

NARMS

Pilot Project Natural Resource Management by Self-Help Promotion

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PARTICIPATORY AND SELF-HELP APPROACHES IN NATURAL RESOURCE MANAGEMENT

A Position Paper

from the work of Division 402
Environmental Protection,
Conservation of Natural Resources

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Foreword

The present Position Paper provides a summary of the conclusions which the supraregional pilot project "Natural Resource Management by Self-Help Promotion" (NARMS) is now able to draw from its experience of three-and-a-half years' work. When the pilot project was launched in 1991, the expectations of the BMZ were that:

- ◆ the project would, on the basis of existing experiences, further develop participatory approaches to natural resource management by self-help promotion, and
- ◆ that the project should initiate and facilitate a multi-institutional learning process, in which the organizations of official German development cooperation (GTZ, KfW, DED) would be intensively involved.

Following the positive overall result of the project evaluation in 1993, the second phase was launched in January 1994. The main aim of this phase will be to disseminate the NARMS approach among the institutions of official German development cooperation, as well as the institutions involved in natural resource management in Germany's partner countries. The present Position Paper is designed to make a special contribution to that aim.

The conclusions of the NARMS project summarized here are drawn from selected case examples, studies, regional workshops, and the ongoing evaluation of innovative project experiences, both within and outside of German development cooperation. Especially valuable experiences have been gained in connec-

tion with the extension inputs which the project has been providing, and will continue to provide, throughout the project cycle in selected natural resource management projects of German development cooperation.

The Position Paper presents NARMS as an approach to the planning and implementation of natural resource management projects. The goal is not to establish a "Self-help-oriented natural resource management" project type; it is rather that NARMS should be applied in all target-group-based projects of natural resource management, e.g. in social forestry projects, projects of natural resource management in arid zones, of integrated watershed development, or agricultural development.

Proceeding on the basis of clearly-defined strategic elements, the NARMS approach involves the combined application of different instruments and methods to promote participation and self-help. For the most part these instruments and methods will already be familiar from other fields of cooperation, the difference being that they are "tailored" to the specific requirements of natural resource management. Examples include organization development, and participatory planning. The proposed instruments and methods are designed to be applied throughout the entire project cycle.

This Position Paper should be seen in conjunction with other instruments which the pilot project is or will be employing to disseminate NARMS. These include materials and handouts on specific issues, e.g. on key NARMS documents or participatory

M&E in natural resource management, as well as target-group-specific training measures. Especially important is the elaboration of a set of Guidelines, which

plans to present the approach discussed in the Position Paper in a more operationalized form.

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Abbreviations and Acronyms

BMZ	German Federal Ministry for Economic Cooperation and Development
DED	German Development Service
DSE	German Foundation for International Development
FC	Financial Cooperation
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH
KfW	Kreditanstalt für Wiederaufbau
M + E	Monitoring and Evaluation
NARMS	Natural Resource Management by (Participation and) Self-Help Promotion
NARMS project	GTZ Pilot Project "Natural Resource Management by Self-Help Promotion"
NGO	Non-Governmental Organization
PRA	Participatory (Relaxed) Appraisal
RRA	Rapid Rural Appraisal
RRD	Regional Rural Development
SHO	Self-Help Organization
TC	Technical Cooperation
UN(DP)	United Nations (Development Programme)
ZEL	Food and Agriculture Development Centre
ZOPP	Objectives-Oriented Project Planning

Abstract

The present Position Paper represents the state-of-the-art regarding the experiences gained and lessons learnt by the supraregional Pilot Project Natural Resource Management by Self-Help Promotion, after a project period of three-and-a-half years. The Position Paper focuses on expounding the rationale of the NARMS approach to the planning and implementation of natural resource management within the framework of German development cooperation. The NARMS approach aims to increase participation by resource users, and in so doing make them increasingly (co-)responsible for the sustainable management of natural resources. NARMS can thus make a significant contribution toward the sustainability of measures conducted within the framework of natural resource management projects.

When applying NARMS in natural resource management projects, the following typical situational contexts are encountered:

- ◆ A large number of local and outside groups, enterprises, organizations and institutions raise a wide variety of claims on the use of existing resources, which are often in short supply. This often leads to sharp conflicts of interest.
- ◆ In order to achieve sustainable natural resource management in a given zone, the various user groups need to reach a consensus; the ecologically-unsound behavior of groups which participate either inadequately or not at all can jeopardize the achievement of the objectives.
- ◆ Natural resource management projects and target groups often have different priorities: On the one hand the project

measures aim to achieve sustainable natural resource management in the medium to long term; on the other hand, target groups hold short-term interests in survival, social prestige, material gain etc.. This explains the reserved attitude toward active participation in natural resource management measures often held by the local population at the outset.

- ◆ Framework conditions are as a rule not conducive to improved management of natural resources: Only rarely are governmental institutions created with the needs of ecozones in mind, and these institutions often have only very limited scope for action. In addition, the political culture in most countries is not geared to involvement of the local population in planning and decision-making processes.

The above-mentioned problems and constraints surrounding natural resource management projects do, however, need to be looked in context with the potentials which also exist. More often than is first assumed, these are to be found in the self-help capabilities and willingness of the local population. Although organized self-help based on self-initiative can rarely be expected from the start, the potentials needed are nevertheless usually there. In many cases, NARMS can activate the motivation of and input by target groups. In addition, negative experiences with failed top-down approaches are creating the problem of pressure to adapt within governmental institutions; this clearly creates a potential for wider consideration of participatory and self-help approaches.

In very rare cases, there is one single cause of the destructive use of resources;

as a rule, however, there are a number of closely linked reasons. The most salient causes are as follows:

- ◆ marginalization of broad sections of the population
- ◆ population growth
- ◆ confusion regarding ownership rights and rights of use
- ◆ unfavorable economic conditions
- ◆ the disadvantages suffered by women

The NARMS approach involves the combined application of instruments and methods of participation and self-help promotion. In the majority of cases, these are familiar instruments used in other fields of cooperation, but tailored by NARMS to the specific requirements of natural resource management. Which methods are selected are how they are combined is determined by the respective project situation. The following six strategic elements serve as a guideline:

(1) Participatory approach

The active participation of all resource users of a given ecological zone in the planning and implementation of measures of natural resource management must be a top-priority aim. Any schematic application of the principle of "participation" must be avoided; active participation should rather be a key concept underlying the entire project cycle, from the situation analysis, via the planning, implementation, monitoring and evaluation of measures, through to participation in the success (or failure) of the project.

(2) Promoting motivation to participate, and self-help potentials

A participatory approach is based on the presupposition that the target population groups, as well as the governmental and non-governmental institutions, are inter-

ested and willing to participate, and have the actual scope for action. To develop and strengthen these factors, timely efforts are required within the framework of socio-culturally appropriate awareness-raising, extension and training measures.

(3) Process orientation

A flexible and iterative approach to the planning and implementation of measures should create the framework for elaboration of appropriate solutions. This should also prevent the schematic transfer of solutions elaborated in other contexts. Process orientation also means promoting processes of learning among all participants with a view to sustainable natural resource management.

(4) Combination of measures producing short- and medium-term impacts

Alongside measures designed to achieve the medium- and long-term goals of natural resource management, measures should also be planned which provide clear benefits to the local population in the short term. Material incentives and, where appropriate, subsidies and compensation payments should be employed selectively on the basis of transparent and unequivocal criteria. Combining measures to produce short- and medium-term impacts as a rule means designing natural resource management projects along multisectoral lines.

(5) Development of local organizations and institutions

The long-term nature of many natural resource management measures requires scope to act and continuity, on the part of both the local population and the responsible governmental institutions. This results in the need to promote self-help organizations of the relevant local populations groups, and governmental and non-governmental organizations respon-

sible for measures of natural resource management. Institutional and organization development primarily means developing organizations and institutions which already exist at some level, and strengthening their capabilities to carry out their mandate.

(6) Negotiation orientation and conflict management

The creation of forums and mechanisms of negotiation at local and regional level, involving all groups and institutions (actors) acting in a certain region, can help achieve consensus on how to go about resolving conflicts over resource use. In the medium term, they can also help extend the scope of action of those actors whose own interests tend to be conducive to the conservation of natural resources.

The expertise acquired by the NARMS project now permits us to present an overview of those instruments and methods which are appropriate for improving the planning and implementation of natural resource management projects. Having said that, there are no "blueprints" available for the selection and combination of the various NARMS-specific methods and instruments to fit any specific concrete case. These decisions need to be taken in the context of the given situation, and can only very partially be transferred to other situations. The following instruments and methods can be employed to implement the NARMS approach:

a) Participatory land-use planning

A participatory and dialogue-oriented approach as early as the stage of planning measures of natural resource management is essential, and not only with respect to gaining a realistic understanding of the circumstances and context of the project region. It also increases the willingness of the local population to invest their own resources in the implementation of natural resource management measures.

b) Institutional network

The need to secure consensus in natural resource management suggests that co-operation between the responsible governmental institutions and non-governmental organizations (NGOs) would be appropriate. As institutions with different functions and mandates at various levels (village-community-district), they need to achieve a complementary modus operandi within the framework of the project. This requires the elaboration of appropriate forms of cooperation and mechanisms of coordination.

c) Participatory action research

This method can, for instance, be used in the development of technologies: Instead of simply agreeing on one solution - supposed to be the best - interested (user) groups each take one of the jointly identified alternatives and implement them jointly. After a certain interval, results are compared, setbacks analyzed as to their causes, and proposed improvements discussed. Using this method the "best" solution is eventually identified.

d) Development of appropriate organizational forms

A careful analysis of organizational potentials should be carried out, on the basis of which appropriate forms of organization can be elaborated. The appropriateness of an organizational form is dependent on the one hand on the specific socio-cultural context, and on the other hand on the issues to be addressed. The management of a community forest, for instance, will require different organizational solutions than the implementation of measures to conserve soil and water.

e) Assignment of local extension workers

Local extension workers can perform a key function as contact person for the target group; this is especially true in cases where target group organizations have not yet sufficient skills to directly approach

institutions at local or regional level. In addition, local extension workers can provide flexible support in the village organization development process. Where appropriate, active members of a village community can perform this extension worker role.

f) Back-up measures of village development

If the approach is right, back-up measures of this kind can not only increase the acceptance and cooperative spirit of the target groups of natural resource management measures, but also create the necessary framework for their implementation. A village water supply measure might, for instance, provide a clear illustration of the link between availability of water and the conservation of natural resources. In addition, this also provides an opportunity to put to the test forms of organization and cooperation.

g) Conflict management

Conflict management can facilitate the process of negotiation to resolve conflicts relating to the use of resources. This can involve for instance the creation of a neutral forum for negotiation, or the (re-) activation of local mechanisms of conflict resolution.

An example: Application of NARMS in the forestry sector

Overall, the use of tropical forest resources tends to be of a destructive nature. Where the local population is responsible, this can be seen as a response to a state of confusion over land ownership rights and rights of use. Unless and until these rights are protected and upheld, sustainable management will be difficult to achieve. Where the local population is granted a long-term right of use over forests, however, and supported in developing the already existing yet partially neglected economic potential of the forests, this

creates among them a renewed interest in the conservation and sustainable management of the remaining forests.

The significance to human beings of the resource "trees" is always situation-specific. The historical context, ecological zones, and many other factors (specific to the time and location in question) have always played a key role. With respect to the forestry sector, therefore, it is the task of the NARMS approach to identify the complex interrelationships between trees and people, and to utilize these relationships for sustainable natural resource management.

The situation analysis, which should be conducted using chiefly participatory survey methods, provides a basis for decision-making with the concerned actors in the subsequent planning process, e.g. concerning arrangements for forest use, or selection of tree species for afforestation measures or to supplement existing stands. The more these decisions satisfy the manifold needs of the target groups and harness their capabilities, the more conducive will be the framework created for the implementation of forest management measures. Before and during implementation, additional skills and competences can be developed, enabling the population to gradually assume responsibility for forest management. This will gradually relieve the pressure on the project and the responsible institutions, thus guaranteeing sustainability.

NARMS can lead to a broad variety of forms of social or farming organizations. Which organizational form is appropriate will depend on the specific situation. The work of these organizations at user level must be tied into clear agreements within the user groups. Corresponding agreements should also be concluded between the respective organizations and the responsible forest administration, and any other involved (governmental) institutions. In the course of the negotiations leading up

to arrangements of this kind, agreement must be reached on the issues of what level of participation the forest service is willing to allow the population, and what level of responsibility the population are able to assume.

The application of NARMS needs to be seen in the context of a paradigmatic shift in German development cooperation. This is characterized by a greater regard for

complex, systemic relationships, a growing significance of participatory and process-oriented approaches and methods, a new understanding of learning and teaching, and a sharp focus on issues of institutional and organization development. The overall result has been a number of positive developments in the application of NARMS within the institutions of German development cooperation involved in the NARMS project (BMZ, GTZ, KfW, DED).

1 Introduction: Development-policy Status of Natural Resource Management Projects

1.1 "Environment and Development" - a development-policy challenge

The final declaration issued by the international community at the United Nations Conference on Environment and Development in Rio de Janeiro (1992) proclaimed *inter alia* that:

"Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature."

(Principle 1 of the Rio Declaration on Environment and Development)

In 1991 the Development Assistance Committee (DAC) of the member states of OECD had, in the light of similar con-

siderations, already recommended that the concept of Primary Environmental Care (PEC) be adopted. This is based on a close linkage between "development" (defined as the sustainable satisfaction of basic needs for all), and protection of the environment.

The special challenge posed by this concept of development, extended to include the ecological dimension, consists in improving the material base for people in developing countries, whilst at the same time conserving the natural resource base on which life depends. This dilemma can only be resolved through efficient and ecologically sound management of natural resources.

1.2 The contribution of the NARMS project

In the past, experience with other current problems (overcoming rural poverty, establishing food security, improving the position of women, greater involvement of NGOs in development cooperation, etc.) has shown that "top-down" approaches, which do not provide for the participation of local population groups in project planning and implementation, as a rule fail to produce sustainable project impacts. Consequently, participatory and self-help approaches are today considered absolutely essential, and a wide range of procedures, methods and tools has already been developed, through which these

"bottom-up" approaches can be put into practice.

The contribution made by the NARMS project consists in strengthening and enhancing the application of tools and methods to promote participation and self-help in projects of natural resource management. As such, "Natural Resource Management by Self-Help Promotion" is not a new project type or innovative development concept, but rather a specific approach to the planning and implementation of natural resource management projects. Characteristic of this approach is the use of a "mix" of tools and methods

which need to be individually selected, combined and adapted, in line with the given situation.

The experience of the NARMS project to date has demonstrated that participatory and self-help approaches can indeed make a substantial contribution toward the more effective implementation and improved sustainability of natural resource management projects. These approaches identify potentials for the operationalization of strategies which attempt to integrate "environment" and "development".

NARMS does, however, deliberately ignore technical issues of natural resource man-

agement. This is warranted, as past experience has shown that, as a rule, it was not the use of a specific technology which threatened the success of a project, but rather its inappropriate application in the given socio-economic and socio-cultural milieu.

The urgent need to protect vegetation (as reflected in the Tropical Forest Action Programme) has led the NARMS project to focus on "trees" as a representative resource. Having said that, the project must not lose sight of the issue of whether and to what extent the findings and recommendations can also be applied to other resources (e.g. water).

1.3 Fields of application of the NARMS approach

"Natural Resource Management by Self-Help Promotion" denotes an approach which, when applied, allows ecologically sound and therefore sustainable management of natural resources. Consequently, the issue generally gains key importance wherever "development" is based on or leads to a significant exploitation of resource potentials, or where the medium- to long-term preconditions for "development" need to be created through a rehabilitation of resources.

Seen from this angle, there are a number of areas of application for the NARMS approach in official German development assistance:

- ◆ social forestry and forest rehabilitation projects, which are almost always faced with problems of conflicts of interest between user groups;
- ◆ regional rural development projects, where it is necessary to strike a balance between poverty alleviation and sound management of natural resources;

- ◆ projects of natural resource management in arid zones, and projects to rehabilitate mountain regions, where there is initially an urgent need to stabilize potentials which still exist;
- ◆ nature conservation projects, and chiefly those which pursue the "buffer zone development" approach;
- ◆ agricultural development projects, which aim to elaborate and disseminate methods of sustainable land use.

There are also other types of project to which the NARMS approach is potentially relevant, although the concentration by the project on the resource "trees" - and the correspondingly restricted scope of empirical data - means that the project experiences and recommendations can only be transferred on a limited scale:

- ◇ water supply projects, which as a rule also involve conflicts of interest among users (with respect to both drinking water and industrial water/ irrigation);

- ◊ projects of animal husbandry and grazing management, although in a number of cases these have developed into multisectoral natural resource management projects.

