price for cash crops plus a lack of support to unpromising food crops in terms of intensification and land improvement;
- difficulties for poor governments to facilitate the transfer of responsibilities to population, owing to the lack of funding to rural infrastructures.

Within this context of shortcomings and in spite of the relevance of objectives, the local development approach has emerged, to meet the needs (felt and expressed) of local communities.

3.3.4 The local development approach

Genesis and features of the approach

Local development is a voluntarist approach centred on a restricted area, which views development as a bottom-up process that gives first consideration to endogenous resources. It calls for the local industrial traditions and particularly insists on the consideration of the cultural values and the recourse to cooperative modalities.

Following on from, and to address the shortcomings of, the *rural areas management* approach, the *local development approach* has the following main features (CFD, 1994):

- i. The diagnostic encompasses a broader scope that includes land, production channels and the whole of the interactions and interrelations between a given community and the surrounding localities;
- ii. The rural area management is no longer considered as a full activity but as being part and parcel of sustainable local development activities;
- iii. The technical offices no longer spontaneously assist communities in making their choices but react only when called upon: This is the “Demand driven support” approach;
- iv. Contrary to the rural management approach, here, the technical diagnosis and the creation of a village interlocutor organization as well as the demarcation of areas are no longer required as with they should with the previous interventions;
- v. The funding procedures are smoother while the project selection processes are more participatory.

Indeed, with the local development approach, the apportionment of the budget between different activities is never pre-established in the project document but previously discussed and agreed upon with the grassroots partners. Also, the selection of the projects to be financed is made with the participation of the beneficiaries according to specific criteria. The process carries obvious advantages for desertification control in

that it strengthens confidence among grassroots. This is because the procedures value their know-how and strengthen the relations within and among organizations and communities, thereby consolidating the social capital.

The local development approach has the following advantages:

- The diagnosis is supposed to be more comprehensive, iterative and is meant to provide adequate means to support the initiatives of populations by identifying supplementary actions;
- The village communities are truly the “actors” of their own development and are now supported by teams of the project in the process (diagnosis, planning, implementing organization: management committee for example);
- The procedures are supposed to be more transparent in terms of project financing and implementation (arrangements for projects, financing decisions made by the representatives of the community, monitoring their implementation);
- Appeal to adaptable private businessmen: collaboration with local private service providers, NGOs, associations etc.

Box 22 gives an illustration of the administrative and financial procedures concerning the projects of Burkina Faso, Mali and Niger (CFD, 1994).

3.3.5 Ecosystem management

The ecosystem management approach refers to the multiple usages offers by ecosystems and tries to regulate their use so as to make the most out of it while preserving the basic functions of the ecosystem (Pirrot, Meynell, Elder, 2000). The ecosystem approach is known by several designations according to the context. These designations, among many others, include “Ecosystem management”, “Bioregional Planning”, “Bioregional approach”, “Ecoregional conservation”, “Integrated management of coastal zones”.

The natural resource management approaches focus on relatively small territories a have very few objectives such as: biodiversity conservation and exploitation in favor of communities. The interventions are tailored to concern a very limited group of parties for the management and the exploitation of natural resources. This operational process has the worse inconvenience of giving consideration to just a few functions of ecosystems, neglecting the threats and the constraints external to the projects (large infrastructure works, dams across rivers, roads).

The ecosystem approach arose out of the development works policies and the strategic sector-based plannings that have always failed to integrate the different use to which ecosystems may put, but would instead focus on a small number of uses, considering the other functions as risks and hypotheses or integrating them in the environmental impact studies. The consequences of the social impact have long been underestimated. The ecosystem approach was adopted by the conference of parties to the Convention on Biodiversity (CBD) as a major action framework of the Convention. It is a strategy for the integrated development of soils, waters, and living resources that fosters the sustainable and equitable use and conservation. It is based on the application of the scientific methods to several levels of biological organization including the processes, the functions and their environment. It acknowledges the fact that human beings, with their cultural diversity, are an integral part of many ecosystems.

Box 22. Local development: Burkina Faso, Mali and Niger

The development project of the Ganzourgou project, Burkina Faso

After two years of activity, the rural development project of the Ganzourgou had financed action programmes in about 140 communities in a province of 215 villages. To date, more than 300 files of sustainable development feasibility initiatives have been arranged and submitted by the communities to joint awarding committees. These committees had convened on eight occasions and approved 241 projects representing up to 366 millions FCFA of which 154 millions were earmarked from the subvention fund of the project. In accordance with the financing code adopted by the PDRG, more than the half of this subvention fund was used to finance the initiatives towards the restoring of water, soils, and forest resources.

The local investment fund of Sikasso, Mali

The fund was put in place in 1993 and managed by a small management committee consisting of two individuals (one of which is an expatriate). This operation aims to provide the rural populations with an autonomous financing tool adapted to the management of rural areas and the conservation of natural resources. The villagers are directly involved in the designing of the financing rules through a committee of farmers, and take charge of the selection of the projects to finance, through an inter-village allocation committee.

The local investment fund began its activities in a first zone made of ten villages, in partnership with the project for “The Management of the rural areas of Sikasso” that assists villages as an advisory body for the definition and the designing of their projects. After a year of activity, six development works concerning the exploitation of shoals, the fight against erosion and the drilling of wells have been initiated and are being carried out. In 1994, the local investment fund extended its activities to two new zones in order to test new partners in local development (a farming organization and an AFVP team (see below)).

The Goudoumaria project, Niger

Situated in the southeast of Niger, the partly sub-desert Goudoumaria canton suffers from an inadequate supply of food, causing a mass exodus of people. In order to retain the population, the Godoumaria project means to facilitate the organization of the rural world and the agricultural exploitation of several oasis basins of the zone which largely under-exploited. This project has many original aspects. Its institutional arrangement has involved the participation of a group made up of members of the Association Française des Volontaires du Progrès (AFVP) and a Niger NGO called Karkara, selected as a result of an invitation to tender.

A number of concrete actions quickly put in place have facilitated a large involvement of villagers. Indeed, just a year after the actual launching of the operations, the related structures of the project such as the village joint committees have become operational. The most important part of the diagnosis has already been completed; almost ten training activities have been launched and about 15 files have been submitted for funding. The project still has three more years to effectively carry out activities related to agricultural intensification and activation, and to answer the technical problems which are specific to the zone (drilling for water, phytosanitary protection of basins, absence of bridging loans, and of reliable private technical businessmen in the region). The wage earners of Karkara, the young graduates of Niger, are working at it and should, at the end of the project, be able to conduct the local development activities on their own.

The ecosystem management approach suggests principles (see Box 23) in all aspects, comparable to those proposed above by the patrimonial approach, meaning it is developed as a result of a concerted management choice made by all the parties and through long term objectives. By placing human being at the centre of its concerns and

actions at all stages of the conception and the implementation, it integrates the process of co-management:

- The ecosystem approach should be flexible to adapt to all the potential conditions and situations;
- The ecosystem approach refers only partially to the ecological sciences. It has more to do with a better assessment of the economic, social, and cultural factors that affect the communities through the ecosystem management projects;
- The participation of the public and the communities is extremely important at all levels of development and implementation of projects.

Ecosystem management refers to three main aspects, all of them related to the human component of ecosystems:

- The ecosystem approach seeks to organize the equitable use by human beings of the profits yielded by the exploitation of the available natural resources by preserving the capacity of ecosystems to provide such services in the long run;
- Ecosystems have borders within which it is necessary to understand the interactions between societies and harmonize the management tools including the legal and regulatory tools;
- The management of ecosystems should focus on the human activities. They should therefore:
 - i. adjust chemical conditions;

Box 23. The principles of the ecosystem approach

- The objectives of management of land, water and living resources are a matter of societal choice.
- Management should be decentralized to the lowest appropriate level.
- Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
- Recognising potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context.
- Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.
- Ecosystems must be managed within the limits of their functioning.
- The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.
- Recognising the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term.
- Management must recognise that change is inevitable.
- The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.
- The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
- The ecosystem approach should involve all relevant sectors of society and scientific disciplines.

Source: COP5.CBD, décision V/6.

- ii. regulate physical parameters;
- iii. monitor biological interrelations;
- iv. Control the use by human beings of biological productivity (fertilizers, pesticides);
- v. Participate in cultural, economic and social processes.

The ecosystem approach is yet to be fully applied. The methodologies are becoming more appropriate as experiences increase. The COP6 of the Convention on Biological Diversity urges the member countries to undertake studies to better understand the mechanisms for implementing the approach and its contribution to the Convention.

3.4 Tools for implementing socially sustainable interventions

3.4.1 Good governance

The management of community affairs at all levels has always been done, even before decentralization, through the designated or elected representatives of the beneficiaries.

In one way or another, these representatives are, at least at the time of departure, bestowed with confidence by the populations they are supposed to represent and on behalf of whom they act when it comes to discussing issues. Experience has shown that the more respected are a number of rules of transparency and loyalty, the more these representatives enjoy additional confidence from the populations and the smoother is the implementation of activities. Good governance calls for:

- **transparency:** all the actions taken should be previously agreed upon by the population they are meant for. So are the related details. Also, the managers of community affairs, must view themselves only as “managers” not as owners and should therefore be bound to giving a regular account of their activities and ready to undergo a possible control;
- **the participation of all:** all the conditions should be met to facilitate the full participation of the populations at all levels;
- **subsidiarity:** as much as possible, the most representative actors should be recognised to develop the selected activities.

Speaking of the fight against desertification, it is essential to follow these rules at every stage of the process of implementation of activities. This formula has the advantages of reinforcing confidence between the representatives and the rest of the population, of keeping the determination of actors against the degradation of natural resources, and of guaranteeing a sustainable support to the measures to control desertification.

Definition and features of the governance concept

All the intentional regulatory systems generated by a particular social organization (whether public or private), which maintain its viability i.e. its survival in its interactions with: a) several social organizations, b) mutually established institutions (such as markets, the State, rules and values), and c) natural organizations which are observable within the biosphere (IUCN, 2002).

The four generally accepted components of governance are as follows:

- legality and primacy of law (democracy);
- the participation of citizens;
- a sense of responsibility and obligation to give an account;
- transparency.

These components of governance form the basis, the minimum, that has the consensus of all the specialists. In fact, the designation of the components of governance often change without altering their meaning.

Governance appears therefore as a complex operational framework within which all the citizens and the groups combine their interests, enjoy their legitimate rights, meet their obligations, and use mediation to settle their misunderstanding with a perspective of achieving sustainable and harmonious development (Annual report of DHD, UNDP, 2000).

