

PLANNING AS A LEARNING PROCESS

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**PLANNING
AS A
LEARNING PROCESS**

A strategy for planning land use programmes
at local level with special reference to
the uplands of Java.

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PLANNING AS A LEARNING PROCESS

A strategy for planning land use programmes
at local level with special reference to
the uplands of Java.

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op gezag van de rector magnificus,
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STELLINGEN

1. Het plannen van duurzame landgebruikprogramma's vereist het op elkaar afstemmen van drie aspecten: het plannen van landgebruiksinterventies; het ontwikkelen van communicatieprocessen en het verbeteren van de competentie van de uitvoerende organisaties. Om deze afstemming harmonisch te laten verlopen is, gezien de complexiteit van het management hiervan, een gefaseerde strategie nodig (dit proefschrift).

2. De duurzaamheid van vele ontwikkelingsprogramma's is beperkt omdat ze vaak niet verder komen dan een eerste experimentele fase. De tweede en derde fase waarin communicatieprocessen ontwikkeld moeten worden tussen overheidsstaf en lokale bevolking en waarbij de overheidsorganisatie zich structureel zou moeten aanpassen zijn bedreigend voor de lokale overheid en vragen om steun van donororganisaties. Het door het Directoraat Generaal Internationale Samenwerking (DGIS) gevolgde beleid om projecten langdurig te ondersteunen gaat vaak voorbij aan de vraag hoe deze tijd moet worden ingevuld in die zin dat aan alle drie de fasen aandacht wordt besteed (dit proefschrift).

3. Voor de ontwikkeling van duurzame landgebruikprogramma's is het nodig een combinatie van technische en sociaal-economische interventies te plannen. Hierbij is het concrete karakter van de technische interventie vaak de motor achter sociale veranderingen in communicatieprocessen en organisaties; ze inspireren personen en organisaties om hun manier van werken te veranderen (dit proefschrift).

4. Een strategie voor planning op lokaal niveau kan niet op dit niveau alleen gerealiseerd worden; het bewerkstelligen van veranderingen in communicatieprocessen en organisatiestructuur van de overheid vereisen ingrijpen op nationaal niveau (dit proefschrift).

5. De doelstelling om via dorpsontwikkelingsplanning te komen tot een betere verdeling van middelen en inkomsten is moeilijk te realiseren, omdat de dorpselite en de betrokken sectorale diensten hun eigen belangen voorop zetten (dit proefschrift).

6. Het principe van alleenheerschappij ('kuassa tunggal') van de Indonesische overheid is in tegenspraak met de activiteiten zoals voorzien in de tweede en derde fase van deze planningsstrategie die gericht zijn op een verandering van houding t.a.v. participatie van dorpingen in het plannen van hun eigen ontwikkelingsprogramma's (dit proefschrift).

7. Veel van de buitenlandse consultants werkzaam in Indonesie zien de moeilijkheden op het gebied van communicatie en competentie van de overheid als redenen voor het niet slagen van hun interventies. In plaats van als excuus voor mislukking te gebruiken zou dit eerder een aanleiding moeten zijn om door middel van een gefaseerde strategie daar aandacht aan te besteden.

8. Het feit dat de Javaan communiceert op basis van consensus en de Pathaan (Noord-Pakistan) door middel van conflict betekent voor het plannen van ontwikkelingsprogramma's dat in het eerste geval de kans groot is dat programma's stilzwijgend mislukken terwijl in het tweede geval het gevaar dreigt dat programma's meer conflicten oproepen dan oplossen. Gezien het belang van een dialoog in ontwikkelingsprogramma's is de samenwerking met Pathanen te verkiezen.

9. Door het gearrangeerde huwelijk in Pakistan kom je als vrouw wel makkelijk aan de man, maar er moeilijk van af, aangezien familiebelangen belangrijker worden geacht dan het persoonlijk geluk.

10. Het versterken van de autonomie van vrouwen in Noord-West Pakistan kan niet via activiteiten binnen de lopende land-en bosbouwprojecten gerealiseerd worden. Eerder zou aandacht besteed moeten worden aan scholing en werkgelegenheidsprogramma's voor vrouwen.

11. Het gezegde "boompje groot, plantertje dood" gaat niet op in de sociale bosbouw waar voornamelijk snelgroeiende boomsoorten gebruikt worden. Een actueler gezegde zou zijn "boompje groot, planter zijn brood".

Annet van den Hoek

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A strategy for planning land use programmes at local level with special reference to the uplands of Java

WAGENINGEN, 18-12-1992

PREFACE

Village level planning has held a long time fascination for me. I guess it is the direct dialogue with the land users, sharing their views on current land use management practices and opportunities and constraints for improvement that never seem to become boring. Moreover, village development programmes are ready for direct implementation which makes results very tangible.

Early 1988 I stumbled my way through the first trial case on village development planning in Pagersari village in East Java. The village had a history of centrally designed government programmes, which the people found interesting enough for the subsidies involved but otherwise did not help them much in the long run. This triggered my search for an alternative way for planning development programmes at local level. It was however only after implementing the second trial case, which received an enthusiastic response from villagers and government staff that I fully realized the challenge of developing a strategy for integrated village development planning.