By incorporating elements of the NARMS strategy, and applying the corresponding tools and methods, the above-mentioned

project types will be able to more effectively and more efficiently achieve their set objectives. The present Position Paper therefore addresses primarily the "planners" and "implementers" at the various levels and in the various sections of the development institutions involved in the NARMS project.

2 Definitions and Explanations

2.1 The basic concept of the NARMS approach

Experience teaches that it is those terms used most frequently which tend to be interpreted differently on the basis of personal experience, or which take on a different meaning when the context changes.

Therefore, for the purposes of this Position Paper it will be necessary to define the following terms more precisely:

NATURAL RESOURCES are the natural base on which life depends, i.e. primarily water, air, soil, plants and animals. In everyday usage, the term "environment" has come to mean the same thing. The NARMS project, for instance, centers around the resource "trees".¹

NATURAL RESOURCE MANAGEMENT comprises two main aspects:

- (1) possession of information on the scope, the finite nature and the potential uses of the available resources, and the decision as to what to do with them (including protecting them) and how, and
- (2) the implementation of that decision, i.e. the actual practice of using the resources and monitoring that use.

This concept of management, seen in the respective sociocultural context (desires, capabilities, ethnic group, gender), places people at the center of all considerations: people form the interface between the environment and society, and their actions are crucial for the preservation of the natural resource base on which life depends.

SUSTAINABILITY in resource management means the long-term functionality of the ecosystem, such as to secure the availability of natural resources on a durable basis. The functionality of ecosystems is threatened or destroyed by excessive exploitation of or damage to individual components or all components of the respective system.

With respect to natural resource management projects, "sustainability" means that user groups integrate into socio-economic and socio-cultural structures a rational and ecologically-sound behavior, to which the respective project has made a contribution.

SELF-HELP means efforts of whatever kind undertaken by (local) population groups to solve problems which they themselves have identified and considered urgent. In the context of natural resource management, self-help means efforts undertaken by affected persons and groups and directed towards the ecologically-sound exploitation of those resources. The term also implies people's willingness to help themselves, which is in itself often the most important "resource" on which to base such measures.

In the context of poverty alleviation strategies, the principle of "help towards self-help" has largely been seen in a positive light - and rightly so. In the context of sustainable natural resource management, however, "self-help" can be problematic, as in their efforts to improve their living conditions, user groups not infrequently cause damage to natural resources. Having said that, self-help

activities designed primarily to conserve natural resources tend to be relatively rare.²

SELF-HELP PROMOTION comprises all those measures taken by persons or institutions to enable specific target groups to undertake their own efforts, and/or to enhance the capability of self-help groups to plan and implement self-help measures. Ultimately, self-help promotion aims to enable all sections of the population to act as far as possible on their own responsibility within the development process.

PARTICIPATION means the involvement of all concerned groups (or their representatives) in decision-making and implementation processes. Self-help promo-

tion measures, on the other hand, are designed to enable groups which are disadvantaged (in material or educational terms) to also participate more actively. Whereas self-help is understood as a rule to mean groups designing and implementing their own measures with a maximum of self-responsibility, "participation" means rather the co-design of and co-responsibility for the planning and implementation of measures on an equal footing with others, whose interests also need to be taken into account.

From the above explanations it is clear that the NARMS approach cannot be a purely self-help approach, but must rather pay special attention to the PARTICIPATORY aspects.

2.2 The situational context of natural resource management projects

Natural resource management projects are constantly confronted with extraordinarily complex framework conditions, which are determined by the respective historical, socio-cultural, ecological, economic and political factors which come into play. Consequently, almost all projects of natural resource management display typical contexts, which need to be responded to through appropriate strategic planning, and specific tools and methods derived from that.

The typical situational contexts can be characterized as follows:

Divergent interests

There is often a conflict of interests vis-à-vis the management of available natural resources, both within the population and within the responsible authorities, and between the population and the authorities. A large number of individuals, local and external groups (including enterprises), organizations and institutions stake a

variety of claims on resource management, or influence directly or indirectly the resource situation in a region.

Frequently observed examples of the conflicts which may then arise are:

- ◊ competing claims on resource use between (permanent) local and (temporary) external resource users, e.g. between crop farmers and nomadic livestock farmers, or between local foresters and timber concessionaires;
- ◊ conflicts between governments interested in higher (foreign exchange) earnings on the one hand, and a local population interested in securing its own subsistence on the other;
- ◊ conflicts between the women of a village, whose actions are directed toward meeting the daily needs of the family, and the men, who intention is to use the natural resources primarily to increase their money income.

Consensus needs to be achieved among all user groups and responsible institutions

Experience has demonstrated that in a given ecological zone, user groups not integrated into a natural resource management project can upset the balance.

Therefore, it is often important to take into account right from the outset the (unintended) secondary or follow-on effects of a measure on population groups/generations not directly affected, and to enter into dialogue with all participants with a view to circumventing potential conflicts. For example, the tapping of groundwater for irrigation schemes can impact negatively on vegetation (trees), thus damaging the livelihood of small farmers or cattle farmers. Alternatively, the creation of a water reservoir may affect the water supply of the population living downstream. The same applies to extensive forest management in mountain regions, which also entails a risk of flooding in lower-lying areas.

Projects and concerned groups have conflicting aims

Normally, it is inevitable that conflicting aims arise between natural resource management projects, which aim to conserve resources on a medium- to long-term basis, and the land-use forms based on short-term calculations - such as survival, social prestige or material profit - which degrade resources. The responsible government institutions and the (local) population usually attach lower priority to measures of natural resource management, the impacts of which can only be anticipated in the medium- to long-term. Clearly, measures which produce material benefit in the short term are preferred.

This is one explanation for the frequently observed reserved (sometimes even negative) attitude within the population vis-à-vis active participation in natural resource management measures. Not infrequently,

the conflicting aims are a result of the different perception of the problems on the part of the project participants. Experience has shown that, particularly with respect to the sustainable management of natural resources, donors, (governmental) project executing agencies and the respective user groups define the problems (initially) very differently, and therefore set very different priorities.

Inadequate administrative structures and legislation

Only in exceptional cases are administrative units created in relation to ecological systems, e.g. a water catchment area; "multi-dimensional" consultations on how to influence such systems are therefore difficult to organize in practice. Similarly, the large number of sectorally organized agencies and their sub-sectoral divisions run counter to the need for integrated and multi-sectoral approaches in natural resource management.

In addition, the political culture in most countries, which does little to promote participation, has an inhibiting effect on the motivation and will of the local population to act on its own responsibility. Public institutions often think along hierarchic lines, and are negatively disposed toward participation. The behavior of these bureaucracies is based on their belief that they are there to direct and administer the local population, rather than seek to achieve, through a process of dialogue and cooperation in a spirit of partnership, a consensus on the aims and an acceptance of the measures appropriate to achieving those aims.

Firm constraints on governmental institutions' scope of action

The scope of action of government institutions is often subject to considerable constraints, particularly since unfavorable conditions (e.g. high public deficit, indebtedness, drain of qualified experts into

the private sector or NGOs) lead to an inadequate supply of financial and human resources. In addition, forestry and agricultural institutions often have relatively little political clout.

Untapped potentials

The above-mentioned constraints which natural resource management projects usually encounter should not, however, cause them to lose sight of the positive potentials which also exist. These potentials are to be found - more often than is at first assumed - in the self-help capability and willingness of the local population. Even though organized self-help leading to self-initiative is seldom to be expected at

first, the potentials are nevertheless usually there.

In many cases, the aforementioned constraints at the same time constitute potentials to be harnessed. Weak public structures might leave scope for self-initiative, for instance; different perceptions of the problem might lead to better solutions, provided that they are openly discussed; the problems and pressure to conform created by the unfavorable framework conditions may well constitute a potential for greater integration of participatory and self-help approaches; the need to achieve consensus is without a doubt a key potential, once all participants become aware of it.

2.3 Causes of the observed situational contexts

Only in the rarest cases can a single cause be cited as an explanation of destructive use of natural resources. As a rule, several factors come into play to create a complex system of causal interactions. Therefore, in conjunction with the situation-specific ecological, historical, political and socio-cultural circumstances, there are a large number of variables in natural resource management projects which determine the strategic approach (i.e. the optimum mix of appropriate methods and instruments) to be pursued.

It therefore follows that, although an understanding of the typical situational contexts helps define the boundaries of the problem(s), it does not provide any "blueprints" for solving problems in particular instances. These always have to be elaborated on a situation-specific basis.

The following outline of some of the most frequent causes of destructive resource management should serve to illustrate just how widely the responses to the problems will need to differ in practise. The list makes no claim to completeness, but is

designed merely to make the reader aware of the relevant questions.

Marginalization of broad sections of the population

The most common explanation given for the exploitative use of natural resources, seen to an increasing extent in developing countries, relates to the phenomenon of mass poverty. In order to survive, the poor ruthlessly exploit resources with no regard to their sustainable conservation. This theory in its apodictic form may apply to a number of acutely threatened regions of the earth; however, numerous field studies have demonstrated that it is by no means adequate to fully explain how and why many resource management systems have become dysfunctional. Numerous examples could be given to demonstrate that survival strategies of the poor based on risk minimization often entail far more ecologically sound natural resource management than do strategies of the rich, which are designed to maximize profit.

There are, however, a large number of reasons why broad sections of the population in developing countries are marginalized to such an extent that they have no choice but to act in a way which runs counter to the sound management of natural resources. In that sense, poverty is as least as much a symptom of resource degradation as it is a cause, and attempts should be made to identify the causes of this marginalization.

Naming poverty as the (sole) cause of exploitative natural resource management therefore falls just as short of the mark as the notion, now generally considered disproved, that poor sections of the population are incapable of saving. Just as the latter for a long time caused planners to lose sight of the idea of developing effective saving and lending strategies for poor groups, the monocausal explanation of dysfunctional natural resource management as being rooted in "poverty" might create unnecessary difficulties in the elaboration of realistic strategies and approaches in this field.

Population growth

A constantly growing population density is also frequently given as a (logically plausible) reason for the disequilibrium of ecosystems caused by the exploitation of ultimately finite resources. Seen on a global scale, growing population pressure is without a doubt one of the key causes of the problem. Having said that, the following distinctions need to be borne in mind in this context, so that effective strategies and approaches can be elaborated in each individual case:

- ◊ The distinction between endogenous population growth and one which is the result of migration. In either case, it is essential to establish the causes, as these ultimately determine what package of measures is appropriate.

- ◊ In many cases, a labor shortage prevents the maintenance or revival of ecologically-sound natural resource management, i.e. an increase in the size of the working population would be needed e.g. to establish or revive the ecologically-sound building of terraces. In actual fact, however, terrace building has to compete with other economic activities with higher (marginal) yields, which leads to a decrease in the availability of labor.

- ◊ Ecological carrying capacity is not a static quantity (even though each ecosystem does have a limit to its own carrying capacity). There are numerous examples of more people being able to exist in a given ecological zone under intensive management than under extensive management, whilst still maintaining the sustainability of the ecosystem, and not infrequently even improving it.

Confusion regarding ownership and land-use rights

Numerous studies demonstrate that the general lawlessness of individual user groups, above all in Latin America, and/or different understandings of the law, especially in Africa and Central Asia, are among the main reasons for exploitative use of natural resources. This confusion regarding the law arises on the one hand from the existence side-by-side of modern (western) and traditional legal systems, and on the other hand from the fact that, although legal entitlements may exist "de jure", "de facto" they cannot be enforced. Conversely, it is often the case, especially in Africa, that although legal claims may not exist "de jure", there is "de facto" considerable scope for enforcing land-use rights.

It is also characteristic of this existing situation of legal dualism that the specifics of the traditional legal system are largely unknown in the modern sector, whilst large

numbers of farmers and fishermen in developing countries remain unfamiliar with or do not understand modern legal norms. Coupled with the oft-encountered inability on the part of government bureaucracies to grasp the logic of traditional legal systems, not to mention their despotism and corruption, this widespread legal confusion has not infrequently significantly weakened people's motivation to responsibly manage resources on an ecologically sound basis.

Use of inappropriate technologies

Across the globe, the introduction of modern technologies has made obsolete the constraints associated with traditional techniques of resource management. Yet these "natural" constraints have not been replaced by any legal, ethical or other regulations. There can be no doubt that this is a further key cause of exploitative use of natural resources. Examples include the efficient new forestry equipment, and modern fishing techniques. The same applies to the innovations in transport and communications system, which have given rise for instance to the modern, financially powerful type of nomad, who obtains information on rainfall/vegetation by radio, and then moves his herds to the pasture grounds by truck within hours. This results in over-exploitation, followed by the destruction of resources. It also displaces poor cattle farmers onto marginal lands less suitable for pasture, and they in turn degrade resources.

The above comments are not a value judgement on modern technologies per se, as these can of course be used for sustainable natural resource management, provided that they are applied appropriately and within the context of a situation-specific approach. Neither should it be forgotten that traditional technologies, when used inappropriately, have also led to a degradation of resources.

Development strategies with negative impacts

Closely related to the selection of appropriate technologies is the application of development strategies with negative impacts on the sustainability of ecosystems. Only a few examples will be given to illustrate this, but all have one thing in common, namely that sticking to a narrowly defined target (an output defined in quantitative terms) ultimately led to the degradation of resources:

- ◊ The success of forestry projects has often been measured chiefly in terms of the solid measures of timber produced, rather than the gain derived from the numerous functions of the resource "forest" in the respective ecological, economic and socio-cultural context.
- ◊ New grain varieties have often been introduced largely with a view to increasing output per unit area, largely ignoring the volume of biomass (such as straw) produced in total, or the aspects of risk minimization (different ripening dates, resistance to drought etc.).
- ◊ Irrigation schemes for vegetable growing have often been designed to maximize foreign-exchange earnings. This has led to ruthless exploitation of resources (water, biomass), which have been indirectly exported, thus depriving the local population of them. As a result, the latter have been forced to abandon proven local methods of ecologically sound management.

Development project results such as this also indirectly help make natural resource management projects more difficult. The negative experiences of the population have in many cases left them with a generally sceptical or even disapproving attitude toward development projects.

Unfavorable economic conditions

The framework created by foreign trade policy, economic policy and financial policy can be conducive to the exploitative use of natural resources. For instance, prices or taxes can be used to create incentives for short-term profit-making, or can even force the population into survival strategies which make sustainable natural resource management virtually impossible. One frequent example of this are prices for agricultural products fixed by the government, such that the farmers are then forced to extend their farmland at the expense of the forest, or to shorten the fallow periods necessary for maintaining soil fertility.

Such factors influencing the selection of technologies applied and methods used, and the choice of crops and varieties, are usually attributable to conditions within the global economy, which almost always impact at the level of local resource users. Thus a continuous deterioration in the terms of trade for agricultural producers, discriminatory agricultural market regulations, the constraints arising from structural adjustments - especially the need to earn foreign exchange to service debt - and other global economic factors, all complicate the implementation of strategies for sustainable natural resource management.

The disadvantages suffered by women

In many cultures, women have traditionally been assigned a key role in the management and protection of important resources. This role was based on the responsibility incumbent on them to take care of the day-to-day well-being of the family; it gave women a sound legal and economic footing, and social status.

The transition from a subsistence economy to one based on monetary exchange brought social disadvantage upon women, coupled with economic marginalization. In this new situation, women still have to perform their assigned role of looking after the family, but are not able to exert sufficient influence on the management of available resources, nor do they have sufficient economic means at their disposal.

Often, the only way out of this dilemma for women is to indulge - against their will - in the ruthless exploitation of those resources which remain within their reach. And in many cases it is indeed women who play a leading role in the destruction of local resources.

The disadvantages suffered by women with respect to their right of control over resources, and the negative consequences that has for the conservation of the resources in question, becomes particularly evident in the forestry sector. Women are disadvantaged either by the fact that trees are planted which are of little or no relevance to the subsistence of the family (firewood, fruits, medicinal products, etc.), or by being excluded from utilizing the forest resources, as they are designed exclusively to secure money income (cf. also Section 5).

On the other hand, women quickly become highly motivated to plan and implement natural resource management activities, once more favorable conditions are created for them. In other words, although women make a substantial contribution toward the degradation of resources, they at the same time constitute a considerable potential for the application of sustainable forms of management, which is often not harnessed sufficiently.