Borrini-Feyerabend *et al.* (2000), in a simplified and practical approach, will define the concept of governance as “All the different ways in which individuals and private and public institutions manage their common businesses”. More explicitly, Smouts (1998) will emphasise that governance:

- is neither a system of rights nor an activity but just a process;
- is based not on domination but on compromise;
- involves both private and public actors;
- is not necessarily formalized, but is generally based on a permanent interaction.

Governance embraces all the decision-making rules including the questions of who has access to information? who participates in the decision-making process? and who makes decisions? (IUCN, 2002).

Out of the concept of governance arises the democratic governance that inspires the sharing of responsibilities, risks, and the benefits of development by all the actors of the society with a legitimate right to participate in the formulation and in the implementation of public policy. This definition relates back to the notions of rights and obligations in relation to exercising authority.

Good governance, which results from democratic governance, is manifested at the very least through:

- transparency in the making of public decisions: the citizen chooses the public leaders; public resources are allocated and managed in such a way as to achieve the common social objectives;
- the sense of responsibility of the leaders: the leaders are, in the eyes of the citizens, responsible of the co-management of public affairs, the making of decisions, rules and regulations;
- the sensitivity of the leaders: leaders take into account the needs and aspirations of citizens;
- openness to information: access of citizens to all the information they need to ensure their effective participation in the social, economic and political life.

Governance does not concern the governments solely but applies to all types of actors and their respective modes of organization and institutions (associations, professional groups, trade unions) that constitute the civil society, the intermediary between the State and the market. The civil society distinguishes itself by the defense and the promotion of the interests of the citizens as a whole. Associations, community organizations, federations, and other modes of organization are all legitimate actors of the governance process at the local level and beyond.

Applying governance principles to the fight against desertification

The governance of natural resources poses the question of the access, the rights and the obligations to the resources and the land that supports them; it also raises the issues of who improves regulations, and by which criteria. The access issue may take multiple forms given the fact that he who has the right to plough the land and to enjoy its outputs does not necessarily have the right to transfer these rights or to give part of them to his heirs when he is still alive. He who ploughs the land is not entitled to plant trees or to ban the other community members from accessing it. Hence, the scope of governance becomes clear, because it encompasses land regulations, regulations pertaining to harvesting of wild ligneous products (firewood) or non-ligneous products (fruits, roots, game, fish etc) which are of a particular importance in the Sahel.

Hardin's thesis (1968) on "the tragedy of the commons" is still a valid reference. It asserts that any common resource is necessarily overexploited each element of the community will seek to make the most out of it before the others. However, privatization that appears as the only option by which resources can be preserved, seems not provide an appropriate alternative adapted to the context of the sustainable management of natural resources which is the major guarantee for the perpetuation of actions against desertification. Indeed, If technically, a strong case can be made for privatization with regards to a number of resources (forests, ligneous resources), there will always be a social cost to bear by the populations who are sometimes barred from making use of some of their resources. Also, privatization is not an effective solution from an economic standpoint when it comes to the resources which are:

- *scattered* because the cost of excluding the other resources through enclosures, surveillance etc... would be heavy (for example: non ligneous forest products in a forest or of a wild fauna);
- *mobile* (fish in a river or on the coast; wildlife); or
- *unpredictable* (pastoral resources in an arid area).

It is obvious that the only promising alternative for an actual and efficient governance of natural resources with a perspective of socially consolidating and perpetuating the actions to fight desertification is to transfer ***the responsibility for management to the communities*** who, in one way or another, interact with the resources. In fact, a ***sustainable "common" exploitation*** is possible both from the theoretical and practical points of view, as long as there is actual control over:

- access to resources (who can use the resources?)
- the rules for exploitation (when, by what techniques?)

These themes need to be examined particularly in the context of the creation and management of protected areas, where the government takes it upon itself to restrict the rights of the surrounding communities with the objective of preserving species,

biodiversity, landscapes and specific sites for long-term regional and national equilibrium. It is of utmost importance to associate the decision-making process with the institutions and the local communities in favor of which the government and its partners often pretend to act, fear they might oppose any privatization of their rights. The following should be examined in particular:

- the demarcation of the protected areas;
- the forms and conditions of access to resources;
- the sharing of benefits and rights;
- the decision-making process that leads to these limits and to the establishment of these rules and to their modification;
- the monitoring and assessment of the actions undertaken.

3.4.2 Social communication



Social communication is made up of the exchange of written or oral messages among a complex group of actors who interact with each other. It aims to provide a good forum for discussion and exchange that fosters the appropriation of the actions undertaken.

Thus defined, communication is valuable to the fight against desertification for it helps reach a diversity of actors such as farmers, cattle breeders, artisans, etc. Social communication is based on the principle that no change can be made without an evolution of the way the individuals perceive their environment, the problems they are to tackle and the potential solutions to these problems. In this case, the partner populations do not receive messages imposed from outside, but decide about the communication process according to their customs and usages, their individual and collective judgments and feelings that facilitate the consideration of the social norms and values. Therefore, social communication offers an opportunity for creating the conditions of a social sustainability of desertification control activities. It helps mobilize the actual participation of the populations.

The importance of social communication in the appropriation of the actions to fight desertification

In view of the different approaches examined in the previous chapter, the control of social communication appears as an important process. It appears to be essential at all levels of the processes proposed, and should adapt to its specific socio-cultural environment and take into account the assessment of the social capital and the human capital.

In a development process, what should be done is to allow a group of actors with different approaches and understanding skills to share a particular vision of the situation and how to tackle it. As such, communication is said to be social because it doesn't target a separate public but a complex and diverse group of actors who interact with each other. A common vision, by all the actors of, about the settlement of conflicts is a favorable condition for a conscientious, autonomous and responsible decision-making process.

In the particular context of rural and arid zones, information and communication should reach the grassroots. They should therefore be re-examined towards this end. Thus, The new institutions and organizations, and association of farmers should be put to contribution. It is important to understand the mode of communication to which the public is susceptible. One should have in mind that communication is meant for adults, autonomous individuals who would not accept instructions imposed from the outside.

The choice of approach is made according to the objectives targeted

Social communication may have several objectives including:

- *informing, activating or training* (Chiovoloni, 1996). These types of objective may be viewed as interactive but they follow a top-down process, meaning there is a source from which clear and unchangeable information is issued and a receiver who receives without being able to influence the information.
- *interactive training* presents another case of communication whereby the individual is for a large part involved in the decision-making of the communication process. This situation suits the temperament of the adults who are autonomous and fully involved in the activities.

A description can also be given of the process by which communication is established between interlocutors, from the **awakening of the interest to its maturation**, to facilitate **exchange** and **partnership** between autonomous individuals and institutions.

Communication to help the articulation of local and technical perceptions

In the specific case of the fight against desertification, it is important to articulate the technical messages with the level of local perception, knowledge and experiences.

The communities know their areas better than the decision-makers and the partner organizations. They have gathered experiences from which they have acquired sufficient knowledge to ensure a free choice, the capacity to take actions and to make decisions advisedly.

Their expertise in developing specific techniques to restore degraded soils and to preserve waters is valuable. The development of new techniques to fight desertification should adapt to the specific situations and the different ways in which populations are affected by desertification.

It is therefore important to have a foreknowledge of what “beneficiary” is referred to, and of what an external proposal could bring him. To ensure the local participation of communities as partner in the fight against desertification, it is important that decision-makers be informed about the immediate needs of their interlocutors in relation to their daily routines, their material, spiritual and social cultures, even in broad outline. This will help avoid the alteration and the breakdown in the messages in the relation and the communication networks.

Articulation between actors is essential and the strategy should be constantly reviewed. The establishment of communication should take into account all the individuals and the societies through the process that offer an easy access. Thus, it is necessary to understand the broad outlines of the traditional and current bases of communication in rural areas and in the arid zones at issue.

A number of elements to be taken into account in a traditional social communication

For good social communication in a traditional setting, it is important to watch for certain elements especially when the objective is the search for the social sustainability of actions, in fighting desertification in particular. In this field indeed, all the actions do not always have an immediate impact. Some of these elements are:

- **The oral tradition in social dialogue** with its formulas and expressions in the form of titles showing the identity of individuals, families, tribes, social functions, geographical areas etc.... It also expresses itself through didactic formulas, poems, narrations, and legends.
- **The communication channels of the oral tradition** that are compatible with the global vision and dynamic of the world and its values. This dynamic is well known by the populations. “Things and people only come and go, this is why every child embodies an ancestor”. The verbal exchange in the traditional societies is made through **words which are generally symbolic**. Silence and body language always accompany words. A speech delivered in a sitting position is different from one delivered in a standing position. The former is characterized by calmness and reflection.

- **Traditional and religious village feasts.** They are used for transferring messages through dances and music that express precise messages.
- **Colours** are another form of communication. Experts in the fight against desertification should try to know them all and take them into account. The brands and several other symbolical objects are also made to draw attention.

Box 24. The different methods of communication and related objectives

Information	Knowledge improvement through both the communicative elements describing bald facts and a limited analysis the interpretation of which is left to the receiver.
Raising awareness	It aims at the improvement of understanding, interpretation and awareness of a fact and a situation. It requires a prior definition of an arrangement of bald facts and tools for analysis and interpretation aimed at a particular goal set by the receiver. In the context of a partnership approach that targets the promotion of actors, the terminology is surrounded by the risk of overlooking the already acquired knowledge, experience and awareness of the partner.
Training	Improvement of the skills of an individual and a segment of the society through combined communication elements targeting a goal set by the issuer of information.
Interactive learning	Improvement of competences, and enhancement of the autonomy of an individual and that of a segment of a society by means of information, exchange and experimentation. The elements of knowledge, understanding and interpretation are acquired in a real world situation and are therefore tightly grasped by the targeted individuals of the communication process (Borrini-Feyerabend, 2000).
Awakening	The receiver knows nothing of the intentions of the transmitter. What needs to be done here is to approach him/her, introduce oneself, and make him/her understand and acknowledge the interest and the goal of the communication.
Consolidation	Intentions are better understood and communication is accepted. It is all about structuring a relationship, the methods of communication that are recognised as useful by the receiver. The receiver accepts his role, whatever the form (information, awareness raising), in the relationship and acquires the knowledge and understanding of the elements of the message.
Maturation	The receiver has knowledge of the content of the communication that is sufficient enough to help him make his own opinion of the suggested message and discuss it. At this stage, the suggestion of new steps of relationship building is welcome.
Negotiation	The parties involved discuss the content of proposals made to them, meaning parties decide to conduct activities together, on the basis of the set objectives and an assignment of roles and responsibilities.
Contract formalization	Parties in partnership finalize a document that will serve as reference in their interactions and could be stated to third parties when needed.