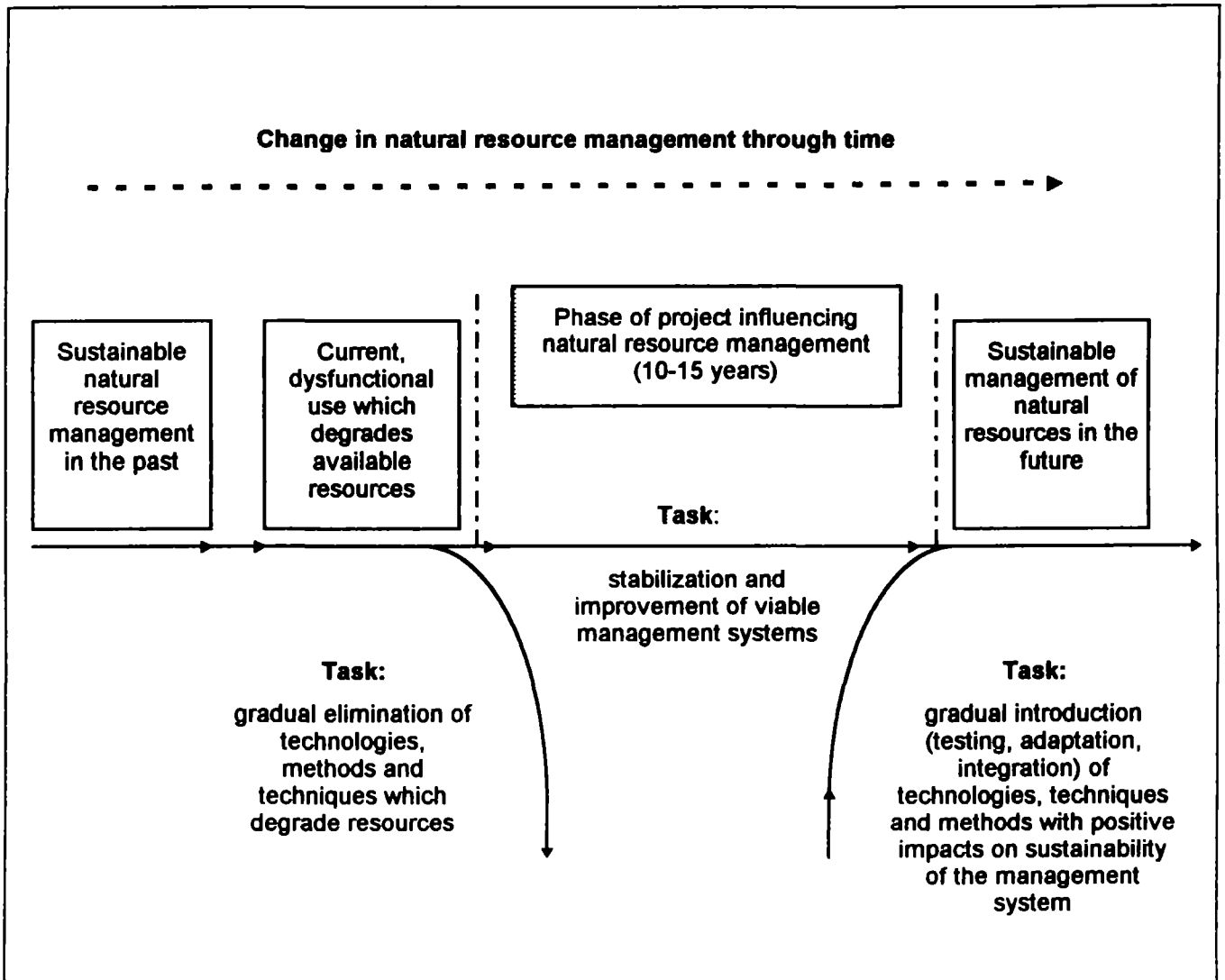
2.4 A DIGRESSION: Rationale and function of natural resource management projects

The assessment of typical situational contexts has shown that natural resource management projects are evidently embedded in an environment which is typically characterized by

- ◆ an exploitative use of natural resources, and
- ◆ inadequate "automatic corrective mechanisms" to reestablish the equilibrium of the ecosystem.

Projects to improve natural resource management therefore generally have the task of helping to create a new systemic equilibrium under changed conditions, without allowing disastrous events to bring about a new systemic balance by force.

The rationale and function of natural resource management projects can be illustrated as follows:



Rationale and Function of Natural Resource Management Projects

2.5 Summary and conclusions

It will be clear from the description of the typical situational contexts, and the discussion of several of the key causes, that development cooperation is faced with special challenges in this field. Natural resource management projects address a large number of complex and interlinked networks, and need to take into account, mediate between and attempt to influence the behavior of numerous actors at various levels (politicians, public officials, farmers etc.). The aim in this context is therefore not primarily to seek technical, quantifiable

and transferable solutions, but rather to gain an understanding of complex systems, to change human thought patterns and behaviors by promoting learning processes, to elaborate new organizational forms, and initiate iterative learning. To this end, appropriate strategies and approaches need to be developed. Last but not least, projects need to establish scope for action within the framework of development cooperation, bearing in mind the systemic interrelationships.

3 Strategic Elements of the NARMS Approach

The NARMS approach is characterized by:

- ◆ a systemic understanding of natural resource management in the planning and implementation of projects;
- ◆ active participation and self-responsibility on the part of the local population and other lead actors;

- ◆ a mix of instruments and methods specially selected and adapted to fit the specific situation in question.

The experiences acquired by the NARMS project can be "condensed" into six basic principles or strategic elements, on which the NARMS approach should be based. These will be discussed in detail below.

3.1 Participatory approach

The active and creative participation of all resource users in a given ecological zone must be a priority aim in the planning and implementation of natural resource management measures. Having said that, an instrumentalized, schematic application of the "principle" of participation must be avoided. Rather, "active participation" should be understood as a concept underlying the entire project cycle, from the situation analysis, through planning (including alternatives), implementation of measures, M + E, to participation in the success (or lack of it) of the activities.

It is also important that, as a matter of principle, all groups of users of a potential resource participate. Consequently, the "target population" of natural resource management projects also includes actors who see themselves initially (or in the long term) as "losing out" if and when the project is implemented. This might include poachers just as easily as large landowners. Their cooperation can be as important for the success of such projects as the target groups with a positive attitude (e.g. small farmers, women, tenants), on which attention is usually focused.

Like "self-help promotion", "participation" is not an end in itself, but a means to securing tangible benefits in the implementation of natural resource management projects:

- ◇ Through participation in the planning and the (anticipated) success of projects, the willingness of the local population to invest their own resources in the implementation of measures can be increased.
- ◇ As a rule, situation-specific information can only be obtained through cooperation by groups affected by the respective projects; this is the only way to elaborate situation-specific solutions and (appropriate) technologies.
- ◇ Project-threatening resistances on the part of certain actors can only be prevented or minimized through their intensive and early involvement in the planning and implementation of measures. Participation is therefore an important tool of conflict management.
- ◇ The knowledge and understanding needed by the target groups for con-

tinuation of the initiated measures can only be transferred through active participation.

- ◊ Early participation is absolutely essential so that any agreed restrictions on use (e.g. in buffer zone management projects) can be controlled by the local population largely self-reliantly.

The active participation of all affected groups always involves a comparatively large input of labor. As well as the aforementioned advantages, however, the following should also be borne in mind in this context:

- ◊ The labor input tends to fall as time goes on; whereas work peaks occur as a rule at the beginning of the project, the

workload slackens off correspondingly as the project progresses.

- ◊ The time and money spent at the outset is soon revealed to be a sound investment when compared with the inputs which would be required to deal with the acceptance problems - which would inevitably arise if target-group participation were too low.
- ◊ Given an appropriate *modus operandi*, the necessary awareness-raising, motivation and coordination inputs need by no means be provided by German development institutions alone. Cooperation with (local) NGOs has proved particularly successful in this connection.³

3.2 Promoting motivation to participate, and self-help potentials

Participatory instruments of planning and implementation can only be applied on the assumption that people's behavior in natural resource management projects is not seen primarily as a "problem" or "interference" which needs to be cut out wherever possible. The aim is rather to harness the potentials of the concerned people to solve their problems. As a rule, however, it cannot be assumed that the targeted population groups, or the (potential) governmental and non-governmental institutions will have either the interest, the will to participate or the corresponding scope to act, at least at the outset. To develop or strengthen these factors, timely and active efforts will be required within the framework of socio-culturally appropriate awareness-raising, consultancy and training measures.

"Confidence-building measures" can also help raise motivation, provided they are not confined to the creation of superficial material incentives designed to "buy" a

certain behavior. ("The village gets a school if the inhabitants stop chopping down the forest".) Often, confidence can be built much more sustainably through non-material support (legal advice, accommodation of conflicting interests with government authorities or big landowners etc.). Ultimately, confidence is built chiefly through a participatory approach based on dialogue.

It is desirable to create confidence in the law, as in many instances this can guarantee the active involvement of poorer sections of the population in particular. The potentials of development cooperation in this instance are, however, limited. The aim in this context is not only to establish an unequivocal formal legal framework, but also to transmit to people a sense of certainty that they will enjoy a fair share of the results of the project in question.

In addition, far too often too little attention is paid to the fact that the objectives of a

project, and the decisions associated with them, e.g. vis-à-vis the selection of technologies or crops to be promoted, have a demoralizing effect on certain target groups right from the start. For instance, women can hardly be expected to become actively involved in the establishment of eucalyptus plantations, as this tree is cultivated chiefly to produce building

timber, and not fruits, medicines or animal fodder, or even good fuelwood, from which women would benefit directly.

Similarly, self-help potentials can be much better harnessed and developed if people are given an opportunity to first make maximum use of their own experiences, knowledge and expertise.

3.3 Process orientation

Natural resource management projects should be understood first and foremost as initiating processes of ecological, economic and social change, creating a new equilibrium within a destabilized system. Consequently, a flexible and iterative approach to the planning and implementation of measures is needed, to create the framework for the elaboration of appropriate solutions. This also prevents the schematic transfer of solutions developed in other contexts.

Processes of change run through various phases, in each of which different problems come to the fore. This means that a broad range of technical, sectoral and methodological instruments needs to be available as the process unfolds. Having said that, a process orientation should not preclude the definition of targets to be achieved.

Processes of change are not linear, as a conventional understanding of the planning process might suggest. Change rather

tends to take great leaps forward, one or two steps back, go off at a tangent, and take all kinds of unforeseen "twists and turns". The planning and implementation process needs to react flexibly to these developments.

Qualitative criteria (sustainability, adaptability, self-steering capability etc.) gain greater significance relative to quantitative outputs (e.g. yield per unit area). Important though the quantitative output may be at the end of a project, the process leading to that output is also just as important, as the sustainability of the planned project impacts is ultimately dependent on that process. Simply quantifying the outputs out of context would fall short of the mark, as these outputs always need to be seen as stages within a process, and can only be evaluated in this context.

Last but not least, process orientation means promoting processes of learning among all participants with a view to sustainable natural resource management.

3.4 Combination of measures producing short- and medium-term impacts

As a rule, processes of change which are designed to rehabilitate already damaged ecosystems and/or change human behav-

ior, cannot be completed in the short term. Corresponding measures often do not aim to directly solve a problem as perceived by

resource users, but on the contrary require steps which from their point of view initially (also) place constraints on resource use. The long-term benefit of these steps is often not immediately apparent to the resource users, or may even appear dubious. Therefore, the (legitimate) interest of people - especially from poorer sections of the population - in deriving short-term benefits from project inputs, and the various (basic) needs of these people, must not be forgotten, as otherwise it might be difficult to persuade the various local population groups to participate. In practise, this implies three things:

- (1) The planning of measures with a clearly evident short-term benefit, as well as the medium- and long-term

targets of sustainable natural resource management.

- (2) The selective use of subsidies awarded on the basis of transparent criteria, as an instrument to accommodate conflicting interests.
- (3) As a rule, a multi-sectoral approach to natural resource management projects.

Some attempts have already been made to combine measures producing both short- and medium-term impacts, and corresponding experience is available in the fields of watershed development, forest rehabilitation, integrated conservation of natural resources, and natural resource management in arid zones and oases.

3.5 Development of local organizations and institutions

The sustainability of many natural resource management measures requires both the capability to act, and continuity of action on the part of both the local population and the responsible institutions. Institutions are often the key "interface" through which contact, communication and cooperation with important target groups can be established. Experience has also shown - especially in the states of sub-Saharan Africa - that it is becoming increasingly necessary to transfer tasks of monitoring the sustainability of natural resource management from governmental institutions to local levels (e.g. NGOs). Generally speaking, natural resource management projects are often faced with a situation characterized by one (or several) of the following deficits:

- ◆ There is a lack of professional institutions at important levels of action.
- ◆ There is a lack of adequate communication and/or cooperation at the same

level of action, whether between actors with the same function or those with different functions.

- ◆ Vertical interaction (i.e. between the various levels of action) is inadequate.
- ◆ The institutional structure is so homogeneous that one (or several) institution(s) have taken on tasks which they cannot properly perform due to their organizational structure, human resources and/or their mandate.

All this implies the need to promote self-help organizations of the relevant local population groups, as well as the respective governmental and non-governmental institutions. Promotion should mean first and foremost the ongoing development of existing organizations and institutions, strengthening their capability to perform their mandate.

In the event of a complete absence of such structures, the option of initiating or establishing new organizations or institutions should be considered. In such cases, particular attention must be paid to issues of sustainability. In this context it is appropriate to remind the reader that fact that the term "institution" can be used in two senses. "Institution" does not always

mean a corporation under public or private law, but can also mean a body of generally acknowledged norms governing relationships and behavior. In the present context, chiefly those traditional institutions which have in some cases elaborated highly effective rules for the management of natural resources are the most significant.

3.6 Negotiation orientation and conflict management

Anyone initiating or implementing natural resource management projects will run into conflicts between the interests of short-term efficiency and long-term sustainability. At the same time, that actor will always be only one among a large number of actors with a very wide variety of interests and claims on resource use. Natural resource management projects are therefore ideally suited to enter the "tussle" between the various actors, provided that they see their role as being chiefly to act as "catalysts":

The creation of forums and mechanisms of negotiation at the local and regional levels, involving all groups and institutions (actors) acting in a given ecological zone, can help identify approaches on which consensus can be achieved, and reveal conflicts of interest which can then be settled by mutual agreement. In the medium term, they can also help widen the scope of action of actors whose own interests are also conducive to the sound management of natural resources.

4 Applying Instruments and Methods of NARMS in the Project Cycle

The expertise acquired by the NARMS project now allows us to draw up a - provisional - overview of those instruments and methods which are suited to improving the planning and implementation of natural resource management projects, and achieving sustainable processes and results. The list makes no claim to completeness, but aims simply to present important instruments and methods, based on the available results of the NARMS pilot project.

There is, however, no "blueprint" for the selection and combination of the various NARMS-specific methods and instruments to fit any given situation. These decisions rather have to be taken in relation to the given circumstances, and can only be transferred to other situations on a limited scale. Examples given of successful instances of selection and combination are therefore intended to serve merely as illustrations, and not as generally-applicable "recipes".

The essence of the NARMS approach is its flexibility of response to different situations. It is to be assumed that the situations encountered will be characterized by a high level of uncertainty (e.g. with respect to the possible reactions of the various actors), and complex interrelationships between people, the institutions which they have created, and their environment. A natural resource management project designed along these lines can be compared to an expedition through initially largely uncharted and difficult territory, presenting a variety of obstacles. The basic understanding of NARMS as a systemic approach will serve as the compass during this expedition, and the six above-mentioned strategic elements as important landmarks. The methods and instruments presented below can be considered the equipment with which to negotiate the obstacles, and clear a path for progress toward the expedition's goal.

4.1 Participatory survey and planning

The description of the first strategic element (cf. Section 3.1) clearly emphasized that top priority should be attached to the active participation in the planning and implementation of natural resource management activities, by all resource users in a given ecological zone. This has far-reaching consequences as regards the planning methods and instruments to be applied:

- ◆ The population should be involved at an early stage, i.e. when planning documents are being drawn up. This becomes particularly evident in projects involving land-use planning: Unless there is intensive participation in the planning process, it is highly unlikely that a viable consensus can be achieved regarding the delimitation of land-use zones which will not disintegrate when the "project" comes to an end.

- ◆ The planning methods and instruments must be adapted to the socio-cultural context of the local population, such that they are conducive to participation.

Social scientists have been elaborating corresponding methods of survey and planning since the early 1980s, based on an approach which

- ◇ first aimed to have systematic, semi-structured surveys conducted locally by a multidisciplinary team, in order to rapidly and efficiently obtain fresh information and hypotheses on rural life and rural resources (known as "Rapid Rural Appraisal", or RRA). This approach has since been further developed. In its present form, it aims to
 - ◇ encourage and support the members of a social group to examine, analyze and evaluate their own development constraints and potentials, and reach sound and timely decisions regarding needed and feasible measures, within an appropriate time frame (known as "Participatory Rapid Rural Relaxed Appraisal", or PRA).⁴ This approach has been particularly successful when applied in projects of natural resource management.

The tried and tested methods and instruments which are especially suitable for analyzing the resource management rationale of the local population, as well as for elaborating solutions, and which can be applied jointly with the resource users, include for instance:

- ◇ the joint conduct of surveys, joint observations resulting from field visits, graphic depiction of seasonal occurrences etc.;
- ◇ joint, visualized "brainstorming" using locally-produced teaching aids, such as

symbols made from flannel-board, wood or metal;

- ◇ evaluation of "life stories";
- ◇ joint evaluation of aerial photographs and/or tape recordings;
- ◇ the joint drawing of maps and the making of models/landscape reliefs using simple materials such as plaster, sand, stones etc..

It is absolutely essential, especially in projects designed to bring about sustainable changes in behavior, that planners understand the socio-cultural dynamics of groups/societies, when attempting to answer questions such as the following:

- ◆ To what extent do people feel threatened by uncertain situations, and create values and institutions to avoid uncertainty?
- ◆ How wide is the power gap between unequal individuals, and how is this inequality rationalized and consolidated?
- ◆ To what extent is the selfish pursuit of success as opposed to social equality and mutual assistance accepted?
- ◆ To what extent do groups look after their members - in exchange for loyalty - and take responsibility for decisions?

The answers to these questions, especially in natural resource management projects, constitute an important basis for planning. They can be obtained through collective sociometric surveys, through the joint filling-in of matrices and ranking lists, e.g. on the beneficiality of trees along the village boundary, or using role play, theater, local history and the like.

Gender Analysis

Gender analysis is designed to identify the different roles and functions assigned to men and women in land use. To this end, the following information needs to be obtained and analyzed:

- ◊ *Activities*: Who performs which activities in land use, and how clearly defined is the division of labor?
- ◊ *Control over resources*: Who has control over, and access to, resources (including human resources) such as education, knowledge, time, mobility, energy? What implications does this have for those whose access is restricted? What gender-specific differences exist in this connection?
- ◊ *Benefits*: Who profits from agricultural production, and how are the profits distributed and/or used?

The following points must be borne in mind in conjunction with the gender analysis:

- ◊ The results of the analysis should be utilized at all stages of the project cycle.
- ◊ Women should provide the answers regarding the role and tasks of women in land use.

Source: Janz, K. (1993)

In this context, the NARMS approach involves taking the broad range of methods and instruments elaborated through the PRA approach, and selecting and applying that combination which is optimally tailored to the respective project situation.

Given that planning is based on a process orientation, it is unlikely that all unanswered questions will be able to be solved at the beginning of a project. A step-by-step, iterative procedure will then not only keep imponderables and risks to a minimum, but will also create scope for the advantages of an "open" planning process to unfold. It is better to leave questions open than to obtain ostensibly reliable answers too early on. "Uncertainty" then turns into a "resource" which can be positively utilized within the ongoing process, rather than being simply a state of affairs to be eliminated as quickly as possible.

This modus operandi has been operationalized in the participatory action research or participatory action learning approach. This approach is designed to intensify a joint learning process with and between all participants. It also involves the joint development of technologies: Instead of sticking to one ("the best") solution,

interested (user) groups each examine one of the jointly identified alternatives and jointly implement it. After a certain interval, results are compared, failures are traced back to their causes, and proposed improvements are discussed. By pursuing this approach, "the best" solution is eventually jointly elaborated - assuming there is one.

On the basis of their experiences in French-speaking West Africa⁵, ENDA-GRAF (Groupe de Recherche-Action-Formation) further developed and operationalized this close link between "Analysis-Action-Assessment", otherwise known as the "triple-A-cycle". This approach is characterized by the fact that it also follows a step-by-step, iterative procedure after the survey and planning phase. This means that the procedure can be constantly reviewed in the light of practical feedback, enabling negative developments (inappropriate planning) to be identified as soon as possible. This ongoing practical feedback is intended as a learning process for all participants.

Participative land-use planning has also gained special significance in this context. This creates the basis for the appraisal of alternative land-use options, and the

application of methods of ecologically sound land use. In this connection, the proven participatory methods include the joint interpretation of aerial photographs together with the resource users, and

traditional land classification based on the terminology of the local population. Participatory methods of land-use planning drawn from the above-mentioned range of PRA techniques can also be applied.

Drawing-up Village Maps

Village maps can contain all the information needed for further planning: natural resource base and social infrastructure, village organizations and social strata etc.. The drawing-up of village maps requires an especially high level of participation by village inhabitants. This process also reveals how the inhabitants of the village see and interpret their world. It should be initiated by discussing with the village inhabitants what should be shown on the map or maps, and whether it/they should be drawn on paper, or represented on the ground using a variety of materials (stones, seeds, plants etc.). Once relative distances have been established by roads or rivers, questions like "Where are your fields?" or "Where do you get your fuelwood?" can be asked, and the information obtained can be put into the map(s). Once the map is finished, any land-use-related conflicts which might have come to light in the process, e.g. between livestock and crop farmers, can be addressed. The map(s) should also remain in the village, either in paper form or as photographs. These can then be used as a basis for agreeing on and tackling further planning steps.

Source: Griffin, J./Frischmuth, C. (1993)

Experience with the use of multidisciplinary land-use teams has also been particularly positive. A team of this kind can steer and coordinate the process in which, jointly with the land users, problems and potentials as well as concrete steps to improve the natural resource situation, can be arranged in order of priority. The delimitation of territorial units on the basis of ecological, political, socio-cultural and administrative criteria is a central part of this process. The more manageably a territorial unit is selected, the more substantial the participation of resource users in the planning process can be.

Participatory procedures also involve considerable, but inevitable, uncertainty vis-à-vis future developments. It is therefore recommended that, when drawing up the plan of operations within the scope of project management, the degree of detail be made contingent on the length of the planning period. In other words, a high degree of detail should only be aimed at

when planning periods are relatively short. Where this is the case, the number of questions remaining open at the end of a planning period can of course be reduced considerably. For the same reason, new developments should be planned in small steps, i.e. the initiation of too many innovations at once should be avoided. This is also advisable as it prevents too great a burden being placed on the target groups, as well as on the project itself.

The procedure followed in the participatory planning of natural resource management measures is closely linked to the question of launching concrete project activities. The appropriate course of action here, especially in the context of natural resource management, is not to begin with the most difficult problem. The anticipation of unusually difficult problems can have a slightly adverse effect on the willingness of the local population to participate. A much more promising approach is to "start" with a problem which is easier to tackle in

technical and social organization terms, so that positive results - conducive to participation - can be achieved relatively quickly. Having thus performed the

"groundwork", planning can then move on to address the more difficult resource-related problems.

Participatory Planning in the Integrated Food Security Program in Flores, Indonesia

To take into account the particular circumstances of the individual villages in the project region, planning activities were carried out separately with each village to determine the specific inputs (e.g. soil conservation, village water supply, health, income-generating measures) to be implemented. The results of the individual planning workshops were discussed and compared at a ZOPP session. A balance needed to be struck between the priorities set in the villages, and the support which the project would be able to provide. The outcome was that the support to be provided by the project within a given period, and the inputs to be provided by the villages themselves, were set out in black and white in the form of a so-called "white book". For the first time, this entitled the villages to remind the project of its undertaking to provide support, should it have failed to do so on time. This positive experience of participation gave the villages the confidence to propose that in future planning be conducted not at the village but at the hamlet level. The context of this proposal was that the "village" (*desa*) is a purely administrative unit, whereas the "hamlet" (*dusun*) is in fact what people in the project region actually consider to be a "village". The project accepted the proposal; since then, planning has been practised at the hamlet level, with very positive results.

Source: Kohl, G./Reichelt, B. (1993)

Planning workshops which are flexible in terms of their duration, content and sequence are a tried and tested means of organizing and evaluating information, and reaching decisions regarding concrete measures. Depending on the specific situation, the district, village or hamlet level can offer the appropriate framework for workshops of this type. Depending on the size of the project region, it will be necessary to hold so-called synthesis workshops at the local, or possibly regional, levels for concrete planning of measures.

In the context of Technical Cooperation, positive experiences have been gained with the linking of village and district planning workshops using the ZOPP method. However, an approach of this type is only participatory if the results and activities are agreed on at the ZOPP workshop such that a step-by-step, participatory modus operandi is still possible during actual implementation.

4.2 Local capacity building

Natural resource management projects also need to promote the capabilities of organizations and institutions which contribute toward the ecologically sound management of those resources. Capacity

building is important for the application of NARMS for three reasons:

- (1) If the NARMS approach is to be broadly effective and sustainable, it

will be necessary not only to organize, but also to institutionalize, a participatory learning process initiated through a flexible and iterative planning process.

- (2) If projects are to stimulate, influence and "coordinate" processes of change, then institutions will be needed as partners in this process which "embody" and articulate the various interests in the project region, and which can take on tasks at the various levels of action.
- (3) Self-responsibility on the part of resource users must be expressed by some kind of "organization". This might be anything from a tree nursery run by its users, to a committee addressing the complex issues of watershed development.

Natural resource management projects require an efficient "network" of institutions and organizations at various levels (village - region - central government) and in various sectors, for the following reasons:

- ◆ The need to achieve consensus in natural resource management in turn necessitates good communication and cooperation between the responsible governmental institutions, NGOs, and the village or sub-local organizations.
- ◆ The various institutions/organizations act at different levels in various functions, and (ideally) perform those tasks for which they are especially suited. However, the strengths of the individual actors can only be fully harnessed through a complementary approach pursued within the framework of a coordinated program.
- ◆ As a rule, the interlinked causes of natural resource degradation require multisectoral solutions, and consequently the participation of a relatively broad range of institutions. Not infrequently, complementary measures in "other sectors" become necessary, in order to tackle problems perceived as urgent by the local population, and promote their willingness to cooperate in natural resource management measures (cf. Section 4.3.1).

4.2.1 Institutional and organization development

In order to apply instruments, methods and techniques of institutional and organization development which are appropriate to the NARMS context, it is first necessary to ask the question of which capacities of the involved institutions and organizations are to be developed. As regards (governmental) institutions, the following capacities are the most important:

- ◆ Participatory and flexible planning: This includes an appropriate level of participation by the actors influencing resource use. This in turn requires a flexible procedure appropriate to the given situation, not only for the drawing-up of plans (e.g. village land-use plan), but also for their implementation.
- ◆ Negotiation, accommodation of conflicting interests and conflict management: This comprises all tasks relating to the resolution of conflicts of interest in resource use, with which the institutions will be constantly confronted. Depending on the conflict situation, either one responsible institution, or several institutions pursuing a complementary approach, will be required to deal with it. At the planning level, this will also involve attempting to strike a balance between political directives and specific local interests.
- ◆ Dialogue-oriented approach: This implies a step-by-step and flexible approach which creates scope for processes of consultation and decision-making with the local population.

- ◆ Promotion of (village) organization development and consultancy: Here, appropriate support is provided to organizations at target-group level (self-help organizations or SHOs) for the performance of certain tasks of natural resource management. Organizations of this type may first need to be initiated.
- ◆ Ongoing training and local/regional exchange of experiences: The task facing institutions here is to continuously support SHOs, and possibly individual families, in acquiring technical and management know-how.
- ◆ Engendering confidence in the law and rights of use: This task involves not "only" creating the legal framework, but also building confidence among resource users in the law and their rights of use. This is especially necessary in cases where the state guarantees the arrangements governing the use of forest areas.
- ◆ Interdisciplinary cooperation: It is especially important to interlink the social and natural sciences, as well as farming and foresters. This also applies to intrainstitutional cooperation between personnel based in different disciplines.

Promoting the Dialogue-based Approach

Establishing a process of dialogue, e.g. between a forest authority and resource users, cannot be an end in itself. It is rather a means to the end of establishing viable cooperative relations between (governmental) institutions and the resource users. The dialogue takes on a concrete form in agreements, which include the implementation of programs and measures.

The dialogue should be transparent and binding, and designed such as to help enable the participants to actively participate in it. Tried and tested forums for dialogue include:

- ◇ workshops at various levels
- ◇ planning, coordinating and consultative committees at various levels
- ◇ public gatherings
- ◇ meetings in small groups (e.g. with local decision-makers)
- ◇ round table meetings

The appropriate forums for dialogue need to be determined in relation to the specific situation, taking into account the socio-political and socio-cultural dimensions. Existing forums and forms of dialogue should be utilized wherever possible.

Institutional development also involves identifying, or establishing, appropriate institutions, bearing in mind the following points:

- ◆ In only a few exceptional cases does it appear advisable to circumvent a certain institutional level if it is (initially) not particularly efficient. This applies especially to governmental institutions. In a modern polity, it is the task of the state to strike, and if necessary enforce,

a balance in cases where a conflict of interests between regions and/or different user groups prevents natural resources from being managed such as to serve the long-term common good. The state also creates a broad framework which influences the management of resources - positively or negatively. It is quite a different question whether governmental institutions automatically need to be involved at all levels of action, or to what

extent they should be so. The question also arises, especially in the African context, of how the establishment of subsidiary service structures can be promoted in cases where governmental institutions are either non-functional or, in some cases, non-existent.

- ◆ As in the savings and credit sector, there are still a broad diversity of autochthonous organizational forms to be found in natural resource management.⁶ These organizations, possibly in a modified form, can play an important role in drawing-up generally accepted regulations governing resource use, and in monitoring compliance therewith. When establishing local, non-governmental organizations (especially so-called community-based organizations), links to autochthonous forms of organization should be created wherever possible.
- ◆ In the case of autochthonous NGOs, the same standards of meticulousness should be applied in the institutional analysis as would be applied to governmental institutions. Given that there have been a number of negative experiences, the fact that an institution is referred to as an NGO cannot be taken at face value as a "seal of quality". Having said that, such risks can be reduced considerably by involving in the cooperation German NGOs, and their partners in the developing countries.
- ◆ Whatever the circumstances, the development of new institutions must be based on long-term interests and prospects, and not on short-term user interests arising within the project framework, which will no longer apply once the project is completed. It must also be ensured that existing experiences of the population are harnessed, and earlier mistakes avoided. In other words: New organizational structures

must be rooted in the specific histories of target groups.

Organization development should focus on organizations at the resource user level. These will henceforth be referred to as self-help organizations (SHOs). The situation is often encountered where there are no SHOs with a clear mandate for tasks of natural resource management, which means that they first have to be established through appropriate measures. In a situation of this kind, SHOs can only develop first alongside a process of dialogue, and then gradually take on an active role within that process. A conceivable constellation would also be that an existing SHO, e.g. a village development committee, might initially be the partner in dialogue, to be joined at a later date by SHOs with specific mandates for natural resource management.

The following types of SHO are the most relevant to natural resource management:

- ◇ village development committees
- ◇ committees with specific tasks, e.g. management of a tree nursery
- ◇ user groups, e.g. for a catchment area or a natural forest
- ◇ associations of certain user groups, including cooperatives (e.g. of silviculturists)

Depending on the nature and scope of its mandate, an SHO might perform the following functions within the framework of a natural resource management-based cooperation between (governmental) institutions and the local population:

- ◇ mediation between different points of view, e.g. between the interests of a sub-group of resource users and a governmental agency;
- ◇ representation of the collective interests of the local population, e.g. advocacy in connection with pledged inputs;

- ◊ mobilization of the cooperative spirit of the population;
- ◊ mobilization of resources (material, financial, organizational);
- ◊ accommodation of conflicting interests and conflict management at village level. In order to reach viable solutions, consultation with the decision-makers responsible for resource management will be essential in this context.

Organization Development in Watershed Rehabilitation in Maharashtra, India

Since 1986 the Social Centre, a local NGO, has been cooperating with villages in the Ahmednagar district in the rehabilitation of small watersheds. One of the central issues was who in the village should be responsible for organizing the planning and implementation of the needed measures in the catchment area. In order to identify the appropriate form of organization, a number of issues needed to be considered. Transferring responsibility to the village council would have involved the risk of village party politics interfering with the planning and implementation of measures. The cooperative organization also proved to be of little use, as Indian legislation governing cooperative associations would have created too many bureaucratic obstacles. An informal committee structure finally emerged as the appropriate form of organization. It was crucial in this context that sub-committees were formed to represent the various settlement units making up the village, whose representatives then sat on the village committee for watershed management. This enabled the package of measures for the entire catchment area to be planned at the committee level. Responsibility for practical implementation, however, rested with the sub-committees, which were of such a size as to be able to incorporate all affected families.