Raising the awareness of local communities



Activating local communities

Modern and mixed ways and forms of communication

“Communication as a development tool is not just a radio broadcast, a play or an information newspaper. It is a multidimensional process that makes interactions easier among different members concerned by the same development problem”.

In practice, it takes place on both the private and the state-owned media. Similarly, the use of traditional and modern forms of communication can be noticed, each of them having its advantages and drawbacks. While state-owned media are under tight restrictions of time, the situation for traditional forms of communication is almost the opposite. However, a combination of both forms of communication often yields satisfactory results.

Democratization in Africa has, since the early 1990s, favoured the creation of community radio stations as a means of expression and encouraged their recognition by governmental agencies. This drive for community radios provides grassroots actors with considerable information and communication opportunities.

Awareness campaigns on the right to information would certainly help overcome reluctances. However, the grassroots should have the freedom to decide the content and the level of language relative to the information they intend to issue. One should particularly care about the following dual requirement:

- Ability to meet information and communication needs in a simple and flexible manner.
- Capacity to manage large collections of data. Indeed, it would be possible to find a solution to this double requirement through a correct scheduling of time.

Lessons on using social communication as a tool

Box 25 indicates three different fields of intervention wherein the organization of a good social communication ensures progress in terms of social sustainability of actions against desertification. Many lessons can be drawn from the use of social communication as a means of facilitating local participation and sustainable appropriation. These lessons can be summed up as follows:

- A rapid integration of experts and officers of desertification control projects/programmes as a result of efforts to know, respect and value social standards and norms as well as local knowledge in order to satisfy the needs of populations that continue to suffer from the scourge. That way, these populations will very quickly consider the personnel, decision-makers and fieldworkers, as being part of them because of the perception of their sensitiveness to their problems and their openness to the local practices. Consequently, these populations will be very open to the proposals put to them, as well as to any technical and technological innovations.
- A deep rooting and perpetuation of actions against desertification by inserting actions that take into account the local knowledge, and by respecting or promoting the related knowledge of population.

Refocusing research and development activities through the knowledge of actual needs of populations, the discovery of their local experiences and know-how. Research and development programmes should be geared toward the satisfaction of the problems

Box 25. Some opportunities for social sustainability offered by social communication

1. Identification of needs as precondition for any intervention:
Before starting any action, the immediate needs of populations should be identified in the first place. In addition, the knowledge of some cultural and spiritual aspects ...etc should also be identified. All of these are important contributory factors in couching the messages in forms that ensure a good reception, a correct understanding and a firm approval.
2. Harnessing local knowledge to justify a connection and an interaction among actors:
Communication presupposes that communities know their realities and their environment better than the external partners and that they have the basic knowledge with which to improve their know-how, their behaviour and their capacity for self-promotion.
3. Adaptation of techniques to the needs and the technical skills of producers:
The principles for using social communication require that in implementing actions that fight desertification, usage of techniques be done “à la carte” meaning on a case by case basis or according to the specific needs and, above all, according to the adaptability of populations in the following levels: technological (materials and works that are used to fight desertification), technical (operative way for executing works and for using instruments, tools and engines) and economic (production activities as an alternative to farming and other land-related works).

Source: Supports formation IUCN/REDUSO.

raised at the grassroots level. This is an essential condition to commitment of producers in favour of actions against desertification.

3.4.3 Taking the gender issue into account

Analysis of social relationships

Relationships between men and women, as well as relationships among different social and socio-professional categories deserve a close attention while searching for the social sustainability in development activities in general and in the fight against desertification in particular. In fact, men and women have roles and responsibilities that correspond to social ways and customs and evolve over time and in space according to culture, economic status, technological advancement etc. Therefore, in order to fully participate in activities, men and women express different needs that should be to be satisfied according to their respective commitment to the process. Otherwise, it would not be possible to make a strong case for sustainability in favour of both sexes.

In the African context, at least half the population (women generally constitute at least 50% of the population) is outside the development process, a fact that cannot be considered socially sustainable.

Similarly, herdsmen who form an important component of the population of the Sahel are marginalized. They are “landless actors” whose views are barely taken into account in drafting local development plans.

Box 26. Five “profiles” of the framework for gender analysis and natural resource management

The context profile examines the environmental, social, economic and institutional factors of the development context, by identifying the constraints and opportunities in a given area, and by answering the questions “what’s improving?” and “what’s worsening?”

The activities profile examines the division of labour based on a relationship between man and woman in the production and reproduction activities, by answering the question “who does what?”

The resources profile examines the resources used by men and women in conducting their activities and the benefits drawn by them from these resources, by answering the questions “who got what?” and “who needs what?”

The stake profile allows the evaluation of the problems encountered by women and by men in various resource using activities, in relation to the actions and the solutions deployed by different members, by answering the questions “who has what problem?” “who does what and for whom?”

The action programme profile examines the correlations between the four other profiles and their relevance to the objectives and activities of a specific effort of development, by answering the question “how to fill the gap between what women and men need on the one hand, and what development actually provides on the other?”

Source: International Training Kit « Analyse et Foresterie communautaire », (FAO).

Now, good governance requires the commitment of all the parties. The social sustainability of actions to fight desertification is conditioned, among other things, by a social equity. To ensure that equity, it is essential that all of the designers of desertification control projects/programmes base their strategies and actions on an analysis that differs on the basis of gender. This analysis would help break up basic information according to social and vocational categories within the territory. It is important for technicians and fieldworkers to assess the price to pay and to identify the party that would be laden with this burden in order to draw up a list of selling points that would convince the population for which the awareness campaign is intended. Box 26 suggests steps for differential analysis according to gender.

That way, it could be known whether men and women have equal opportunities in fighting desertification even though both groups play important roles. Then, appropriate measures are taken so that opportunities of access to and control of resources can be commensurate with the efforts developed. The same should apply to the benefits.

However, it is foreseeable that the introduction of such changes will be hindered by difficulties: namely resistance. Resistance can be socio-cultural or institutional in nature. In the first case, they are associated with ways and customs and other social practices whereas in the second case, they are the result of a social organization and a hierarchical system characterized by rigidity, seniority and deep roots that make any change difficult. Nevertheless, several methods such as awareness campaigns, IEC (Information-Education-Communication), ICC (Information for a change of behaviour) or other techniques of community activities can also be used to change unsustainable practices.



Programme REDUSO

Beyond the village area



Ibrahim Thiaw

Box 27. Inequalities in the agricultural, pastoral and forest project in North Tillabéry (Niger)

Presentation of the project:

It arose in 1980 out of the rural area management and natural resources management vision to solve the crucial problem of accelerated degradation of resources in the region of Tillabéry in the north of Niger.

The project approach:

The founding principle of the project is the transfer of decision-making power to communities so that they can identify the best ways in which they could receive support.

Actions taken and results achieved:

- The accumulation of project activities shows that undeniable achievements have occurred in getting local and migrant or sedentary and nomadic herdsman involved in the decision-making process for a better balance between agricultural, pastoral and forest activities;
- The support in favour of women was commensurate to their number and to their important participation in development work;
- Training rural communities.

These actions were based on voluntary participation of communities through the following concepts:

- Extension of innovations from the involved territories toward those not yet involved;
- Exchange of experiences among the territories of the project's influence zone;
- Setting up village collective management systems that will take over from village individuals for a better perpetuation of the developed activities;
- Establishment of consulting structures among territories and projects as fora for discussion and negotiation.

Participation of women:

The project has initiated a series of actions promoting better involvement of women

- Awareness campaigns to better involve women in community affairs, and in meetings giving advice on public speaking and on attitudes to adopt during meetings;
- Promoting the value of domestic gardening;
- The creation of Economic Interest groups since 1996.

Success factors:

These actions have helped women acquire incomes that are important enough to provide an economic self-sufficiency, which is a self-promotion factor. They have worked to admission of women as valid partners in making collective decisions relating to rural management planning.

Potential factors behind the possible failure of self-promotion by women:

Positions of responsibility are predominantly held by men. This under-representation of women is noticeable across the whole area of the project: Filingué, Téra, Tillabéry, Ouallan etc.

It can be explained by prejudices against women's behaviour. So, to explain and justify women's absence in positions of responsibility, they are said to be scandalous, impatient, indiscreet and at the disposal of their husband (for the married ones) or their parents (for the unmarried ones), thus lacking freedom.

When it comes to reaching positions of responsibility, all the prejudices surface. Indeed, these prejudices are often raised against women while competing for economic, political, social, cultural and even religious power or occupations. They show the survival of types of behaviour tied to the status of women in some traditional societies.

However, when it comes to the contribution of women to the various physical activities in the fight against desertification (building embankments with stones, establishing nurseries, planting trees), production (market gardening, dressing with manure) or selling, men demonstrate general approval.

3.4.4 Alternative management of conflicts

Demographic expansion, social changes, ethnic diversity, and migratory phenomena have unbalanced the natural resources management in the Sahel these last two decades. The political programmes implemented by various states in the 1980s (nationalization, settlement, centralized planning) have worsened the process. The invalidation of traditional common law has also led to an increased juridical insecurity that has negatively affected the respect of work practices in effect so far.

The alternative management of conflicts encompasses all the strategies that are based on the use of individuals' ability to communicate and confer with one another in order to cause the consideration of the interests of all the parties.

On the whole, the alternative management of conflict is a prerequisite for designing mechanisms of medium and long-term prevention.

Traditional societies have methods that often prove difficult to explain. The State suggests an alternative that turns out to be very heavy, lengthy and costly. Alternative conflict management attempts to prevent rather than cure and tries to promote local institutions and practices.

Therefore conflicts are real impediments to the exploitation of natural resources. They always lead to a loss of earnings from the economic point of view (agricultural, pastoral and forest production), and the socio-economic point of view (suspension of activities that provide income and benefits to producers and their dependants) etc.

Conflict management encompasses all the mechanisms and measures undertaken to reconcile two or many parties who have entered into a conflict on a given occasion of natural resources exploitation. It can be preventive and in this case, includes regulatory



and institutional measures implemented to prevent conflicts from breaking out among two or many parties. It can also take the form of a resolution when the management takes place after the conflict for which solutions are sought.

Long-term management of natural resources cannot be considered without a mechanism for conflict prevention and management for fear of annihilating all the development efforts undertaken.

What is sought through conflict prevention and management is to create and reinforce an atmosphere of harmony, mutual trust, solidarity and absence of exclusion in order to achieve a peaceful management of resources. This is essential for the management of natural resources, especially in West African Sahel where populations are still largely dependent upon the natural resources that are dwindling.

Conflict prevention and management practices are as old as African societies. In fact, these mechanisms have always existed even before the colonial era. For example, in the nineteenth century, in the Diina empire in the Macina of the present day republic of Mali, regulatory arrangements were authoritatively imposed by governments who essentially

Box 28. Main causes of conflicts associated with natural resource management

- 1. A multiplicity of rights to natural resources:** a situation where several types of right exist. They range from a temporary and limited usage to a permanent title, including temporary property which takes the form of right which fades out with the passing of time (in some Sahelian countries for example, migrant shepherds have the right to lead their animals to pastures in rural areas only during the dry season). These rights were based on social relationships, consensus in these relationships and the respect of land authorities.
- 2. A crisis of confidence among actors:** in production relationships in general, and in the exploitation of natural resources in particular, many breaches of trust are often reported. Indeed, within communities, situations are often encountered and concern practices that are viewed as abnormal or incorrect for the management of natural resources among two or many parties. These situations often come up on the occasion of land lending activities. In such cases, according to the local regulations, the lender is neither entitled to plant trees, dig wells nor make a long-term investment (build a house, etc), for these actions are perceived to be signs of appropriation since, in the eyes of the prevailing rules in certain countries, they are regarded as a reference in establishing the customary ownership. Obviously, conflicts among parties are unavoidable.
- 3. The ever increasing value of natural resources:** because of growing population and livestock in different countries affected by desertification, natural resources are getting more and more important from year to year. Especially as drought itself is getting chronic. Unfortunately, the economies of these countries are still based on the exploitation of the same resources, and productions are far from meeting the dietary needs of populations. In these conditions, the rush towards the exploitation of natural resources becomes ruthless, each actor trying to have control over the maximum of resources. On top of this, the urbanization is growing at a staggering rate in all the countries. This situation leads the cities to encroach upon the neighbouring rural areas at the expenses of the inhabitants, their economic activities and their livestock. Unfortunately, this grabbing of rural land for urban needs is made as a permanent acquisition of real estate since city-dwellers always seek to materialize their ownership of land properties with title deeds. Thus, in many areas, the demand for land is higher than what is available, causing frustrations, conflicts, and misconduct.

sought an equal and peaceful management of pastoral resources; cattle breeding being the main and traditional activity of the inhabitants. However, the policies and the institutions involved are often found incapable of resolving modern conflicts. Simply put, three main causes of conflicts associated with resource management can be distinguished. Box 28 sums them up.

Mechanisms of conflict prevention and management are inspired by the experiences and the know-how of the local populations, thereby promoting the strategies of farmers and recognizing the authority and expertise of local institutions. When it comes to achieving the sustainability of actions that fight desertification, the recourse to local practices is of essence since it empowers the populations to act in a process they are part and parcel of.

This all shows that the management of conflicts is a way of transforming conflicts into constructive, not destructive, results that will serve as basis for a sustainable development driven by the perpetuation of natural resources.

It is important to have a good knowledge of conflicts in order to manage them better.

Types of conflicts

Against a background of degradation, the natural resources are being used by the populations to develop agricultural production systems as well as pastoral and forest systems that are inter-connected at all levels. The nature of these interrelations between different production systems causes the modes of utilization of these dwindling resources to be a subject of fierce competition involving an increasing number of actors. Thus, according to the particular interests of production systems, according to the resources at stake, and often on the basis of the period of the year, the terms of conflict management depend on:

- their sources;
- their frequency;
- their seriousness;
- their extent;
- and their consequences.

Among many other conflict inconveniences associated with the sustainable management of resources, the following are worth mentioning:

- the failure to develop certain areas;
- delay in the execution of actions;
- some projects stalling after their launch; and, more seriously,
- the eruption of armed conflicts leading to massacres among populations.

Conflicts may be grouped under many categories according to a number of criteria: the space involved, the stakes, the actors, the impact on natural resources, etc.

Some conflicts are associated with the exploitation of natural resources natural resources, and oppose different users.

a) Land conflicts

The use of land, the main natural resource, is often a cause of conflicts that can ruin the social fabric.

The people against the State: For example, when it comes to state-controlled forests, the local people have so far considered the falling of the forest under State control as the State's way of expropriating their lands. This is the rationale behind the violence that is often inflicted on forest officers, and the reason for the destruction of natural resources.

Conflicts between indigenous inhabitants and outsiders: the bone of contention here is land. The local inhabitants, who have precarious rights to the land, but still seeing themselves as owners, are very quick to confront outsiders, sometimes even violently, at the slightest suspicion of abusive use or enrichment (reforestation for example). Thus, they restrict and sometimes forbid certain forms of natural resource management (such as reforestation and/or water source creation).

New legislation on land and agrarian reforms passed by a good number of countries has tended to reinforce the position of outsiders. Indeed, these laws generally provide that the ownership of land is due to he who exploits it, while the local inhabitants will often invoke customary law to claim title to these lands, hence the frequent conflicts that break out.

Conflicts among local inhabitants: this type of conflict generally places inhabitants of the same village or of neighbouring villages in opposition to each other as a result of new opportunities created by redevelopment activities, for example. Thus, the construction of a dam might give rise to disagreements and controversies over access to the redeveloped area. In fact, most of the time, these development activities are conducted when the traditional rights (use, ownership) are still in effect one way or another.

Land issues are also the source of direct conflicts among local communities. On the Burkina side of the Sahel a conflict arose between the Touaregs and the Bellah in the Kishi Beiga.⁴ According to the traditional land law, only the noble populations (the Touaregs) can claim title to lands. These lands were the sole property of the heads of the clan who are free to apportion them or withdraw them as they see fit.

b) Agro-pastoral conflicts

Conflicts between these two different categories of actors (farmers and herdsmen) or among herdsmen are classic and frequent in the sahelian zone. The motive behind conflicts varies according to the resources at issue:

The conflicts relating to the control of water resources are mainly about the use of water sources. While herdsmen want to use these as watering places for animals, farmers would instead use the space for cultivation purposes.

Conflicts on access to land resources are linked to the extension of farmlands at the expense of areas formerly used for pasturage. Thus, the rapid increase of farmlands in the Sahel these last years was operated mainly at the expense of the pastoral areas. Finally, the migrant herdsmen render inoperative the programmes that restrict the pastoral activities to specific areas.⁵

Conflicts among herdsmen: it might seem paradoxical that conflicts among herdsmen exist. Yet, they are numerous and take place mainly between the sedentary herdsmen

⁴ Matthias Banzhaf, Boureima Drabo, Hermann Grell, *Du conflit au consensus : les pasteurs et agro-pasteurs de Kishi Beiga (Burkina) optent pour la cogestion de leurs ressources naturelles*, août 2000.

⁵ Pr. Sidikou, la gestion alternative des conflits liés à la gestion des ressources naturelles en zone pastorale : brève réflexion inspirée par le cas de la réserve de Gadabedji.

Box 29. Land conflict over Oudalan (Burkina Faso)

A personal incident set the Tuaregs against the Bellah and had serious consequences on the land. The conflict arose from a dispute between an old Touareg man and a Bellah woman. During the dispute, the old Touareg brutalized the Bellah woman. In retaliation, the Bellahs reciprocated the brutality toward a Touareg child. The Touareg community then ordered the Bellahs to vacate the farmlands lent to them. This was a way for the Tuaregs to claim title to all the lands of Oudalan following the rule of who was there first. The Bellahs on the other hand asserted their claim on the same lands by claiming that they had inherited them from their forebears. The police decided against the Touaregs who took it upon themselves to seize these lands. As a result of a complaint by the Touaregs, the crown court heard an appeal from the first decision, found the Touaregs to be in the right and ordered the Bellahs to return the contested lands.⁶

and the migrant ones. The main conflict results from the use and the maintenance of the water resources. Basically, the system of free access to water by the transhumant cattle, is set against a modern system of management and maintenance of water sources, the access of which is regulated and for a fee. The other source of conflict is the use of pastoral resources. The sedentary herdsmen do not like the migrant herds settling on their usual pastures, for fear of exhausting the available resources before moving on to other places.

c) Conflicts associated with the exploitation of other resources

Conflicts between the State and local communities over reserved areas: in general, this kind of conflict is associated with designated areas: forests, national parks, and various reserves. Access to and exploitation of these areas are normally prohibited to bordering residents. But the residents often claim traditional rights to these spaces whose new management objectives they find hard to understand. Indeed, the new management objectives sometimes deprive them of their basic means of subsistence. Discrepancies exist between the logic and interests of State and those of the local populations.

In fact, for the State, it is about:

- Preserving the resources for national or even global purposes: the safeguarding of the national heritage and the genetic heritage of human kind;
- Preserving a tourist potential, as a source of tax revenue for the national budget.

For bordering residents it is essential to survive, in fact these lands provide them with resources viewed as vital for their subsistence (wood, game, straw for the construction of roofs and tents etc...)

An illustration of this type of conflict is the one that took place between the State and the bordering residents of the forest reserve of Maro in the province of Houet in Burkina Faso (see Box 30).

Conflicts between non-governmental (NGO) projects and programmes on the one hand, and local people on the other: NGO projects and programmes are often in vanguard positions in reserved or protected areas for action research, protection or development activities. These project officers are often in direct opposition to the local

⁶ Harouna Barry, les conflits liés à l'exploitation des ressources pastorales au Sahel burkinabé, Rapport d'étude. Dori PSB/GTZ/PSB-Pays Bas/PRASET, 1996 cité par Matthias Banzhaf.