Source: Lobo, C./Kochendörfer-Lucius, G. (1993)

Organization development in the above-mentioned sense should apply the following instruments:

- ◊ Analysis of organizational potentials
Organization development should always start with an analysis and evaluation of the existing organizational potentials.
- ◊ Development of appropriate organizational forms
Appropriate organizational forms should be developed on the basis of that analysis. The appropriateness of an organizational form is dependent on the one hand on the given socio-cultural context, and on the other hand on the issues to be addressed. The management of a community forest, for instance, will require different or-

ganizational solutions than the implementation of measures to conserve soil and water.

- ◊ Organizational consultancy inputs
To strengthen their competence and capabilities, SHOs need organizational consultancy inputs, as well as training measures (including an exchange of experiences).

It must be remembered that organizations (SHOs), especially when they have been newly initiated, acquire full competence in performing their tasks only on a step-by-step basis. A distinction therefore needs to be drawn, and taken into account, between the corresponding development phases. Furthermore, the transfer of organizational forms requires particular caution: A resource management committee which

has proven successful in performing certain tasks in region X of a country, might be an inappropriate form of organization in region Y of the same country. Therefore, all that can be transferred is the process of identifying organizational forms which are appropriate to the specific situation.

4.2.2 Awareness-raising, extension and training

Awareness-raising and extension measures should promote an awareness of ecosystems, and of ways in which people can derive benefit from natural resources whilst at the same time managing them on a sustainable basis. This promotes the willingness of local resource users to make their own inputs, and accept responsibility for ecologically-sound land use. However, the success of such measures will remain very limited if they are implemented merely with a view to persuading the population to accept measures which have already been "pre-packaged".

Consequently, in contrast to established practice the NARMS approach calls for different behavior, different forms or methods, and different messages on the part of the extension services:

- ◊ The issue of instructions, or a top-down didactic approach, has to be replaced by a democratic process of dialogue running throughout the project cycle, and constituting a continuous exchange of knowledge and experiences.
- ◊ The commonly-practised transfer of innovations developed in a different context must be replaced by the activation of existing expertise and potentials, and by the provision of assistance in solving organizational problems, resolving conflicts and mobilizing self-responsibility.

An extension approach extended or modified in this way, most importantly to

also include organizational consultancy, as a rule requires extension workers to be assigned at target group level.

These extension workers can thus also perform the key role of contact person, especially in situations where target group organizations have not yet developed the powers of articulation which would enable them to deal directly with institutions at local or regional level. Here too it needs to be emphasized once again that the concrete design of measures will be dependent on the specific situation: In Asian countries, the recruitment of so-called "paraprofessionals" from the villages concerned has as a rule proved highly effective, whereas in Africa extension workers often work more effectively when not assigned to their own more specific socio-cultural context.

In an approach based on participation and process orientation, in which methods such as action learning play a central role, the usual distinctions between "extension/consultancy" and "training" functions disappear. The external consultants and trainers become moderators, organizers and motivators; in turn, the distinction between "teacher" and "learner" becomes increasingly blurred.

This creates scope for the inclusion of local expertise and a process of learning through the direct exchange of experiences. Numerous positive experiences have been acquired in this connection with methods such as "train the trainer", "ongoing training" and "group-to-group extension". Using these methods, isolated positive and innovative experiences can be disseminated far more effectively than via the "traditional" route of external extension inputs.⁷

In many cases it is possible to build on the experiences and expertise of local NGOs when developing extension capacities in line with the above approach.⁸

SHO Management Training (SMT) plays a key role in strengthening the competences and capabilities of SHOs. Time and time again this is neglected, due to training measures' covering only technical and operational aspects, e.g. building stone banks, planting and looking after trees etc..

Important components of SMT are:

- ◊ planning
- ◊ implementation of measures
- ◊ managing money, bookkeeping, including financing
- ◊ organization
- ◊ conflict management, including sanctions and checks
- ◊ cooperation with other organizations and institutions
- ◊ M&E

Assignment of "Paraprofessionals" in the Agha Khan Rural Support Programme (AKRSP) in India

To rehabilitate watersheds in the state of Gujarat in India, the AKRSP is promoting village organizations which are able to plan and implement various measures with increasing self-responsibility. So-called "extension volunteers", who are selected from within the village organization, play a key role. They are supposed to be well acquainted with land-use practices, to be willing to innovate and experiment, and to possess the communicative skills necessary to disseminate positive experiences of the village organizations in the rehabilitation of their watersheds. To prepare for special training workshops, the extension volunteers, with external support, conduct surveys of the resource situation and management practices in their village. At the subsequent training workshop, extension volunteers from several villages present the results of their surveys. The mutual exchange of experiences promotes the development of participants' powers of analysis and discussion. At the same time, it becomes clear which villages have already elaborated possible solution to resource-related problems which can serve as an example to other villages.

Source: Shah, P. (1993)

The specificity of the requirements results from the fact that only a small proportion of the material to be conveyed can be seen as a fixed curriculum. The majority of the material relevant to SMT can only be conveyed in an "action context". Taking "organization" as an example, the requirements here will arise only in relation to concrete activities. The SMT requirement in conjunction with the blocking of erosion gullies, for instance, will depend on the organizational expertise already on hand in an SHO. Where appropriate, SMT has to react flexibly to organizational problems. This points to the necessity of not reducing SMT to the staging of the widest possible variety of training courses, but rather combining it with ongoing consultancy.

Additional requirements for SMT in the natural resource management context result from the need to involve all actors in a given zone, e.g. village or watershed, at least in the decision-making processes. Resource-related decisions in which certain users were not involved can be disastrous, even if the latter are not directly involved in certain activities (e.g. livestock farmers in the creation of erosion control strips).

Special requirements also arise in connection with conflict management, as SHOs are very often confronted with conflicts of interest relating to natural resource management. These situations are found especially in the context of (social) forest management, buffer zone development, and natural resource man-

agement in zones of contact between crop

and livestock farmers.

4.3 Promoting acceptance and a willingness to cooperate

Natural resource management projects often meet with an initially relatively low level of willingness to cooperate on the part of the local population (cf. Section 2.2). There are various ways of tackling this problem, and motivating resource users to cooperate. The specific situation must, however, be borne in mind when applying these instruments and methods. The following description will focus on the impacts on acceptance and willingness to cooperate on the part of the local population, as well as possible undesired effects.

4.3.1 Back-up measures in other sectors

The need to also include measures with a clear short-term benefit, as well as taking into account the medium- and long-term goals, makes it seem appropriate to also address the felt needs of the local population, even if the corresponding activities bear no direct relation to measures of sustainable natural resource management. These activities include measures to support the improvement of water supply or health care provision, as well as group-specific incentives for groups to provide their own inputs (e.g. transport inputs in erosion control), community development funds or individual income-generating measures.

Given an appropriate *modus operandi*, such back-up measures in other sectors can not only increase the acceptance and willingness of target groups to participate in natural resource management measures, but also create necessary preconditions for

their implementation. The following aspects of the promotion of a village water supply project could, for instance, have positive impacts of this type:

- ◊ Labor capacities are released, as the time-consuming process of fetching water is no longer necessary.
- ◊ Incomes are increased through the establishment of vegetable gardens.
- ◊ The population becomes aware of the links between water supply and conservation of resources (trees, soil coverage etc.).
- ◊ Forms of self-organization are tried out which can also be useful in measures of community-based natural resource management (e.g. village development committees).

The last aspect in particular is of major significance, as it can serve to systematically introduce the practice of important elements of the NARMS approach. Discussions with the population should, however, always link back-up measures in other sectors to the long-term objectives specific to natural resource management. Otherwise there is a risk that measures of this kind may ultimately prove counterproductive. Back-up measures in other sectors must not, for instance, take on a "life of their own", such that they take up too much of the population's (and the project's) energy, diverting it away from the tasks of natural resource management. This risk also results from the fact that measures which are effective in the short term are more popular, and often also easier to implement. The risk of unintended side effects which might ultimately hinder sustainable natural resource management should also be borne in mind.

Circumstances will therefore sometimes arise in which there will be no alternative but to (partially) cover needed investments with resource transfers, in order to prevent the further degradation of locally available natural resources.⁹ In cases of this kind, the local population may gain the wrong impression as regards the resources available to them, which may tempt them to then treat those resources with inappropriate carelessness!

The implementation of back-up measures in other sectors requires a coordinated approach involving a variety of institutions and organizations (cf. also Section 4.2 in this connection).

4.3.2 Subsidies

As a rule, back-up measures in other sectors are implemented with subsidies (from project or other public funds), which increases the incentive to the local population considerably. Other cases are also conceivable in which subsidies without any direct quid pro quo might be an appropriate instrument to promote acceptance and a willingness to cooperate in projects of natural resource management. Such cases would presuppose that

- ◊ given the population density, the potential resource base would not be adequate to sustainably satisfy the basic needs of the population purely on the basis of local resources, even under improved forms of management, or
 - ◊ that certain individuals or groups would adopt as yet untested methods or instruments of improved resource management on a trial basis, although they could not be burdened with the associated risk. (This is a borderline case between subsidy and compensation, which will be dealt with in the next Section).
- In principle, subsidies are an appropriate means of at least reducing the tension between the conflicting interests of poverty alleviation and the sustainable management of natural resources. They also serve as a "vehicle for manoeuvre" when negotiating compromises in the event of conflict. They can, however, be employed counterproductively if the following points are not borne in mind:
- ◊ There is a great risk of creating artificial conditions which do not correspond to the real degrees of shortage of the available resources. This makes it more difficult for target groups to realistically assess the situation. The "solutions" elaborated under such conditions may be neither sustainable nor broadly effective. This risk can be countered to some extent by household- or farm-based cost-benefit analyses, which can be used to calculate the appropriate scope of subsidies. These analyses can also be used in specific instances to demonstrate where subsidies are warranted, and to verify (ex post) their efficient use.¹⁰
 - ◊ Subsidies must not be understood either by the institution paying or by the recipients as an attempt to buy good behavior with "gifts", i.e. subsidies should not be used as the "carrot" (as opposed to the "stick") to protect certain natural resources. Subsidies of this kind often do not even change the behavior of the population in the short term, let alone permanently. The beneficiaries of subsidies granted in this spirit rather tend to gain the impression that the project is corruptible.
 - ◊ Subsidies can cause the population to lose sight of the necessity of their making their own contribution, and can lead to a typical "recipient behavior".
 - ◊ Undesired distribution effects can arise in cases where inadequate consideration of the socio-cultural context

leads to groups other than those intended becoming the de facto beneficiaries.

The latent dangers of abuse and misunderstanding in the use of subsidies can be best prevented through a participatory approach: By negotiating solutions to problems with all participants, the purpose of subsidies can be explained to those concerned and placed in the wider context of a comprehensive approach to improved natural resource management, to which the population themselves also make an important contribution, according to their capabilities. In this context, a participatory approach also implies having the courage to accept conditionality, i.e. the tying of certain conditions to the granting of subsidies. This can also mean that the population concerned demonstrate their willingness and capability to make their own inputs and organize themselves, by providing inputs in advance. This often creates a sounder basis for dialogue with the population than do well-meant but very soft conditions.

4.3.3 Compensation measures

In the context of natural resource management projects, we understand the term "compensation measures" to mean all political, economic and social inputs designed to compensate for previous or future constraints on resource use. Ultimately, compensation measures aim to relieve pressure on the ecosystem, and are conceivable in a variety of forms: as income transfer, measures to help establish livelihoods placing little or no strain on local resources (which might include financial assistance for resettlement, retraining or investment), or politico-legal measures providing compensation for constraints on use of a particular kind.

Similar to subsidy payments, the conditions for compensation (nature, scope, duration

etc.) need to be negotiated with the concerned persons and groups, which often requires intensive dialogue. It is to be assumed that the hitherto resource users will attempt to negotiate the highest possible price in return for the needed constraints, whilst the actors interested in the long-term and superordinate goals will wish to keep the compensation within reasonable limits.

In view of this situation, projects of nature conservation, and buffer zone development in particular, have in most cases decided to pursue a policy of avoiding direct negotiation of compensation, preferring rather to invest in back-up development measures designed to perform an indirect compensatory function (cf. PZE study). This approach has tended to turn direct compensatory measures into back-up measures. Another way out of the above-mentioned dilemma involves seeing compensation not only in terms of the direct transfer of money or resources: "Participation" in the sense of sharing in the benefits of a resource can, for instance, not only motivate the population to treat that resource more carefully, but often can also enable them in material terms to make a significant contribution toward the conservation of natural resources.

Examples of this include the participation of the population in revenues from tourism, the protection of hunting and fishing rights, and rights of use over forest or pasture land. Agreements of this kind are integrated into a collaborative management strategy, which allocates specific tasks to both the population, and the responsible (governmental) institutions. In cases such as these, the "compensatory transaction" consists of rights being granted, in return for the recipients' accepting responsibilities, or respecting the rights of others.

As well as providing resources by way of replacement, compensation might also include the implementation of intensification measures where constraints have been

imposed on resource use. (Possible measures of this kind are outlined in Section 4.3.4).

Community Wildlife Management

In the buffer zone of the Selous Game Reserve in Tanzania, at some 50,000 km² the largest game reserve in Africa, the local population have been granted controlled game hunting rights. The slogan of the GTZ project "Selous Conservation Programme (SCP)" regarding the resource which it aims to conserve, i.e. wildlife, is "Use it or lose it." So-called community wildlife committees conduct the hunt, ensure that the shooting quotas are complied with, and then sell the meat in the village. The profits are fed into a village fund, designed to provide long-term financing for village development measures. In former times the population had been excluded from all wildlife management activities, the consequences of which were poaching by outsiders, and uncontrolled hunting. Populations of individual species, e.g. the elephant, were endangered. Since community wildlife management was introduced, poaching has declined considerably, due to the fact that the population now derive direct benefit from the resource and therefore have an interest in conserving it. In the long term, it is conceivable that the approach could be further elaborated such as to allow the population to sell their hunting licenses to tourists. This would mean a considerable increase in village income, and thus make possible more cost-intensive village development measures.

Source: Baldus, R.D. (1994)

4.3.4 Importance of technologies and methods producing short-term impacts

Measures to promote the acceptance of natural resource management include concentrating (initially) on technologies, procedures and methods which produce clear benefits to resource users within the shortest possible time, in the form of labor saved, improved income or even social prestige. The aim here is to select from the broad range of methods of more efficient resource management, those which have been elaborated in conjunction with approaches such as conservation-cum-production, agroforestry, water harvesting.¹¹

Using methods of this kind, it is often possible to achieve increases in output in

the relatively short term - whilst at the same time stabilizing natural potentials. Achievements of this kind benefit the local population not only by creating additional capacities in the form of income and time available, but also by increasing considerably their motivation. Therefore, at the beginning of a resource management project, priority should be attached to these methods over measures whose effects are more long-term, even though such methods might appear to represent a "detour" away from the purpose of the project.

Close cooperation between professionals from the social and natural sciences is particularly crucial in the selection of improved, i.e. appropriate technologies and methods which produce short-term benefits.¹²

4.4 Participation in implementation

"Participation" as a strategic element of the NARMS approach is "indivisible", i.e. active participation by the population cannot be confined to individual phases of a process of change. It is rather the case that participatory planning (cf. Section 4.1) creates the framework for participation in implementation. And only by participating in the implementation of measures are the concerned groups enabled to properly evaluate these measures themselves at a later date.

The participation of target groups in the implementation of natural resource management measures is therefore an important component of the NARMS approach, and must not be seen primarily as one aspect of the material input required of the population, because:

- ◇ Participation in implementation which is integrated into the action learning process provides target groups with the hands-on experience, on the basis of which their existing expertise can be enhanced, and their behavior modified.
- ◇ Active participation in the implementation of measures enables the local population to gain experience which will eventually help them to perform key tasks of (local) resource management on their own responsibility. The transfer to target groups of responsibility for tree nurseries (including their commercial exploitation) has proved particularly

successful. Other possibilities include for instance the manufacture of gabions, the provision of services (transport) or paid work as extension worker or guard.