Box 30. Conflict between the State and the people

The Maro forest fell under State control as a result of a bill that was passed on January 17, 1940. The change of control occurred at a time characterized by a reduced resident population, normal rainfall and environmental conditions, and production that ensured self-sufficiency. However, due to the demographic pressure, the migrations, the growth of cotton production, and the dwindling of pastoral resources, the pressure on the forest increased, causing a conflict between the forest officers and the local populations. For the forestry department offices, the initial objectives consisted in providing railroad agencies with firewood, and preserving and conserving this forest. The objectives of the local population were simply and clearly to succeed in controlling part of these forests. The State responded with an outright refusal to this request, causing a confrontation between the forest officers and the local populations. The forest continues to be the subject of wanton exploitation by the migrants, the transhumant herdsmen, the locals, and poachers. Thus, between 3,500 and 8,500 hectares out of the 53,000 hectares of the total area of the forest is occupied by the farmers of the surrounding villages. Some cutting of firewood and timber often takes place in violation of the forest regulation in effect.

Against this background, participatory management of this forest was initiated jointly with the bordering residents through the development of the National Programme for the Management of Rural Areas (phase 1).

inhabitants. The motives behind these conflicts are the same as those that set the State against the populations. The specific reasons that create misunderstandings between NGOs and the populations above all are related to the desire of the former to advocate the defence of the interests of some of the most vulnerable social categories (women, the young, minorities) in a given local area.

Conflict management approaches and practices

Conflict management is more of a process than a set of rigorously identifiable techniques and procedures. Conflict resolution suggests that the rules referred to and the procedures followed by the institutions be acknowledged as legitimate by the parties. The problem in the West African sub-region is that the two classes of legitimacy overlap and show interdependence and sometimes contradict each other. The same is true of the modern law represented by institutions and legislations inherited from the colonial era; and customary law which actually is inspired by a diversity of sources such as the Negro-African customs, customs under Islamic influence and inspired by the “Charia” (The Islamic law). The question now is which law and institution to refer to for the management of a conflict?

a) Traditional methods of conflict management

By customary law we mean the customs, practices and institutions that occur in the village or the region. When a conflict bursts among the members of a same village in a rural community, preference is given to the village to host the settlement of the conflict.

But when the parties involved in a conflict are from different ethnic communities or villages, the generally accepted basic principle suggests a reference to the customs of the autochthons for the settlement of the conflicts. Thus the incomer must always submit to the prevailing customs of the host village. These customs are generally defended by heads of traditional customs, men of religion (pastors, priests, imams and other religious patriarchs). They are the trustees of an authority and legitimacy which are recognised by

the local populations. They are the authorities to which conflicts are referred to in the first instance. The main strength of the traditional authority for the prevention and settlement of conflicts lies not only in its closeness to the populations and resources but also in the good grasp of the conflict situations. Its strength resides also in the fact that it is all about an authority of reconciliation rather than a court of punishment. Contrary to what can be observed with the modern law, the traditional authority of conflict settlement does not strictly follow a single standard but favours the adaptation of the traditional usages to the current situation.⁷ Another important advantage worth mentioning about the traditional conflict settlement authority is that it applies the rules that are generally known and deeply rooted in the local beliefs. On top of this, the traditional conflict settlement authorities are more approachable than modern institutions which are often located in urban areas and distant from the grass-root populations. The traditional institutions however have a number of weaknesses that result from the failure to take into account the interests of the vulnerable groups (women, the young, migrant minorities), contrary to the modern institutions that generally ensure equity across the board.

b) The State and the management of conflicts

Rural community members rarely refer to modern law. The reason for this is twofold: not only do they not feel concerned about the basic principles of the modern law, but also, the official judicial institutions in charge of rendering justice are often distant from them. Nevertheless, some farmers sometimes refer to either the modern and or customary traditional laws according to which best serves their interests. This is particularly true of the non-indigenous communities which, in conflict situations, would selectively try to preserve their permanent access to natural resources against the apparent threats of the local inhabitants.

Therefore, they often have recourse to the arbitration and even to the support and the protection of the State by referring to the modern law that generally provides for a right of access to resources.

Against the background of ignorance or total rejection by the African State legislations of the unwritten law for development motives, emphasis is being laid on the modern law for the settlement of the conflicts relative to the management of natural resources and to the fight against desertification. In practice however, things are more complex than they look. Indeed, The official administration, which is aware of the little impact of the provisions of these laws, would not favor any measure of force or repression.

c) A few suggestions for improving conflict prevention and settlement

Advice on managing conflict stresses the necessity of paying attention to the general interests of all parties instead of the details and claims of individuals in the management of conflicts, for fear of resurgence of the untreated claims resulting from half-way agreements. What is obvious however, is how complex it is to find a way out of the prevailing conflict. Awareness of this is the motive behind the adequacy of a process that invites and involves the parties in finding a balanced compromise wherein the costs and benefits are equitably shared. It is the responsibility of the mediator to sell the idea of a

⁷ E. Le Roy: *Le justiciable africain et la redécouverte d'une voie négociée*, Afrique Contemporaine. Numéro Spécial "La justice en Afrique".

compromise and to facilitate its reaching. Therefore the settlement of conflicts is a society issue. Only the actors within these societies are capable of grasping the whole complexity of situations, and, in particular the profound causes and the rarely visible interests of parties.

Also, it is not likely that conflicts will be avoided for good; so much they result from life in community and the consequences of human actions. Although the resolution of some conflicts sometimes appears as a precondition, conflict settlement should not be viewed as a step in the process, but as a task to be accomplished by the society, as long understood by the traditional societies who possess all the mechanisms of conflict settlement. The matter today, is that the traditional systems of conflict settlement are no longer suitable for current situations or are looked down upon by the legislative organs of modern states.

As much as conflict settlement and conflict management are complex and difficult, “devoid of recipes”, they are essential for a peaceful and sustainable management of natural resources. Despite the co-existence of the traditional and positive land law, and in spite of the primacy of the latter over the former, the local practices that respect the social standards and values should be promoted to achieve a total commitment of populations to the strategies. This is the basic requirement for the achievement of the sustainability of desertification control activities. However, the promotion of local values should be carried out with discernment on the basis of the little care of the equity that is often observed in customary practices. These practices are often exclusive, meaning they rarely take into account the unprivileged and the actors which are outside of the areas concerned.

Methods and practices of conflict resolution

a) Preventive methods of conflict resolution

Among these preventive methods, we should primarily consider those that are frequently referred to when it comes to the participatory management of natural resources. By providing a basis for consensus, dialogue and mutual understanding among the different actors involved in a development project, they contribute to an effective prevention of conflicts. Although they do not constitute a panacea, the preventive methods, at least, help reach consensual agreements for conflict prevention. Among these approaches we have:

Local covenants for natural resources management: it is through these local institutions that the skills for conflict management should develop. Indeed, to make their decisions popular, these institutions should rely on the rules that are generally accepted (even outside the communities, by state authorities). This is why decentralized communities are allowed to enter into local covenants. These covenants, with a close collaboration of the populations, provide for the rules that should govern the use of natural resources, and organize the transfer of the power of management to local institutions that are ready to take it over. The covenants are clear about the rights and duties of each member, prevent potential conflicts and revert to older conflicts by re-examining them.

Local covenants should undergo appropriate changes according to the outcomes of their implementation. They are the regulatory complement for natural resources man-

Box 31. Local covenants in Mali

In Mali, the local covenant is a consensual act of all the actors of a given place. The Act No. 95-32 gives importance to local covenants and provides them with an actual legality. The objective of the local covenants is firstly to avoid, and then to settle conflicts by referring to the rules which are established by all the users of natural resources. IUCN has helped local populations to achieve four such covenants in Youwarou in the delta of Niger. They are as follows:

- rules for managing fishing in Youwarou
- local covenant for forest management in the Akka-Goun forest
- local covenant for forest management in Dentaka
- rules for the management of the *bourgoutieres* in Débaré and Akka-Goun

In fact, local covenants were concluded as gentlemen's agreements before the involvement of IUCN which helped clarify, improve and formalize the existing covenants that were based on the traditional knowledge and the customary methods of natural resources management.

For example, speaking of fishing, the fishermen are perfectly aware of the restrictions relative to the use of certain fishing devices in some regions and at certain moments of the year. Yet, the exploitation of natural resources is not free of violent conflicts. The covenants offer a basis for work between the local fishermen and non-local fishermen, which helps avoid or ease conflicts.

Regarding the herdsmen, the covenant was based on the *harima*, a defined, demarcated and reserved zone, which belongs to the whole village. By local tradition, each village has a right to its own *harima*, which is accessible to outsiders for the grazing of their livestock for a fee.

agement plans and should be assessed similarly. Also important is the need to keep archives of the decisions made during local covenants.

The concerted management of agro-pastoral resources: the acknowledgement of the effectiveness of the traditional practices of herdsmen in the management of arid ecosystems has relaunched the development of pastoral activities in the Sahel, which is leading the approach to a more open process of agro-pastoral resource management. In fact, in the process of concerted management, emphasis is particularly laid on the interests of the social units and on the negotiation about access to key resources.

Thus, in Burkina, prompted by the activities of a project, the management rules have been developed through negotiation of interests among parties. The rules vary according to resources concerned and risks of conflict associated with their exploitation.

This approach was finally implemented by the Sahel Burkina project. The project facilitated debate over the necessity of dialogue through participatory tools and by the means of interactive and iterative communication process equally involving neighbourhood groups.

Co-management: It is a process of shared management of resources among two or more actors (see section 3.3.1).

In summary, all these three approaches, whose primary aim is the participation of all the actors in the management of resources, create adequate conditions for the achievement of the social sustainability of the activities developed.

b) Conflict resolution methods

At the operational phase, the conflict can only be resolved by appropriate measures which are:

Mediation: It occurs when somebody serves as middleman between the parties in conflict to facilitate agreement between them. This is an external facilitation that seeks to manage the conflicts, not to judge them. It is necessary when the degree of hostility between parties has reached such a level that parties can no longer communicate with one another. Instead, it appears as a delicate mechanism since the personal smartness and listening skills of the mediator are important assets. The mediator should be accepted by all the parties and adopting a neutral attitude.

Conciliation: It consists of an internal search for an agreement among parties through the intervention of a third party. Conciliation is usually made on the basis of mutual concessions among parties.

Judicial approach: It is all about arbitration. It takes place when mediation and conciliation have failed.

It is the ultimate recourse in deciding between parties that had not been able to reach an agreement at the lower levels of conflict settlement. Here, the solution is imposed from outside thorough tough and heavy constraints against parties.

Palavers, local traditional institutions: They are the first to act. Their methods are the accepted references of the community members. However, conflicts opposing communities to external individuals or modern economic actors cannot refer to such mechanisms that should nevertheless be reinforced.

3.5 Conclusion

The convention against desertification has been welcomed for its trend-setting nature. Indeed, for the first time, an international convention acknowledged the necessity of far-reaching actions within societies and, for that matter, to root the enforcement of the convention into participatory processes. The results have not come up to expectations for two main reasons in our opinion:

- Lack of a culture of multidisciplinary working: each discipline uses its own tools and language, rigorously following its processes in parallel with other complementary but not involved strategies. Following this logic, soil and anti-erosion specialists thought that their actions could have a long-term impact just by taking simple mechanical measures. Similarly, civil servants are not sure how to transfer their designs and the authority to their peers or to other actors; sections of project are conducted separately without sufficient dialogue among officers as suggested by the project document. Initiators of programmes and projects believe in the effectiveness of their respective sciences and think they are capable of find solutions to the communities the constraints and aspirations of which they have never shared.
- Not taking into account the social sciences in conducting development activities, the participatory methods which helped popularize the results in a very easy way to make them accessible to non-specialists. The mistake was to think that simple measures could help remove the handicaps associated with the complexity of human societies.

The complexity of desertification, the variety of societies and the variability of natural areas cannot be dealt with by quick and simple solutions. The way nature expresses itself through long and complex meteorological cycles; the way societies confronted with recurrent survival problems manage cruel risks and carefully adapt to a move that integrates the increasing traditional and modern elements; the same the promoters of desertification control should adapt, while coming up with measures that will suit the pace of the societies they intend to change, to the approaches that stress the involvement of those who are to integrate the recommendations.

No skill and expertise can be spared to achieve the sustainable management of resources for the benefit of the local populations of the arid and the semi arid countries. The skills of technicians, farmers, fishermen, and shepherd, whose specialty is the management and the exploitation of natural resources, are important assets result from an accumulation of know-how and experiences of several generations. The stake here consists in having these specialists take responsibility in our scientific, technical, juridical and organizational strategies.

Critical questions therefore reside in:

- appropriateness of the action undertaken, meaning in the relative place occupied by human societies and natural resources in the objectives pursued;
- the quality and the strictness of methodological approaches which guide the enactment of rules between populations and local actors on one hand, promoters of actions that fight desertification and other external actors on the other hand.

The technical question of natural resource management becomes very meaningful when the actors:

- are seekers in a long-term perspective that is shared by the parties involved;
- have the freedom to develop technical and institutional solutions that are appropriate to their approach of “learning by doing”;
- collaborate through dynamic and autonomous processes of dialogue and consultation, in the framework of partnership agreements that are negotiated with external partners.

The rules and regulations, the policies and the strategic planning form a framework in which these local dynamics should take place. They should support and reinforce them, rather than weakening them, by disconnecting them from the rules that would ignore the necessity of keeping pace with the change of the societies to supported them, even the most complex ones, rather than dictating instructions to reform them.

References for the definitions in the glossary

1. INSAH Institut du Sahel-Mali-CILSS, *Terms currently used in natural resource management in West Africa*
2. Borrini-Feyerabend, G. *et al.* 2000. *Co-management of Natural Resources: Organizing, Negotiating and Learning-by-Doing.*
3. <http://terrevie.ovh.org/hydrologie.pdf>
4. Coleman, J. S. 1988. *Social capital in the creation of human capital.*
5. United Nations Convention to Combat Desertification (Texts and annexes)
6. *Our common future.* The Brundtland Report.
7. Horizon local. 1997. <http://www.globnet.org/horizon.local>
8. Buttoud, G. 2001. *Gérer les forêts du Sud.* L'Harmattan.
9. The Kompienga Déclaration. 2003. Workshop on the Governance of Protected Areas.
10. Goussard, J. P. 1999. *La notion de légitimité.*
11. Holling, C.S. 1973. *Resilience.*
12. www.devenet.org : plate-forme communication et formation sur le développement durable en Afrique.

Bibliography

- Abbot, J. and Guijt, I. 1997. Methodological Complementarity: Creativity and Compromise. *PLA Notes* **28**:27–32. IIED, London, UK.
- Absalom, E. *et al.* 1994. Sharing our Concerns and Looking to the Future. *PLA Notes* **22**: 5–10. IIED, London, UK.
- Adnan, S., Barrett, A., Nurul Alam, S.M. and Brustinow, A. 1992. *People's Participation, NGOs and the Flood Action Plan*. Research and Advisory Service, Dhaka, India.
- Albaladejo, Ch. and Casabianca, F. (Eds.). 1997. La recherche-action : ambitions, pratiques, débats. *Études et recherches sur les systèmes agraires et le développement n° 30*. INRA.
- Arntein, S.R. 1971. A Ladder of Citizens' Participation. *Journal of the American Institute of Planners* **Vol. 35 (July)**: 216–224.
- Aubreville, A. 1949. *Climats, forêts et désertisation de l'Afrique tropicale*. Société d'édition de géographie maritime et coloniale, Paris, France.
- Babbitt, E., Gutlove, P. and Jones, L. 1994. *Handbook of Basic Conflict Resolution Skills: Facilitation, Mediation and Consensus Building*. The Balkans Peace Project, Cambridge, Massachusetts, USA.
- Banzhaf, M., Drabo, B. and Grell, H. 2000. *Les pasteurs et agro-pasteurs de Kishi Beiga (Burkina Faso) optent pour la cogestion de leurs ressources naturelles*.
- Barbier, E.B., Acreman, M. and Knowler, D. 1997. *Evaluation économique des zones humides*. IUCN, Gland, Switzerland.
- Barry, Harouna. 1996. Les conflits liés à l'exploitation des ressources pastorales au Sahel burkinabé, Rapport d'étude. Dori PSB/GTZ/PSB-Pays Bas/PRASET.
- Barning, N.M. and Dambré, J.B. 1994. Les styles d'exploitation ; une classification des exploitations dans la provinces du Sanmentenga, Burkina Faso. Étude PEDI/CRPA, Kaya, Burkina Faso.
- Bayer, W. and Waters-Bayer, A. 1998. *Forage Husbandry*. Macmillan Education Ltd, Basingstoke, UK.
- Bertrand, A. 1996. Des forums pour une gestion paritaire. In *La sécurisation foncière en Afrique*, Karthala, Paris, France.
- Bierschenk, Th., Olivier de Sardan, J.-P. and Chauveau, J.P. (Eds). 2000. *Courtiers en développement ; les villages africains en quête de projets*. APAD/Karthala, Paris, France.
- Biggs, S. 1989. *Resources-poor farmer participation in research: a synthesis of experience from nine national agricultural research systems*. OFCOR Project Study No. 3. ISNAR, The Hague, The Netherlands.
- Blackburn, J. and Holland, J. 1998. *Who Changes? Institutionalizing participation in development*. Intermediate Technology Publications, London, UK.

- van der Blik, J. and van Veldhuizen, L. 1994. *Developing tools together: the role of participation in the development of tools, equipment and techniques in appropriate technology programmes*. ITDG, Rugby, UK.
- Bonfils, M. Mai 1987. *Halte à la désertisation au Sahel. Guide méthodologique*. Karthala/CTA, Paris, France.
- Booth, D. 1995. *Rethinking social development: Theory, research and practice*. Longman Scientific and Technical, Burnt Mill, UK.
- Borrini-Feyerabend, G., Farvar, T. M., Nguingui, J.-Cl. and Ndangang, V. 2000. *Co-management of Natural Resources: Organizing, Negotiating and Learning-by-Doing*. IUCN, Gland, Switzerland and GTZ, Eschborn, Germany.
- Borrini-Feyerabend, G. (Ed.). 1997. *Beyond Fences: Seeking Social Sustainability in Conservation, Vol. 1: A Process Companion*. IUCN, Gland, Switzerland and Cambridge, UK.
- Borrini-Feyerabend, G. (Ed.). 1997. *Beyond Fences: Seeking Social Sustainability in Conservation, Vol. 2: A resource book*. IUCN, Gland, Switzerland and Cambridge, UK.
- Bouju, J. 1995. Anthropologiques parallèles : description d'une procédure d'enquête anthropologique rapide (EAR). *Bulletin de l'APAD* 9:77–86.
- Broekhuysse, J. T., Terrible, Père M. and Bako, E. Septembre 1985. *Désertification et autosuffisance alimentaire*. Diocèse de Kaya/CEBEMO.
- Bunch, R. and Lopes, G. 1995. *Soil Recuperation in Central America: Sustaining Innovation after Intervention*. Gatekeeper Series 55. IIED, London, UK.
- Cac, J.Y. and Faure, H. 1987. *Le vrai retour de l'humide au Sahel est-il pour demain?* C.R. Acad. Sciences de Paris, T. 305.
- Cernea, M.M. (Ed.) 1998. *La dimension humaine dans les projets de développement, les variables sociologiques et culturelles*. Karthala, Paris, France. (Traduction révisée de Putting people first, Banque mondiale, 1995).
- Chambers, R. 1995. *Whose Reality Counts? Putting the first last*. Intermediate Technology Publications, London, UK.
- Chambers, R. 1992. *Rural appraisal: rapid, relaxed and participatory*. IDS Discussion Paper 331. IDS, Brighton, UK.
- Chambers, R., Pacey, A. and Thupp, L.A. (Eds.) 1989. *Farmer First: Farmer Innovation and Agricultural Research*. Intermediate Technology Publications, London, UK.
- Chambers, R. and Guijt, I. 1995. PRA five years later. Where are we now? *Forest, Trees, and People Newsletter* 26/27: 4–14.
- Chauveau, J.-P. (avec la collaboration de Lebas, P. and Lavigne Delville, Ph.) 1997. *La dynamique des sociétés rurales face aux projets participatifs de développement rural*. Série participation populaire, n°11. FAO, Rome, Italy.
- Chauveau, J.P. and Lavigne Deville, Ph. 1998. Communiquer dans l'affrontement : la participation cachée dans les projets participatifs ciblés sur les groupes ruraux défavorisés. In Deler *et al.*, *ONG et développement : du Nord au Sud*. Karthala, Paris, France.
- CILSS. Janvier 1986. *Stratégie régionale contre la désertification*.
- CILSS. 2003. Foncier rural et développement durable au Sahel et en Afrique de l'Ouest – Document de projet Praia + 9, janvier.