The participation of the local population should therefore develop increasingly into their performing management tasks on their own responsibility. This is the only way in which the local population in question might develop a lasting interest in the sustainable management of natural resources. Corresponding competences and capabilities will need to be built-up on a step-by-step basis (cf. Section 4.2). This also includes appropriate regulations governing rights of use, to enable the local population to actually perform the management tasks for which they have assumed responsibility. This is especially relevant to the participatory management of commercially exploited and protected forest areas.

The question of whether and to what extent participation in implementation measures should be considered a component of the population's own inputs, or whether there should be some consideration, will need to be carefully examined in the given context. If the target groups are also participating actively in some other way, there might be grounds for restricting demands for financial inputs, to avoid siphoning off the purchasing power - usually weak enough as it is - of the target groups.

4.5 Conflict management

In an action-oriented approach, the management of conflicts (conflict management) requires an analysis of the situation (survey), which should be carried out primarily by the involved persons. On that

basis, possible strategies can be elaborated, and implemented by applying appropriate instruments.

Key ideas underlying this approach are:

- ◆ Conflicts are normal, and also conceal positive aspects, as they also release creative forces.
- ◆ The problem is not only the conflict itself, but also the difficulty of solving it.
- ◆ The real causes (motives, emotions, affinities etc.) of the conflict must be made transparent, otherwise it will be impossible to reach a consensus.
- ◆ All participants in the conflict management process must be granted an opportunity to articulate their point of view.
- ◆ All participants must be given an opportunity to articulate on an equal footing their ideas on how to solve the problem.
- ◆ Where conflicts have been caused by participants, this can be an important indicator of their capability to act on their own responsibility with a view to achieving specific goals.

Instruments which can be applied within the scope of conflict management include:

- ◆ the survey/situation analysis, which applies the tools of participatory information gathering and planning;

- ◆ neutral mediation, which facilitates the process of negotiating the resolution of conflicts;
- ◆ facilitation, e.g. the creation of a neutral forum for negotiation; facilitation of existing but still inactive conflict-solving mechanisms; information transfer and creation of transparency; facilitation is highly significant in natural resource management projects.

Projects of development cooperation occupy a special position here, especially since a balance needs to be struck between the

- ◆ demands made on the project by the actors:
 - ◇ What role should the project play?
 - ◇ What external inputs should be provided and how?

and the

- ◆ capabilities and role as seen from the perspective of the project itself.

In the context of conflict management, projects should confine themselves to the role of facilitators of the resolution of conflicts. Whilst it is undoubtedly beyond the means of projects to act as arbitrators or negotiators, it would appear appropriate for them to provide a neutral forum for negotiation.

4.6 Monitoring and participatory evaluation of the project process

Monitoring and participatory evaluation are key components of learning- and process-oriented project management: All participants learn from the experience of observing the implementation of measures and the effects produced (monitoring). They also learn through a process of joint reflection on the results of their own actions

and those of others, as compared with the objectives set during planning (evaluation).

The NARMS approach includes all the actors of a natural resource management project in the M+E of the project process:

- ◇ the client (KfW, GTZ etc.);

- ◊ the national project institution;
- ◊ the project personnel;
- ◊ the consultants external to the project;
- ◊ the users/beneficiaries of project inputs ("target groups").

Alongside the "traditional" methods of evaluation, the instruments and methods mentioned in Section 4.2 also come to the fore, in order to guarantee the participation of all actors, and in particular the resource users. This clearly illustrates that the active participation of target groups is intended to include all stages of resource management measures from planning, via implementation through to evaluation.

Where planning is non-participatory, target groups are hardly likely to see any incentive to take part in participatory evaluation. It is therefore a key aim of participatory evaluation to promote powers of expression and articulation. This creates the framework for critical analysis of the implemented measures, and agreement on

any necessary adjustments or rethinking. The more intensive the participation of the target group is at this stage, the greater will be their willingness to assume responsibility in putting the adjustments or new ideas into practice.¹³

This largely "open" approach to planning, taking into account a large number of variables and imponderables, requires continuous feedback. This makes possible a realistic and timely reevaluation of the original situational context and the planned objectives, and corresponding decisions at the action level.

Participatory M+E of the project process can only perform its function of complementing the open approach to planning provided that the "responsible project officers" do not see M+E primarily as an instrument of control. This would destroy the participants' willingness to admit, accept and learn from mistakes, which is important.

5 The NARMS Approach as Exemplified by the Forestry Sector

The NARMS project has focused on the resource "trees". Correspondingly, an attempt will now be made to illustrate the consequences and potentials for the design

of measures which can arise from implementation of the NARMS approach, taking the forestry sector as an example.

5.1 The typical situational context of the forestry sector in developing countries

Characteristic of the forestry sector in developing countries is the rapid decline in forested areas, and the consequent reduction in the manifold social and ecological functions performed by the forest.¹⁴

A large number of different actors with divergent interests participate in the forestry sector. Overall, it can be said of almost all actors that their use of forest resources tends to be of a destructive nature.

As can frequently be observed in Southeast Asia for instance, the process of natural forest destruction often begins with commercial logging by concessionaires. As a rule, the practices employed are not consistent with the ideal of sustained-yield forest management (e.g. with respect to annual yield, development and harvesting techniques, regeneration). This is followed by agricultural settlement by the population of the secondary natural forests which arise, facilitated and favored by the preceding development of the area (e.g. through road construction). Mixed forms of agricultural and forest management then become an exception, the land usually being transformed completely into cropland. However, the felling of firewood and the collection of building timber are also significant factors in this process of destruction.

The reasons for this degradation of natural resources by the population, with its numerous immediately visible (erosion, silting-up of darns, firewood shortage) and longer-term consequences (desertification, climate change), are of a highly complex nature. Monocausal explanations are of as little use in explaining them as monosectoral approaches, or approaches confined to technical issues, are at addressing them in the context of development cooperation.

In densely populated tropical regions, for instance, population growth is one crucial factor. Resources used to be considered "infinite"; although slash-and-burn was land-intensive, it was considered a thoroughly appropriate land-use system; firewood was available in excessive quantities and close to the village. Rapid population growth is now causing people to feel the effects of the finite nature of the resource "trees", although this has not yet led to a change in the management of natural resources. Not without good reason, therefore, are there calls for natural resource management projects to be supported by family planning measures. This support would also include selectively changing the framework conditions which cause population growth.

Destructive use of resources is also put down to the behavior of the local population being a response to a state of confusion over land ownership rights and rights of use. Unless and until these rights are protected and upheld, sustainable management will be difficult to achieve. Were the local population to be granted a long-term right of use over forests, and were they to be supported in developing the already existing yet partially neglected economic potential of the forests, i.e. not only producing timber and firewood, but also processing and marketing so-called non-wood products such as honey, medicinal herbs, nuts etc., this would create a renewed interest in the conservation and sustainable management of the remaining forests.

An approach of this type runs counter to natural forest policies of the past. These focused less on the local population's rights of use, and more on the exploitation of what was believed to be the only raw material produced by the forest, namely wood. Instead of involving the local population in the management of the forest, rights of use were granted to timber concessionaires from outside, whose interests were also looked after by the local representatives of the forest administrations. Although the type of forest management promoted by development projects did take into account the needs of the forest, it failed to take into account the needs of the population to the same extent. These projects focused on the technical

aspects of production (in which the "trees" were considered the "target group").

Reafforestation measures were also centered around the tree as a producer of wood. Targets were, and still are, "reafforested areas" and "exploitable timber mass". In line with this perspective which focused purely on the technical and economic dimension, preference was given to the planting of fast-growing species (eucalyptus, pines etc.), the choice of species being determined primarily by the development of the tree stem (as opposed to branches, fruits and foliage).¹⁵

The majority of the (rural) population have no interest in the conservation of such forest areas, as they are as a rule legally excluded from using them, or lack the corresponding means/capabilities to participate in that use. But what is more, the one-sided management of these forests for timber production means that they do nothing to satisfy the diverse needs of the people (for food, medicinal plants, beverages, animal fodder, clothing, building materials, fuel, resin - as well as religious rites). This leads to the local population refusing to cooperate, and not infrequently causing obstruction, which forest administrations have tried to confront with controls and sanctions, sometimes going as far as to inflict paramilitary punitive measures. Needless to say, this has not brought any sustainable solution to the problem of the progressive destruction of the resource.

5.2 Consequences of the NARMS approach for forest management projects

A systemic understanding is the key to a multidimensional approach

A systemic understanding of "development" means that the one-sided reduction of the system component "tree" to its function of

timber production for commercial gain has to be abandoned in favor of a multidimensional approach. This means focusing on the social (e.g. income, savings, firewood, forest by-products, recreation) and ecological (e.g. water

balance, CO₂-binding, biodiversity) functions of the forest, which enjoy priority among the various actors. It then becomes clear that complex relationships exist between trees, the various actors (e.g. with respect to management, social organization, culture, institutional organization), fauna, flora and other natural resources. A systemic understanding therefore implies an approach which attaches equal importance to the biological and technical, as well as the socio-political and socio-economic interrelationships which come into play.

The significance to human beings of the resource "trees" is always situation-specific. The historical context, ecological zones, and many other factors (specific to the time and location in question) have always played a key role. This can be illustrated by means of a few examples: In semi-arid zones of India, small farmers plant trees as a "buffer" to protect against risk during years of drought; in regions of high rainfall, these trees provide a regular source of pecuniary income. Or: In many areas of Africa, permanent land ownership can be claimed by planting trees; in India, deforestation is often the only way to prevent the nationalization ("protection") of private land. Even within a given village, trees can also have a different meaning

and different value to different people: The livestock farmer is interested in leaves as fodder, whilst the crop farmer might see a tree stand either as a hindrance, or as an occasional source of additional income; to the craftsman it represents an essential raw material, to women an important basis on which to provide for the family etc..

With respect to the forestry sector, therefore, it is the task of the NARMS approach to identify the complex interrelationships between trees and people, and to take appropriate account of these relationships with a view to achieving sustainable natural resource management.

Participatory survey and planning

The situation analysis is also an important element of the NARMS approach in this context. It is crucial here that the spectrum of the many actors with their divergent interests, and the tensions created by the conflicts which arise, be made transparent to all participants. Although the ZOPP process does include a participation analysis, this is usually not sufficiently comprehensive or precise. An analysis of actors and forces at work, and methods of PRA, provide a deeper understanding of the situation.

Characteristics of the Actors Relevant to the Project and Possible Sources of Conflict

<u>Actor of conflict</u>	<u>Type</u>	<u>Role</u>	<u>Potential source</u>
farmer	direct user	collaborator	overstretched
wood gatherer	direct user	illegal user	forest nursery
timber industry	indirect user	employer	overexploitation
forest administration	governmental institution	supervisory body	neglect
ministry	political institution	project development	setting of priorities

The characteristics of the relevant actors can either be identified using participatory methods, or these methods can be used to complement others. In a further step, the potential influence of the project on the actors can be elaborated.

Simplified overview and comments by: *Brockmann, W. (1994)*

It is also essential to carefully investigate the institutional environment, especially with a view to identifying potential partners in cooperation. This is all the more important where governmental institutions (e.g. forest service) are no longer able to fulfil their mandate due to structural or financial deficits, and institutions therefore need to be found which can perform tasks on a subsidiary basis. Instruments and approaches of organizational consultancy, such as the analysis and mapping of "organizational landscapes", are appropriate tools in this context.¹⁶

The situation analysis, which should be conducted using chiefly participatory survey methods (e.g. PRA), provides a basis for decision-making with the concerned actors in the subsequent planning process.

These decisions may relate to technical measures, e.g. selection of varieties, sites (and planting intervals), protection and cultivation measures, or the selection of technologies to be employed. The closer these decisions fall into line with the manifold needs (or specific anticipated forest functions) of the target groups (subsistence, increased income, social security/risk minimization, capital accumulation/"savings bank"), and harness capabilities (especially locally-available expertise), the less difficulty will be encountered in the implementation of forest management measures. The local population will then have both the necessary motivation, and the additional competence required to participate in measures of conservation and sound management.

On this basis, additional skills and competences can be developed, enabling the population to gradually assume responsibility for forest management. This will gradually relieve the pressure on the project and the responsible institutions.

Decision-making in the planning process will continue to be closely linked to the processes and structures of social organization, which is essential if resource management is to be performed by the population.

Other requirements in the planning of projects relate to the understanding of the project as a process, and the consideration of the direct needs of the population. Here, emphasis should be placed not on detailed and final long-term planning at the level of activities, but on short- and medium-term planning in line with the given situation. This is a lesson learnt from natural resource management projects, namely that the constantly changing framework conditions and unpredictable results of such projects call into question whether they can actually be planned on a long-term basis at all, as this would presuppose a continuity of the status quo. This by no means implies, however, that the planning of forestry projects should be divorced from set targets. What it does mean is that a more flexible, iterative approach should be pursued, and adapted in line with the constantly changing environment.

Natural resource management measures often have to be backed-up with activities to address problems felt to be a priority by the population. This might for instance include village water supply, or improved access to markets. Small measures of this kind run the risk of taking on a life of their own (and becoming an end in themselves). Their appropriateness therefore needs to be carefully examined. On the other hand, they can prove helpful in creating a spirit of trust between the population and the project. They can also be used to transfer and consolidate capacities and capabilities which are essential for natural resource management in the long term (e.g. planning, bookkeeping, marketing).

Another possibility is to use these measures to create alternatives to resource use.

Such alternatives need not necessarily be in the primary sector, but might include for instance the promotion of handicrafts or small-scale enterprises. Forestry projects would then become programs rather than projects.

Local capacity building

Neither government-run forestry operations nor private-sector ones geared to maximizing profit are suitable for involving the local population in the management of the resource "trees" on an appropriate basis.

Application of the NARMS approach includes the option of transferring, within the scope of development cooperation, extensive responsibility for management of one resource to user groups acting within the specific context of their life situation. For example, in one village the women might form a group, in another the livestock farmers, and in a third the crop farmers, with a view to maintaining or increasing the tree stand. This creates a close link between production, conservation and utilization within a farming community. Where such links exist, groups can also be formed on the basis of criteria such as age, or common occupation of a geographical area.

As well as community-based groups, therefore, NARMS can also lead to a broad variety of forms of social or farming organizations: family agroforestry, women's groups, age groups, group farm forestry, watershed forestry groups, or even forest cooperatives. Which organizational form is appropriate will depend on the specific situation. One key element is therefore building local capacities of the population and institutions. This also includes developing human resources (raising the

awareness and training of forestry experts with respect to issues of social organization).

The customary practice to date of tying development cooperation activities to governmental institutions makes an approach based on dialogue and participation more difficult. Whilst in many countries (e.g. in Africa) forest services no longer exist, are being dismantled or are no longer operational, forest services' understanding of their own mandate and definition of tasks to date (e.g. chiefly policing and fiscal functions) in some countries can pose an obstacle to the creation of a spirit of trust among the population. In addition, experts of these institutions are also confronted with approaches and tasks (e.g. buffer zone development, social forestry, joint forest management) for which they are not (yet) adequately trained. Where forest services do exist it is therefore important to work towards transforming them into "service structures" for user groups (providing technical extension inputs, assistance).

In countries with weak governmental structures at local level, it may be appropriate to carry out measures of institutional development to establish subsidiary service structures at the target-group level. The aim here will be to establish institutions which can perform (some) tasks of the forest service on a complementary or subsidiary basis. It is essential that they do not compete with the forest service, but are rather seen as being there to relieve the workload. Experiences to date would indicate that the concerned actors must possess an acute awareness of the problems, as well as strong self-help potential, if the idea is ever to come to fruition and the institution ultimately established on a sound footing.

Service Structure at Village Level in Mexico

One example of a service structure of this kind is the non-governmental forest extension service in Quintana Roo (Mexico), which is financed and maintained by the ejidos (villages). The driving force behind its creation was the dissatisfaction of the population, who were of the opinion that the government forest service was not looking after their interests. Encouraged by the favorable framework conditions, the profitable management of the forest areas owned by the villages, and by a GTZ project which recognized the development impacts of a structure of this kind, the population succeeded in establishing village-owned extension services in place of the government one. Significant here is the fact that these extension services are accepted politically and administratively, and continue to be financed by the villages themselves.

Incentives and compensation measures

The drawback which many users associate with forestry projects, namely that the labor and other inputs invested do not bring any return until years later, can at least be partly reduced through the appropriate selection of species, intercropping, alley-cropping, agroforestry and other methods, which yield significant benefits within a relatively short period. At least for the first few years (i.e. until the trees have reached a certain size), for instance, the plantations can also be used for crop farming or horticulture, or shrubs and grasses can be utilized for housebuilding or industrial purposes. All this is conducive to breaking down negative attitudes toward long-term

investment in natural resource management.