- CIRAD-FORMATION. 1999. La gestion des ressources naturelles renouvelables, appropriation et décision. Document d'appui. France.
- CIRAD-GERDAT/ISRA. 1985. La sécheresse en zone intertropicale : Pour une lutte intégrée. Actes du colloque de Dakar-Ngor du 24 au 27 septembre 1985.
- Commission des Communautés Européennes. 22 janvier 1986. Protection des ressources naturelles. Lutte contre la désertification en Afrique. Communication de la commission au Conseil et au Parlement Européen. *COMPAS Newsletter vol. 2*, August 1995. ETC, Leusden, The Netherlands.
- Conservation International, Antananarivo, Madagascar. Aménagement et gestion participative des forêts. Rapport de l'atelier 14, 15 et 16 octobre 1998.
- Compte-rendu du colloque de Dakar du 5–10 novembre 1979. Le rôle des arbres au Sahel.
- Conway, G. 1985. Agroecosystem analysis. *Agricultural Administration* **20**: 31–55.
- Cornet, A. 2002. La désertification à la croisée du développement et de l'environnement: un problème qui nous concerne. In Johannesburg, Sommet mondial du développement durable, 2002, *Quels enjeux ? Quelle contribution des scientifiques?* Ministère des Affaires étrangères, ADPF, Paris, France.
- Cornwall, A. 1996. Towards Participatory Practice: Participatory Rural Appraisal (PRA) and the Participatory Process. In de Koning, K. and Martin, M. (Eds), 1996, *Participatory research in Health: Issues and Experiences*. Zed Books, London, UK.
- Cornwall, A., Guijt, I. and Welbourn, A. 1994. Acknowledging process: challenges for agricultural research and extension methodology . In Scoones, I. and Thompson, J. (Eds) *Beyond Farmer First: Rural People's Knowledge, Agricultural Research and Extension Practice*. Intermediate Technology Publications, London, UK.
- Dubois, J-L. 2001. Pauvreté et inégalités: situation et politiques de réduction. In Lery, A. and Vimard, P. (Eds.). *Population et développement: les principaux enjeux cinq ans après la Conférence du Caire*. CEPED Documents et Manuels n°12, Paris, pp.123–135.
- Dubois, J-L. and Rousseau, S. 2001. Reinforcing Households' Capabilities as a Way to Reduce Vulnerability and Prevent Poverty in Equitable Terms. Conference on « Justice and Poverty: Examining Sen's Capability Approach », 5–7 June 2001, Cambridge University, Cambridge, UK.
- Dubois, J-L. and Droy, I. 2001. *L'observatoire: un instrument pour le suivi de la pauvreté*. Document de travail n°59, CED, Université de Montesquieu-Bordeaux IV, Bordeaux.
- Dubois, J-L. 2000. Comment les politiques de lutte contre la pauvreté prennent-elles en compte les inégalités sexuées ? Genre, population et développement, les pays du Sud, Th. Locoh (ed.), *Dossiers et recherches de l'INED* **85**:35–51.
- Dubois, J-L. (Ed.). 1997. *Comores: Développement Humain Durable et Elimination de la Pauvreté: Eléments pour une Stratégie Nationale*. UNDP and RFIC, Editions Frison-Roche, Paris, France.
- Enda-Graf Sahel. 1995. *La ressource humaine, l'avenir des terroirs*. Karthala, Paris, France.
- Farrington, J. and Bebbington, A. 1993. *Reluctant Partners: Non-Governmental Organisations, the State and Sustainable Agricultural Development*. Routledge, London, UK.

- Farrington, J. and Martin, A. 1988. *Farmer participation in agricultural research: a review of concepts and practices*. ODI Agricultural Administration Occasional Paper No 9. Overseas Development Institute, London, UK.
- Fassin, D. 1990. Décrire. Entretien et observation. In Fassin, D. and Jaffré, Y. *Sociétés, développement et santé*. Ellipses/AUPELF, Paris, France.
- Forrest, S. 1999. *Global Tenure and Sustainable Use*. IUCN, Gland, Switzerland.
- Freudenberger, M. and Schoonmaker-Freudenberger, K. 1993. Champs, jachère et flexibilité, la gestion des ressources naturelles à Ndâme Mor Fademba, Sénégal. Résultats d'une étude réalisée selon la MARP. IIED, London, UK.
- Giri, J. 1983. *Le Sahel demain : renaissance ou catastrophe?* Karthala, Paris, France.
- Gubbels, P. 1997. Strengthening community capacity for sustainable agriculture. In van Veldhuizen, L., Waters-Bayer, A., Ramirez, R., Johnson, D. and Thompson, J. (Eds) *Farmers' research in practice: Lessons from the field*. Intermediate Technology Publications, London, UK.
- Gueneau, M.C. and Lecomte, B.J. 1998. *Sahel, les paysans dans les marigots de l'aide*. Collection alternatives rurales, l'Harmattan, France.
- Gueye, B. and Schoonmaker-Freudenberger, K. 1991. *Introduction à la méthode accélérée de recherche participative (MARP : Rapid Rural Appraisal), quelques notes pour appuyer une formation pratique*. IIED, London, UK.
- Guijt, I. and van Veldhuizen, L. 1998. *Quels outils pour l'agriculture durable ? Analyse comparée des méthodes participatives*. Programmes Zones arides, Dossier n°79, IIED, London, UK.
- Guijt, I. 1996. Participation in Natural Resource Management: Blemished Past and Hopeful Future? In Harris, K. (Ed.) *Making Forest Policy Work: Conference Proceedings of the Oxford Summer Course Programme*. Oxford Forestry Institute, Oxford, UK.
- Guijt, I. 1991. *Perspectives on Participation: Views from Africa. An Inventory of Rural Development Institutions and their Use of Participatory Methods*. IIED, London, UK.
- Guijt, I. and Kaul Shah, M. 1998. *The Myth of Community: Gender issues in participatory development*. IT Publications, London, UK.
- Hagmann, J., Chuma, E. and Murwira, K. 1997. Kuturaya: participatory research, innovation and extension. In van Veldhuizen, L., Waters-Bayer, A., Ramirez, R., Johnson, D. and Thompson, J. (Eds) *Farmers research in practice: Lessons from the field*. Intermediate Technology Publications, London, UK.
- Hardin, G. 1995. *Evaluation économique des politiques et projets environnementaux. Un Guide pratique*. OECD, Paris, France.
- Hart, R. 1992. *Children's participation: From tokenism to citizenship*. UNICEF, Florence, Italy.
- Haverkort, B. and Millar, D. 1992. Farmers' experiments and cosmovision. *ILEIA Newsletter* **8(1)**: 26–27.
- Haverkort, B. and Hiemstra, W. 1998. *Food for Thought: Ancient visions and new experiments of rural people*. Books for Change, Bangalore, India and Zed Books, London, UK.

- Holt-Jimenez, E. 1993. In Alders, C., Haverkort, B. and van Veldhuizen, L. (Eds) *Linking with farmers: Networking for Low-External-Input and Sustainable Agriculture*. Intermediate Technology Publications, London, UK.
- Hurault, J. 1970. L'organisation du terroir dans les groupements Bamiléké. *Etudes rurales*, **37-39**: 232-256.
- Hernemann, W.M. 1968. Welfare Evaluation in Contingent Valuation Experiments with Discrete Response. *American Journal of Agricultural Economics*.
- Kelley, H.W. 1983. Garder la terre en vie. L'érosion des sols : ses causes et ses remèdes. *Bulletin Pédagogique de la FAO* **50**.
- IIED. 1995. Critical reflections on Practice. *PLA Notes* Special Issue IIED, London, UK.
- IIED. 1997. Methodological Complementarity. *PLA Notes* Special Issue IIED, London, UK.
- IRAM. 1998. *Regards du Sud : Des sociétés qui bougent, une coopération à refonder*. Collection Alternatives rurales, l'Harmattan, France.
- IUCN. 2002. *IUCN and governance for sustainable development*. IUCN Environmental Law Centre, Bonn, Germany.
- Jacob, J.-P. and Lavigne Delville, Ph. (dir.) 1994. *Les associations paysannes en Afrique, organisations et dynamiques*. APAD/Karthala/IUES, Paris, France and Geneva, Switzerland.
- Jobert, B. 1983. Clientélisme, patronage et participation populaire. *Revue Tiers-Monde*, **XXIV**, jul-sept: 537-556.
- Khon Kaen University. 1987. *Rapid Rural Appraisal. Proceedings of an International Conference*. Rural Systems Research Project, Khon Kaen University, Thailand.
- Lavigne Delville, Ph. and Camphuis, N. 1998. *Aménager les bas-fonds dans les pays du Sahel : guide d'appui à la maîtrise locale*. GRET/Coopération française/CTA, Paris, France.
- Lavigne Delville, Ph. 1998. Environnement, dynamiques sociales et interventions externes : construire et gérer l'interface. In Rossi, G., Lavigne Delville, Ph. and Narbeburu, D. (dir.) *Sociétés rurales et environnement*. GRET/Regards/Karthala, France.
- Lavigne Delville, Ph. 1999. Impasses cognitives et expertise en sciences sociales : réflexions à propos du développement rural en Afrique. Documents de travail de la direction scientifique, GRET. (www.gret.org/ressources en ligne).
- Lavigne Delville, Ph., Sellamna, N.-E. and Mathieu, M. (sous la direction de) 2000. *Les enquêtes participatives en débat, ambition, pratiques et enjeux*. GRET-Karthala-ICRA.
- de Lepeleire, G. 1984. *Guide technique des fourneaux à bois*. EDISUD/Bois de Feu/ENDA/SKAT.
- Le Roy, E. Le justiciable africain et la redécouverte d'une voie négociée. *Afrique Contemporaine*, Numéro spécial « La justice en Afrique ».
- McCracken, J. 1988. *Participatory rapid appraisal: a trial model for the Aga Khan Rural Support Programme (India)*. IIED, London, UK.
- Marty, A. Mai 1986. *Une approche de la classification sociale en milieu rural sahélien*. AMIRA, brochure n° 50. Paris, France.