A number of income-generating activities are also conceivable, given that financing (e.g. from a forest development fund) could be made available for the purpose or interested user groups were to have corresponding funds at their disposal: the planting and maintenance of tree nurseries, manufacture and erection of fences, forest tending and conservation measures. Other incentives might include tax concessions on land used for forest as opposed to other purposes,¹⁷ the promotion of a market for secondary forest products, of the payment of premiums, measured not according to the number of trees planted, but the number surviving (to about 3 years of age).

Forest Development Funds

In village forest management, it is advantageous if a village fund is set-up to finance the protection, tending, regeneration etc. of the forest. This fund is maintained through income from the sale of timber and/or miscellaneous forest by-products. Experience has shown that without "compulsory reserves", the funds needed for sustained-yield management will not be put aside.

The most important incentive, however, is the certainty of a legal entitlement to the return on labor or other inputs invested. It is therefore of central importance that clear agreements be drawn up within the user

groups, and above all also between them and the responsible forest administration. These agreements must stipulate the nature, scope, time and duration of use.¹⁸ Although land ownership rights are worth

striving for, they are by no means an absolute necessity. Rights of use are also significant incentives, although these can also be granted in return for labor performed, the provision of complementary resources (e.g. water), or for social reasons (hardship cases). In some cases it will be possible to draw on traditional arrangements governing use, with which the local population will be familiar.

In the course of the negotiations leading up to arrangements of this kind, agreement must be reached on the issues of how far the forest service will allow the population to participate, how far the population wish to be involved, and how much responsibility they are able, and willing, to assume.

Compensation measures may be important in cases where important basic needs or the livelihood of population groups is threatened by their refraining from using local resources (e.g. as a result of the loss of income from the sale of wood and charcoal). In such cases, economic alternatives will need to be discussed with the concerned groups, and promoted. In the event of an acute firewood shortage, the cheap sale of wood imported from other regions may also be necessary (on a temporary basis).

Conflict management

As regards the potential sources of conflict which may adversely affect natural resource management projects, the con-

sequences of the organization of user groups are ambivalent: On the one hand, the relatively homogeneous groups will facilitate the achievement of consensus regarding the measures to be implemented, the monitoring of decisions taken and agreement on rules to govern resource use.

On the other hand, however, the promotion of user groups might also lead to a situation in which groups - often for the first time - become able to articulate and collectively assert their interests. This might lead to serious conflict situations, which natural resource management projects will need to address accordingly.

Often it will first be necessary to create the framework for negotiation and conflict management. In this context the project can act as a facilitator, organizing committees to facilitate communication and conflict management between the various actors. A project of development cooperation should not aim to solve the problem itself, but rather to facilitate mechanisms of conflict management.

NGOs can play an important role in this respect, as they form the "interface" between local user groups, and governmental and other institutions of the formal sector. (Cf. for instance the positive role played in this connection by the social centre in the Participatory Watershed Development Project in Maharashtra, India).

6 Institutions of German Development Cooperation and Application of the NARMS Approach

Natural resource management projects are confronted with complex problem situations, for which the NARMS approach has elaborated possible ways of finding solutions. These approaches reflect the paradigmatic shift which has taken place in development cooperation, characterized by a greater regard for complex, systemic relationships, a growing significance of participatory and process-oriented approaches and methods, a new understanding of learning and teaching, and a sharp focus on issues of institutional and organization development.¹⁹ In this context, innovative elements have already been developed over the last few years by

all institutions of German development cooperation, in connection with other current problems. To some extent at least, these elements have been operationalized, in fields such as primary health care, rural water supply and rural development. The experiences gained can also be utilized in the context of natural resource management.

The following overview is designed to give the reader an idea of the most important innovative elements and approaches on hand or being developed in the context of German development cooperation, which are of relevance to NARMS.

6.1 German Federal Ministry for Economic Cooperation and Development (BMZ)

In its "Tropical Forest Sector Paper" of January 1992, the BMZ elaborated key concepts which are especially conducive to application of the NARMS approach:

- ◆ Technical measures of natural resource management are only likely to succeed if the framework conditions are being influenced and the population are actively participating at the same time; the latter condition requires socially compatible forms of natural resource management designed to secure the livelihoods of the local population.
- ◆ The long-term nature of forest protection and management measures, and the processes of rethinking and adjustment necessary among both target groups and governmental institutions, neces-

sitate "process-oriented" approaches and a high level of continuity of cooperation and support.

- ◆ The efficacy of projects of sustainable forest management can be enhanced by linking-up the various instruments of German development cooperation.²⁰

Particular emphasis has been placed here on the "Tropical Forest Sector Paper" due to its topicality and special thematic relevance to the NARMS approach. A number of other BMZ sector and strategy papers have elaborated development-policy guidelines which already contain key elements of the NARMS approach.²¹

A number of the guidelines drawn up by the implementing organizations of devel-

opment cooperation have already incorporated key concepts from the above-mentioned papers; these create scope in particular for a certain flexibility in the planning and implementation of natural resource management projects, and close cooperation among the various institutions in corresponding programs. This broader approach to the planning process is of particular significance for Technical Cooperation.

One important innovation is the updating of country strategies in the course of implementing the results of UNCED, or more specifically Agenda 21, which are based on analyses of the prevailing conditions in the respective developing countries. Where appropriate, these analyses permit assessment of the chances of success of the NARMS approach. This provides a starting point for improving those chances of success within the scope of "political dialogue".

6.2 Kreditanstalt für Wiederaufbau (KfW)

Targeted efforts have been under way for several years at the KfW to operationalize development concepts which are of special relevance to approaches designed to improve natural resource management. These include in particular the application of socio-cultural criteria in the course of project evaluation, and the integration of self-help approaches into projects of Financial Cooperation.²²

An approach to natural resource management based on self-help and participation gains particular relevance to FC where it appears appropriate and is desired that the local population participate in the design/installation, operation and maintenance of the infrastructure to be financed, and that they do so through an organization of their own. In cases such as this, self-help organizations not only participate actively in the planning process, but also perform some tasks which in a

"traditional" implementation scenario would be the responsibility of governmental or private project implementing institutions. Whether and to what extent the given framework is appropriate for such implementation arrangements will need to be established during the project appraisal, through corresponding target group and institutional analyses. This will result in a specific profile of requirements placed on the consulting firms commissioned by the project country with project planning, and financed by the KfW.

The increased involvement of user organizations in the preparation, implementation and running of projects of Financial Cooperation will result in a broad spectrum of potential project institutions. Alongside governmental and parastatal institutions, local NGOs are now taking on this role to an increasing extent.

6.3 Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH

The term "system management" was first officially introduced at the GTZ in 1992, to denote a process-oriented, multisectoral

and long-term understanding of and approach to the planning process.²³

There can be no doubt that the implementation of this understanding is at its most advanced in the context of the regional rural development (RRD) strategy elaborated at the GTZ in 1983, and updated in 1992.²⁴

The document cited above contains numerous ideas and recommendations of relevance to natural resource management projects, e.g. on

- ◊ typical problem constellations in RRD projects, with reference to natural resource management;
- ◊ strategic elements of RRD programs which focus on natural resource management;
- ◊ consequences for the approach to natural resource management pursued by RRD programs.

The RRD and NARMS approaches do, however, focus on different aspects, in particular due to the poverty-orientation specific to RRD, and with respect to the combination of measures with short-term and long-term impacts, and the spectrum of target groups addressed. As compared with the very broad RRD approach, the NARMS approach allows projects to focus more sharply on natural resource management, and thus to identify and adapt more precisely the instruments and methods to be applied.

Alongside the mentioned conceptual innovations of particular relevance to NARMS, new methods of open and flexible planning have also come into force at the GTZ.²⁵ Consequently, alternatives to the previously standard appraisal procedure are now available, especially for natural resource management projects:

- ◊ provision of consultancy services to an existing institution on the design of the project;

- ◊ identification and development of the concept and institution (within the scope of a preliminary phase of up to 6 months);
- ◊ implementation of an open orientation phase to elaborate an implementation strategy jointly with the institution(s) and target groups.

This wider understanding of the planning process has now been integrated into the context of an elaborated management strategy for the planning, steering and implementation of TC projects: management within the project cycle. This imposes the general requirement of planning and designing the inputs to be provided within the scope of a project such that they satisfy an actual demand of the target population, strengthen and develop self-help capabilities, and guarantee the sustainability of the improved situation which they help bring about.

Above and beyond this general requirement, NARMS also interfaces with management behavior in the concrete project situation: the management process must take on an iterative form in order to be able to subject agreed objectives to constant review and adaptation, should they prove to be no longer realistic or appropriate. This creates a framework more conducive to the participatory NARMS approach.

In more general terms, the application of participatory survey and planning methods in TC projects is also moving higher up the agenda at the GTZ. The methods of PRA (participatory rural appraisal) and participatory land-use planning are particularly significant in this context. Natural resource management projects lend themselves naturally to the application of such methods.

6.4 German Development Service (DED)

Innovative elements in the design of DED programs suggest that the NARMS approach is likely to be applied more often in future. One key indicator of this is the fact that NARMS has been incorporated into country programs as a key approach to development cooperation. The assignment of experts is also being better networked to take account of NARMS.

This is designed to enable the DED to make an efficient contribution to areas of cooperation which involve such complex demands as natural resource management. The NARMS approach has now also been widely integrated into the planning activities of the division for agriculture, protection of the environment and conservation of natural resources.

A context favorable to NARMS-specific approaches is also being created by the recent stepping-up of efforts to win as partners in cooperation the local NGOs and

SHOs which the DED terms "autochthonous organizations and self-help initiatives" Within this framework, DED experts can act as NGO extension workers, and small-scale measures can be financed from self-help funds. NGO measures can also receive direct financial support.

Efforts to step-up cooperation with the other institutions of German development cooperation have made the furthest advances: The cooperation agreement with the KfW signed in early 1993 provides for mutual support, not least in the field of conservation of natural resources in rural areas. The DED's aim in this connection is to promote local institutions, with a view to enabling them to act as partners in TC and FC in later projects of official development cooperation. To help enable experts to properly perform this task, issues of NARMS are being included to an increasing extent in preparatory activities both in Germany and in project countries.

Notes

- 1 Wherever the term "resources" is used on its own in this Paper, it should be understood to mean "natural resources" It will not be used to mean secondary (e.g. financial) resources, or human resources
- 2 Initiatives such as the CHIPKO movement in India or self-help movements in Brazilian Amazonia should rather be seen as exceptions.
- 3 The Chuna Forest Development Project in Nepal is one such example
- 4 RRA and PRA and their potential applications are dealt with in detail in "Partizipative Erhebungs- und Planungsmethoden in der Entwicklungszusammenarbeit: Rapid Rural Appraisal, Participatory Appraisal. Eine kommentierte Einführung." GTZ, Eschborn, 1993.
- 5 Cf. ENDA-GRAF. "Avenir des Terroirs La Ressource Humaine". Dakar, 1992. (An English version, published by Intermediate Technology Publications, is forthcoming).
- 6 Examples include traditional lagoon fisheries in Sierra Leone, pasture management by the Masai in East Africa, and the communal management of water resources in some areas of Pakistan
- 7 Cf. Landwirtschaftliche Beratungszentrale Lindau/DEH (Eds.): "Landwirtschaftliche Beratung - ein Leitfaden für Beraterinnen und Berater im ländlichen Raum." St. Gallen, 1990.
- 8 Cf. MISEREOR (Division for Rural Development): "Nachhaltigkeit durch standortgerechte Landnutzung. Ein Konzept der ländlichen Entwicklung." Aachen.
- 9 A self-help project in Tanzania found that the stones procured by the local population as their own contribution to the building of schools had originated from river courses, which subsequently eroded severely. The building timber provided by the population could only be obtained by more intensive deforestation (Cf. the Project Progress Review of the "Village Development Project" in the Tanga Region, 1992).
- 10 In relation to the macroeconomic level (for instance the entire project region), subsidies cannot be analyzed by household- or farm-based cost-benefit criteria, but should rather be seen in terms of their contribution toward the sustainable management of natural resources and the sustainable improvement in the quality of life of the population (The so-called "benefit analysis" is one method which might be applied here).
- 11 Cf. as example: Department of Environment and Natural Resources (DENR), International Institute of Rural Reconstruction (IIRR), Ford Foundation. Agroforestry Technology Information Kit Silang, Cavite (Philippines), 1990
- 12 Particularly positive experiences have been acquired in this connection with the "Participatory Technology Development (PTD) Approach"; cf. Reijntjes, C./Haverkort, B./Waters-Bayer, A. Farming for the future - an introduction to low-external-input and sustainable agriculture. Macmillan, London, 1992.
- 13 The concept of participatory M+E is discussed in more detail for instance in:
 - (a) GTZ, Die partizipative Evaluierung. Eine Bestandsaufnahme. Eschborn, 1988.
 - (b) Direktion für Entwicklungszusammenarbeit und humanitäre Hilfe (DEH). Spiegeln, Spiegeln an der Wand. Zum Thema "Selbstevaluation" in der Entwicklungszusammenarbeit. Berne, 1990.
 - (c) For a positive example of self-evaluation, see Harder, M. (GTZ): Launching a self-evaluation process in farmer organizations. Report on a consultancy. INTERCOOPERATION Self-Help Support Programme; National Development Foundation. Colombo, 1991.
- 14 Cf. Konzeption und Handlungsfelder des Arbeitsfeldes Waldwirtschaft. GTZ, 1993.
- 15 Investigations in India have revealed that the eucalyptus, planted preferentially in government forests, produces an average of 17.4 tons of dry biomass/ha, of which stem and bark account for 81%, and leaves and branches 19%. By contrast, the native variety *Prosopis juliflora* (today neglected) produces 32.2 tons/ha, although the stem represents only 30%, and leaves and branches 70%. The latter are of no value to the forest administration, but to the local farming population they represent an important resource (animal fodder, fuel) (Chambers/Saxena, 1989, p. 143 ff.)
- 16 Cf. Sülzer, R. (1991) Palastorganisation oder Zeltorganisation. GTZ, Eschborn, Reichard, R., Sülzer, R. (1992): Organi-

- sationslandschaft in der Technischen Zusammenarbeit. GTZ, Eschborn.
- 17 This applies chiefly to big landowners, as small farmers hardly ever pay any tax
- 18 Agreements can be drawn up for instance to reserve for livestock farmers the use of twigs and leaves, for women the collection of dead wood and the cutting of branches up to a certain thickness during a given season, for a group of beekeepers the right to put up beehives, whilst the use of the tree stems would be subject to a plan jointly negotiated by the entire village community. Numerous variations are conceivable, depending on the situation
- 19 Cf. Pretty, J N /Chambers, R. Turning the New Leaf New Professionalism, Institutions and Policies for Agriculture Overview Paper for IIED/IDS "Beyond Farmer First" Conference. London, 1992
- 20 In this context, the BMZ also makes explicit reference to the significance of promotion through the DSE (training of experts and managers, as well as teachers and representatives of target groups to be integrated into the work of projects in order to perform a multiplier function). With respect to problems of natural resource management, the Food and Agriculture Development Centre (ZEL) of the DSE in Feldafing or Zschortau would be the appropriate institution to approach. The significance of manpower cooperation as a self-help oriented instrument of development cooperation was already emphasized in the 1986 "Guidelines for Manpower Cooperation"
- 21 The most worthy of mention in this connection are
- (a) "Sektorübergreifendes Konzept "Armutsbekämpfung durch Selbsthilfe". Selbsthilfebewegungen als Partner der Entwicklungszusammenarbeit" Bonn, 1990
- (b) "Sozio-kulturelle Fragen in der Entwicklungspolitik." Bonn, 1992
- (c) "Förderung von Frauen in Entwicklungsländern." Bonn, 1988
- (d) "Ländliche Entwicklung." Bonn, 1988
- (e) "Desertifikationsbekämpfung und Ressourcenmanagement in den Trockenzonen der Dritten Welt - eine entwicklungspolitische Einschätzung." Bonn, 1993
- (f) Entwurf des Positionspapiers "Förderung von Waldvölkern im Rahmen des Tropenwaldprogramms"
- 22 Cf. the literature listed under references.
- 23 Cf. GTZ (1992): Entwicklung im Umbruch. Perspektiven des Systemmanagements.
- 24 Cf. BMZ/GTZ (1993): Ländliche Regionalentwicklung LRE aktuell.
- 25 Cf. GTZ (1992): Leifaden zur Erstellung von Angeboten an das BMZ.