- MAE-BNS/Assistance Néerlandaise. Janvier 1985. *Etat des connaissances sur la fertilité des sols du Burkina Faso*. Documentation Technique n°1, Ouagadougou, Burkina Faso.
- MET/DE. Atelier de travail sur les techniques agro-forestières, Koudougou, 12–14 novembre 1986.
- Million, A. 1992. *The Effect of Traditional Ditches on Soil Erosion and Production. On-Farm Trials in Western Gojam, Dega Damot Awraja*, Soil Conservation Research Project, Research Report 22, Berne, Switzerland.
- Ministère de l’agriculture/Shawel Consult. 1988. *Study of traditional conservation practices*. Ministère de l’Agriculture, Addis Ababa, Ethiopia.
- Ministère de la coopération et du développement. 1989. *Les interventions en milieu rural : Principes et approches méthodologiques*. Groupe de Travail Coopération française, Paris, France.
- NEPAD. 2001. *Nouveau partenariat pour le développement de l’Afrique*. NEPAD, Abuja, Nigeria.
- OECD. 1994. *Evaluation économique des projets politiques: Intégrer l’économie et l’environnement*. OECD, Paris, France.
- Okali, C., Sumberg, J. and Farrington, J. 1994. *Farmer Participatory Research*. Intermediate Technology Publications, London, UK.
- Olivier de Sardan, J.-P. 1991. Savoirs populaires et agents de développement. In Olivier de Sardan, J.-P. and Paquot, E. (dir.) *D’un savoir à l’autre, les agents de développement comme médiateurs*. GRET/Ministère de la Coopération, Paris, France.
- Olivier de Sardan, J.-P. 1995. *Anthropologie et développement, essai en socio-anthropologie du changement social*. APAD-Karthala, Paris, France.
- Ouédraogo, M. and Kaboré, V. 1996. Le Zaï, technique traditionnelle de réhabilitation des terres dégradées au Yatenga, Burkina Faso. In *Techniques Traditionnelles de Conservation de l’Eau et des Sols en Afrique*. CTA-CDCS-Karthala, Paris, France.
- Pearce, D.W. and Turner, R.K. 1990. *Economics of Natural Resources and the Environment*. Johns Hopkins University Press, Baltimore, USA.
- Pearce, D.W. and Warfort, J.J. 1993. *World without End: Economics, Environment and Sustainable Development*. Oxford University Press, Oxford, UK.
- Pirot, J.-Y., Meynell, P.J. and Elder, D. (Eds) 2000. *Ecosystem management: Lessons from around the world. A Guide for Development and Conservation Practitioners*. IUCN, Gland, Switzerland and Cambridge, UK.
- PMHE. 1996. PMHE’s approach to sustainable agricultural development: A viable option for Mahaweli System C. Internal strategy document. PMHE, Kandy, Sri Lanka.
- Pretty, J. 1995. *Regenerating Agriculture: Practices and Policies for Sustainability and Self-Reliance*. Earthscan, London, UK.
- Pretty, J., Guijt, I. and Thompson, J. 1994. *Towards Sustainable Agriculture in Rural Development: Guidelines for the Swedish International Development Authority*. Draft report prepared for SIDA, Sustainable Agriculture Programme, IIED, London, UK.
- Pretty, J., Guijt, I., Thompson, J. and Scoones, I. 1995. *Participatory Learning and Action: A Trainer’s Guide*. IIED, London, UK.

- Price, T.L. and Bawa Gaoh, O. 2003. *Reinventing Sustainable Use: Local Management of Natural Resources in Southwest Niger*.
- Reij, C., Scoones, I. and Toulmin, C. (Eds) 1996. *Techniques traditionnelles de conservation de l'eau et des sols en Afrique*. CTA-CDCS-Karthala, Paris, France.
- Reij, C. 1983. *Evolution de la lutte anti-érosion en Haute-Volta depuis l'indépendance : vers une plus grande participation de la population*. TES, Free University, Amsterdam, The Netherlands.
- Reijntjes, C., Haverkort, B. and Waters-Bayer, A. 1992. *Farming for the Future: An Introduction to Low-External-Input and Sustainable Agriculture*. Macmillan, London, UK.
- Rochette, R.M. (Sous la direction de) 1989. *Le Sahel en Lutte contre la Désertification*. GTZ, Eschborn, Germany.
- Rochette, R.M. Février 1985. Club du Sahel-OCDE/CILSS (Sahel CR (85) 48). *Synthèse du séminaire régional sur la désertification du Sahel*, Nouakchott 21.10 au 4.11.1985.
- Rochette, R.M. Janvier 1985. Club du Sahel-OCDE/CILSS (Sahel D (85) 257), Proposition d'orientation pour l'application de la stratégie régionale de lutte contre la désertification au Sahel.
- Roose, E. 1988. Diversité des stratégies traditionnelles et modernes de conservation de l'eau et des sols en milieu soudano-sahélienne d'Afrique occidentale ; influence du milieu physique et humain. In *L'aridité, une contrainte au développement*. Coll. Didactique, ORSTOM, Paris, France.
- Roose, E. 1989. Méthodes traditionnelles de gestion de l'eau et des sols en Afrique occidentale soudano-sahélienne ; définitions, fonctionnements, limites et améliorations possibles. *Bulletin Réseau Erosion* **10**: 98–107.
- Roose, E., Dugué P. and Rodriguez, L. 1992. La GCES. Une nouvelle stratégie de lutte anti-érosive appliquée à l'aménagement de terroirs en zone soudano-sahélienne du Burkina Faso. *Revue Bois et Forêts des Tropiques* **233**: 49–63.
- Sahel : Rapport de l'UICN. 1986. *Stratégie pour un environnement viable*. IUCN/NORAD/UNEP.
- Sarin, M. 1998. Community Forest Management: Whose Participation...? In Guijt, I. and Kaul Shah, M. *The Myth of Community: Gender Issues in Participatory Development*. Intermediate Technology Publications, London, UK.
- Scoones, I. 1995. PRA and Anthropology: Challenges and dilemmas. *PLA Notes* **24**: 17–20.
- Scoones, I. and Thompson, J. (Eds) 1994. *Beyond Farmer First: Rural People's Knowledge, Agricultural Research and Extension Practice*. Intermediate Technology Publications, London, UK.
- Selener, D. 1997. *Participatory action: Research and social change*. Cornell University, Ithaca, USA.
- Sidersky, P. and Guijt, I. Forthcoming. Experimenting with Participatory Monitoring in Northeast Brazil: The case of AS-PTA's Projeto Paraiba. In Estrella, M. *et al.* (Eds) *Challenging the Boundaries: Experiences and Lessons in Participatory Monitoring and Evaluation*. Intermediate Technology Publications, London, UK.

- Sidikou, Prof. *La gestion alternative des conflits liés à la gestion des ressources naturelles en zone pastorale : brève réflexion inspirée par le cas de la réserve de Gadabedji.*
- Slocum, R. and Thomas-Slayter, B. 1995. Participation, empowerment and sustainable development. In Slocum, R., Wichart, L., Rocheleau, D. and Thomas-Slayter, B. *Power, Process and Participation: Tools for Change.* Intermediate Technology Publications, London, UK.
- Smouts, M-C. 1998. Du bon usage de la gouvernance en relations internationales. *Revue internationale des sciences sociales*, **155**, March 1998, (CDU 37333).
- Stiefel, M. and Wolfe, M. 1994. *A Voice for the Excluded. Popular Participation in Development: Utopia or necessity?* UNRISD/Zed Books, Geneva, Switzerland and London, UK.
- Tieba, D., Ouédraogo, H. and Matthieu, P. 2001. *Gestion alternative des conflits liés aux ressources naturelles.* CILSS/FAO-FTPP.
- UNDP. 2000. *Rapport annuel: Développement humain durable.*
- van Veldhuizen, L., Waters-Bayer, A. Ramirez, R., Johnson, D. and Thompson, J. (Eds) 1997. *Farmers' research in practice: Lessons from the field.* Intermediate Technology Publications, London, UK.
- van Veldhuizen, L., Waters-Bayer, A. and de Zeeuw, H. 1997. *Developing technology with farmers: a trainer's guide for participatory learning.* Zed Books, London, UK.
- van Veldhuizen, L. 1993. Many ways, one perspective? Exploring approaches towards enhanced farmers' participation in technology development. Paper prepared for the workshop on PTD training and development, St. Ulrich, September 1993. ETC, Leusden, The Netherlands.
- Wasikama T.M., C. 1997. Utilisation alternative des terres. Une analyse économique de la préservation des forêts tropicales primaires : Cas du parc national de Taï, sud-ouest de la Côte d'Ivoire. Thèse de doctorat, Université d'Abidjan-Cocody, Côte d'Ivoire.
- Waters-Bayer, A. 1998. Farmer experimentation: building on local innovation. *Farmer Innovators in land Husbandry* **4/5 (August 1998)**: 5–6.
- Weber, L. 1991. *L'Etat, Acteur Economique.* 2nd ed. Economica, Geneva, Switzerland.
- Weber, J. *et al.* 2002. Johannesburg, Sommet mondial du développement durable, 2002, *Quels enjeux? Quelle contribution des scientifiques?* Ministère des Affaires Etrangères, ADPF, Paris, France.
- Weber, J. 1995. *Gestion des ressources renouvelables : fondements théoriques pour un programme de recherche.* CIRAD Gerdar-Green, Paris, France.
- Whiteside, M. 1997. Two Cheers for RRA. *PLA Notes* **28**: 71–73.
- World Bank. 1992. *World Development Report 1992: Development and the Environment.* Oxford University Press.
- Zonon, A. 2000. *Marché Mondial et Dégradation des Ressources Naturelles : Cas du coton au Burkina Faso.* Green Cross, Burkina Faso.

IUCN – The World Conservation Union

Founded in 1948, The World Conservation Union brings together States, government agencies and a diverse range of non-governmental organizations in a unique world partnership: over 1000 members in all, spread across some 140 countries.

As a union, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. A central secretariat coordinates the IUCN Programme and serves the Union membership, representing their views on the world stage and providing them with the strategies, services, scientific knowledge and technical support they need to achieve their goals. Through its six Commissions, IUCN draws together over 10,000 expert volunteers in project teams and action groups, focusing in particular on species and biodiversity conservation and the management of habitats and natural resources. The Union has helped many countries to prepare National Conservation Strategies, and demonstrates the application of its knowledge through the field projects it supervises. Operations are increasingly decentralized and are carried forward by an expanding network of regional and country offices, located principally in developing countries.

The World Conservation Union builds on the strengths of its members, networks and partners to enhance their capacity and to support global alliances to safeguard natural resources at local, regional and global levels.

Regional Office for West Africa

01 B.P. 1618
Ouagadougou 01
Burkina Faso
West Africa
Tel: +226 307047/308580
Fax: +226 307561
E-mail: brao@iucn.org
www.iucn.org/brao

IUCN Publications Services Unit

219c Huntingdon Road
Cambridge CB3 0DL
United Kingdom
Tel: +44 1223 277894
Fax: +44 1223 277175
E-mail: info@books.iucn.org
www.iucn.org/bookstore