Literature

A Works commissioned by the NARMS project

Reference document

MÜLLER-GLODDE, U.: Prozeßbegleitende Beratung im Ressourcenmanagement - Eine Arbeitshilfe für GTZ-Mitarbeiterinnen und Mitarbeiter in der Projektplanung und -durchführung. GTZ: Bonn 1994

Discussion paper

WATERS-BAYER, A.: Ressourcenmanagement über Selbsthilfeansätze. GTZ: Göttingen/ Eschborn 1992

Case study Burkina Faso

ESSER-WINCKLER, H./ SÉDOGO, M.: Ressourcenschonende Bewirtschaftung auf dem Zentralplateau. GTZ: Eschborn 1991

ESSER-WINCKLER, H.: Der Funke ist übergesprungen. Fallstudie eines Projektes zur Verbesserung der dörflichen Landnutzung (PATECORE). GTZ: Eschborn 1992

Case study India

LOBO, C./ KOCHENDÖRFER-LUCIUS, G.: The rain decided to help us: Pimpalgaon Wagha - an experience in participatory watershed development. Social Centre/GTZ: Ahmednagar/ Stuttgart 1993

LOBO, C./ KOCHENDÖRFER-LUCIUS, G.: Pimpalgaon Wagha - Der Regen hat beschlossen, uns zu helfen. Eine Erfahrung mit Partizipation bei der Wiedernutzbarmachung von Wassereinzugsgebieten. Kurzfassung, GTZ: Eschborn 1994

Case study Philippines

RIKKEN, G.: Natural Resource Management by Self-Help Promotion in the Philippines. The Experience in the Clientele Network of the Asian Social Institute. GTZ: Manila 1993

RIKKEN, G.: Natural Resource Management by Self-Help Promotion in the Philippines. The Experience in the Clientele Network of the Asian Social Institute. A summary paper. GTZ: Manila 1993

RIKKEN, G.: Propping life with bamboo - case study of self-help approach to natural resource management featuring the Davao Bamboo Development Cooperative. Manila 1994 (Brochure of the Asian Social Institute produced in cooperation with the GTZ)

RIKKEN, G.: The greening of Libertad - case study of self-help approach to natural resource management featuring the Libertad Planters Association. Manila 1994 (Brochure of the Asian Social Institute produced in cooperation with the GTZ)

Case study Rwanda

PIETROWITZ, P./ GUGGENBERGER-SENN, V.: Selbsthilfeansätze im Forstprogramm des DED. GTZ: Immenhausen 1992

Case study Tanzania

KACHARE, I./ HAYATA, R.: Natural Resource Management by Self-Help Promotion (RMSH). GTZ: Dar es Salaam/Bonn 1992

LUM study

LOHMAR-KUHNLE, C.: Lern- und Umsetzungsmechanismen (LUM) in den Institutionen der bilateralen Entwicklungszusammenarbeit. GTZ: Eschborn 1992

Process analysis Central America

FÖRSTER, R./ HESS, J./ PRETZSCH, J.: Prozessanalyse von drei Forstprojekten in Guatemala, Honduras und Mexico. Eine Erfahrungsaufbereitung. GTZ: Freiburg 1992

Buffer zone study

LOEBENSTEIN, K. VON/ TRUX, A./ WELTE, T.: Kompensation und Interessenausgleich in der Pufferzonenentwicklung. Bd. 1: Erfahrungen, Schlußfolgerungen, Empfehlungen. Bd. 2: Fallstudien Asien und Africa. Bonn, in cooperation with the Pilot Project Environment and Natural Resource Management, GTZ 1993

Workshop report Burkina Faso

TRAORE, D./ SCHWEDERSKY, T. ET AL.: Rapport Final de l'Atelier Régional: Approches et méthodes dans la gestion des ressources naturelles par l'auto-promotion. Kongoussio - 30/09-05/10/1991, 2 Bde. GTZ: Ouagadougou/Bonn 1992

TRAORE, D./ SCHWEDERSKY, T. ET AL.: Rapport Final de l'Atelier Régional: Approches et méthodes pour une co-gestion des ressources naturelles par agriculteurs et éleveurs. Dori - 30/11-05/12/1992, 2 Bde. GTZ: Ouagadougou/Bonn 1992

Workshop report consulting workshop Bilstein

HAHN, A.: Dokumentation zum Consulting-Workshop: Anwendung von Beteiligungs- und Selbsthilfeansätzen in Vorhaben zum Ressourcenmanagement. Bilstein/Lennestadt 10/02-11/02/1994. GTZ: Bonn 1994

Workshop report land use planning Berlin

EFFLER, D.: Dokumentation zum Workshop. Landnutzungsplanung in der Technischen Zusammenarbeit - Ansätze zur Instrumentenentwicklung auf der Basis von Projekterfahrungen.

Berlin - 05/07-08/07/1993. GTZ, in cooperation with the working group on integrated land use planning AGILNP: Berlin/Bonn 1993

Workshop report land use planning Colombia

TILLMANN, H.: Planificación del Uso de la Tierra, taller regional. Villavicencio, 30/11-04/12/1993, Tübingen/Bonn. GTZ, in cooperation with the working group on integrated land use planning AGILNP: Tübingen/Bonn 1993

Workshop report land use planning Sri Lanka

GEOPLAN (WIESE, B.): Workshop Documentation: Land Use Planning in Technical Cooperation - Further Development of the Instrument on the Basis of Project Experiences, Regional Workshop Asia-Pacific Region. Kandy - 01/11-06/11/1993. GTZ, in cooperation with the working group on integrated land use planning AGILNP: Frechen/Bonn 1993

Workshop report Nicaragua

FISCHER, W.: Nachhaltigkeit von Waldwirtschaft und Naturschutz im institutionellen Spannungsfeld. Regional Workshop, Managua - 07/03-11/03/1994, conducted and documented by GTZ unit 424 (Forest Resources Management and Conservation of Nature) and unit 303 (Northern Latin America, Caribbean), in cooperation with the NARMS project. Eschborn/Bonn 1994

Workshop report PRA Colombia

SALAS, M.; TILLMANN, T.: Diagnóstico rural participativo (DRP), Proyecto Rio Guatiquia. Colombia, 31/08-17/09/1994. GTZ: Stockach/Tübingen 1993

Workshop report process-supportive consultancy

SCHALL, N.: Workshop Documentation: Process-Supportive Consultancy. Meckenheim - 20/10-22/10/1993. GTZ: Neu-Anspach/Bonn 1993

Workshop report Senegal

IIED, PROGRAMME ZONES ARIDES, (GEUYE, M.B. ED.): Rapport de l'Atelier Régional de Formation de formateurs sur la Méthode Accélérée de Recherche Participative (MARF). Dakar - 11/05-23/05/1993. Dakar/London 1993 (drawn up with the financial assistance of the NARMS project, available through IIED, London)

B Publications by institutions of German development cooperation

BMZ: Desertifikationsbekämpfung und Ressourcenmanagement in den Trockenzonen der Dritten Welt - eine entwicklungspolitische Einschätzung. Bonn 1993

BMZ: Sektorkonzept Tropenwald. Bonn 1992

BMZ Soziokulturelle Fragen in der Entwicklungspolitik. Bonn 1992

BMZ: Förderung von Frauen in Entwicklungsländern. Materialien Nr. 80, Bonn 1991

BMZ: Armutsbekämpfung durch Hilfe zur Selbsthilfe. Sektorübergreifendes Konzept Bonn 1990

DED (KNAPP, D.): Organisationsformen zur Waldbewirtschaftung müssen aus den traditionellen Sozialstrukturen entwickelt werden. In: DED-Brief 1/2/90, p. 22 ff.

DSE (BRUENIG, E.F. ET AL.): Ecologic-Socioeconomic System Analysis and Simulation: A Guide for Application of System Analysis to the Conservation, Utilization and Development of Tropical and Subtropical Land Resources in China. Food and Agriculture Development Centre (DOK 1381/Se-059-86 ex): Feldafing 1986

DSE/ CDG: Selbsthilfeförderung in der personellen Zusammenarbeit. Ein Orientierungsrahmen. Bonn 1986

GTZ (KIEVELITZ, U./ SCHÖNHUTH, M.): Partizipative Erhebungs- und Planungsmethoden in der Entwicklungszusammenarbeit: Rapid Rural Appraisal/Participatory Appraisal. Eine kommentierte Einführung. Eschborn 1993 (also available in French and Spanish)

GTZ: LRE aktuell: Strategieelemente für eine Umsetzung des LRE-Konzeptes unter veränderten Rahmenbedingungen. Eschborn 1993

GTZ: Konzeption und Handlungsfelder des Arbeitsfeldes Waldwirtschaft. Eschborn 1993

GTZ (REICHARD, R./ SÜLZER, R.): Organisationslandschaft in der Technischen Zusammenarbeit. Eschborn 1992

GTZ: Leitfaden zur Erstellung von Angeboten an das BMZ. Eschborn 1992

GTZ: Entwicklung im Umbruch. Perspektiven des Systemmanagements. Eschborn 1992

GTZ: (SÜLZER, R.): Palastorganisation oder Zeltorganisation. Eschborn 1991

GTZ: Institutional Development in Environment. Proceedings of a Seminar in Delhi. Eschborn 1991

GTZ: Selbsthilfe und Partizipation im Rahmen Integrierter Ernährungssicherungsprogramme. Zwischenbericht. Eschborn 1991

GTZ/ ICIMOD: Organisational Innovations and the Impact on Resource Utilisation in the PAK-German Self-Help Project Area. Baluchistan, Pakistan 1990

GTZ: Schutz der natürlichen Ressourcen Boden und Wasser in der Entwicklungszusammenarbeit. Erfahrungen, Defizite, Empfehlungen. Ergebnisse eines Fachgesprächs zwischen ATSAF, BMZ, DSE, KfW und GTZ. Arbeitsunterlagen für Projekte im ländlichen Raum Nr. 13. Eschborn 1988

GTZ: Die partizipative Evaluierung. Eine Bestandsaufnahme. Eschborn 1988

KfW: Selbsthilfeansätze bei Vorhaben der Finanziellen Zusammenarbeit. Arbeitshilfen No. 6 Frankfurt/Main 1991

KfW: Sozio-kulturelle Fragestellungen bei Vorhaben der Finanziellen Zusammenarbeit. Arbeitshilfe, Materialien, Diskussionsbeiträge No. 3. Frankfurt/ Main 1990

MISEREOR (DIVISION FOR RURAL DEVELOPMENT): Nachhaltigkeit durch standortgerechte Landnutzung. Ein Konzept der ländlichen Entwicklung. Aachen

C Supplementary literature

BALDUS, R.D. (ED.): People and Wildlife. Experiences from Tanzania. SCP Discussion Paper No. 16. GTZ: Dar es Salaam 1994

BARGATZKY, T.: Einführung in die Kultur-Ökologie. Umwelt, Kultur und Gesellschaft. Berlin 1986

BLISS, F./ GAESING, K.: Möglichkeiten der Einbeziehung von Frauen in Maßnahmen der ressourcenschonenden Nutzung von Baumbeständen. Forschungsberichte des BMZ. Weltforum Verlag: Cologne 1992

BROCKMANN, W.: Kenianische Forstschule Londiani, Projektdarstellung für den Regionalworkshop der GTZ OE 4240 in Tanzania. GTZ: Eschborn 1994

CECELSKI, E.: Women, Energy and Environment. Some Directions for Policy Research. Gender, Science and Development Programme. International Federation of Institutes for Advanced Study: Toronto 1992

CERNEA, M.M.: User Groups as Producers in Participatory Afforestation Strategies. World Bank Discussion Papers. The World Bank: Washington D.C. 1989

CHAMBERS, R./ SAXENA, N.C./ SHAH, T.: To the Hands of the Poor. Water and Trees. Intermediate Technology Publications: New Delhi 1989

DEH: Spieglein, Spieglein an der Wand zum Thema "Selbstevaluation" in der Entwicklungszusammenarbeit. Berne 1990

DEH: Nachhaltigkeit von Entwicklungsprojekten. Grundlagen und Umsetzungsmöglichkeiten. Berne 1990

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR), INTERNATIONAL INSTITUTE OF RURAL RECONSTRUCTION (IIRU), FORD FOUNDATION: Agroforestry Technology Information Kit. Silong, Kavite (Philippines) 1990

ENDA-GRAF: Avenir des Terroirs: La Ressource Humaine. Dakar 1992 (will also be published soon in English by Intermediate Technology Publications)

FAHRENHORST, B./ ALTAN, T.: Die Bedeutung traditioneller Boden- und Baumrechte für den Schutz und die Rehabilitierung natürlicher Ressourcen. Weltforum Verlag: Cologne 1992

FININ, G./ UPHOFF, N./ WALLEN, S.: Strategies for Supporting Local Institutional Development. Special Series on Local Institutional Development No. 7 Rural Development Committee, Cornell University: 1984

GRIFFIN, J./ FRISCHMUTH, B.: Land Use Planning for Improved Natural Resources Management: Approach, Experiences and Ideas from Siavonga, Zambia. In: GTZ/OSS: Land Use Planning in Technical Cooperation. Regional Workshop for Anglophone Africa, Naivasha, Kenya - 04-11/03/1994 (in cooperation with the working group on integrated land use planning), Annex 15, Item 4

HAEN, H./ RUNGE-METZGER, A.: Improvements in Efficiency and Sustainability of Traditional Land Use Systems through Learning from Farmers' Practice. Göttingen 1990

HARDER, M. (GTZ): Launching a self-evaluation process in farmer organisations. Report on a consultancy. INTERCOOPERATION Self Help Support Programme, National Development Foundation: Colombo 1991

IIED: Sustainable Agriculture Programme: Proceedings of the Local Level Adaptive Planning Workshop. RRA Notes No. 11, May 1991

IUCN: The IUCN Sahel Studies 1991

JANZ, K.: Put the Gender Issue on the Agenda - The Need for Participatory Methods in Land Use Planning. In: GEOPLAN (WIESE, B.): Workshop Documentation Land Use Planning in Technical Cooperation - Further Development of the Instrument on the Basis of Project Experiences. Regional Workshop Asia-Pacific Region, Kandy - 01/11-06/11/1993. GTZ: Frechen/Bonn 1993 (in cooperation with the working group on integrated land use planning)

KOHL, G./ REICHELT, B.: Das integrierte Ernährungssicherungsprogramm in Indonesien. In: Entwicklung und Ländlicher Raum 26. Jg. Issue 4/92, pp. 18-22

KOHNERT, D./ PREUSS, H.-J. A./ SAUER, P. (ED.): Perspektiven zielorientierter Projektplanung in der Entwicklungszusammenarbeit. Sept. 1992

KORTEN, F.F./ SIY JR., R.Y.: Transforming a Bureaucracy. The Experience of the Philippine National Irrigation Administration. Ateneo de Manila University Press: Manila 1989

LANDWIRTSCHAFTLICHE BERATUNGSZENTRALE LINDAU/ DEH (ED.): Landwirtschaftliche Beratung - ein Leitfaden für Beraterinnen und Berater im ländlichen Raum. St. Gallen 1990

PRETTY, J.N./ CHAMBERS, R.: Turning the New Leaf: New Professionalisms, Institutions and Policies for Agriculture. Overview Paper for IIED/IDS Beyond Farmer First Conference, 27-29 October 1992

SHAH, P.: Participatory Watershed Management Programmes in India: Revising our Roles and Revising our Theories. In: IIED: Rural People's Knowledge, Agricultural Research and Extension Practice. Asia Papers, Research Series Vol. 1, No. 3, pp. 38-67

REIJNTJES, C./ HAVERKORT, B./ WATERS-BAYER, A.: Farming for the future - an introduction to low-external-input and sustainable agriculture. Macmillan: London 1992

SHEPHERD, G.: Managing Africa's Tropical Dry Forests: a review of indigenous methods. Overseas Development Institute: London 1992

SIDA: Poverty, Environment and Development. Proposals for Action. Stockholm 1991

UPHOFF, N. (ED.): Local Institutional Development: An Analytical Sourcebook with Cases. Kumarian Press: Connecticut 1986 (especially Chapter 2: Local Institutional Development for Natural Resource Management, p. 20 ff.)

WADE, R.: The Management of Common Property Resources: Finding a Cooperative Solution. In: WORLD BANK: Research Observer, Vol. 2, No. 2, July 1987, p. 219 ff.

WORLD BANK, ENVIRONMENTAL DIVISION: Integrated Natural Resource Management. Report from a workshop in Botswana, July 1992

The majority of titles listed contain extensive bibliographies on the respective themes.