I followed a field-based learning process using the institutional framework of village organizations and the government. In the meantime I studied literature on different planning methods and techniques for the development of an alternative planning method. It was only later, first back in Holland and then in Pakistan, that I developed a strategic (theoretical) model and linked the two together. Although it wasn't always easy, I'm happy that the research started in the village and developed into a strategic model because it is well in line with the bottom-up learning process that is at the core of the strategy I developed.

In retrospect it strikes me that my supervisors did not have an easy task. They only became involved after I had finished my field research and we mostly communicated 'long-distance'. First of all I would like to thank Freerk Wiersum for his enthusiastic support and wise advice. In fact he was one of the first with whom I discussed the idea of this book over a portion of satay in Batu. Furthermore my supervisors Professor A. Van Maaren and Professor H.A. Luning often worked under time pressure to send their valuable comments back in time. I thank them for their commitment and support.

I doubt whether Pak Pranoto, Pak Dadi and all the others I met in the field along the way appreciate that those village meetings and sketch maps would eventually lead to a book of 230 pages.... To be honest it still puzzles me sometimes too. Their work was anyway the most important part of this study and I thank them all. I can only hope that they will somehow benefit from my efforts.

Malang/Zeist/Saidu Sharif, June 1992

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ABBREVIATIONS AND GLOSSARY

APBD I	:	<i>Anggaran Pendapatan dan Belanja Daerah I;</i> Provincial Development Funds
APBD II	:	<i>Anggaran Pendapatan dan Belanja Daerah II;</i> District Development Funds
APBN	:	<i>Anggaran Pembangunan Nasional;</i> National Development Funds
BANGDA	:	<i>(Direktorat Jenderal) Pembangunan Daerah;</i> (Directorate General for) Regional Development
BANGDES	:	<i>Pengembangan Pedesaan;</i> Rural Development Section of Local Government
BAPPEDA	:	<i>Badan Perencanaan Pembangunan Daerah;</i> Regional Development Planning Board
BAPPENAS	:	<i>Badan Perencanaan Pembangunan Nasional;</i> National Development Planning Board
BIMAS	:	<i>Bimbingan Massal;</i> Mass Guidance
BPP	:	<i>Balai Penyuluhan Pertanian;</i> Agricultural Extension Centre
BRLKT	:	<i>Balai Rehabilitasi Lahan dan Konservasi Tanah;</i> Centre for Land Rehabilitation and Soil Conservation
Bupati	:	District Head
Camat	:	Sub-district Head
Desa	:	Village, administrative unit consisting of several hamlets (<i>dukuhs</i>)
DIP	:	<i>Daftar Isian Proyek;</i> List of Approved Projects
DIPERTA	:	<i>Dinas Pertanian Tanaman Pangan;</i> Service for Food Crops
DISBUN	:	<i>Dinas Perkebunan;</i> Service for Estate (perennial) Crops
DISNAK	:	<i>Dinas Pertenakan;</i> Service for Animal Husbandry
DUP	:	<i>Daftar Usulan Proyek;</i> List of Project Proposals

FAO	:	Food and Agriculture Organization of the United Nations
Gotong Royong	:	Self-help, based on the principle of reciprocity
GOI	:	Government of Indonesia;
INPRES	:	<i>Instruksi President</i> ; Indicating funds and schemes which have been established by presidential instruction
IPEDA	:	<i>Iuran Pendapatan Daerah</i> ; District Tax
Kabupaten	:	District, sub-unit of a province, headed by a Bupati
Kecamatan	:	Sub-district, sub-unit of a kabupaten, headed by a Camat
Kecamatan Rawan	:	Marginal sub-districts (funds)
Kecamatan Terpadu:	:	Integrated sub-districts (funds)
KEPAS	:	<i>Kelompok Penelitian Agro-ekosistem</i> ; Research Group for Agroecosystems
KPD	:	<i>Kader Pembangunan Desa</i> ; Village representatives responsible for development activities
Kuasa Tunggal	:	Principle of sole authority
LESMAS	:	<i>Lesti dan Malang Selatan</i> ; Lesti Watershed and South Malang Area
LKMD	:	<i>Lembaga Ketahanan Masyarakat Desa</i> ; Village Organization for Community Development
LMD	:	<i>Lembaga Musyawarah Desa</i> ; Institution for Village Consultation
LSD	:	<i>Lembaga Sosial Desa</i> ; Village Social Institution
Musyawarah	:	Consultations leading to consensus
NGO	:	<i>Non Governmental Organization</i>
Pamong desa	:	Village Administration
Perum Perhutani	:	<i>Perusahaan Umum Perhutani</i> ; State Forest Corporation (SFC)
PKK	:	<i>Pembinaan Kesejahteraan Keluarga</i> ; Women Organization for Education for Family Welfare
PLP	:	<i>Petugas Lapangan Penghijauan</i> ; Extension worker of BRLKT
PMP	:	<i>Petugas Madya Pertanian</i> ; Coordinatory of Extension Workers

<i>PPL</i>	:	<i>Petugas Penyuluh Lapangan;</i> Agricultural Extension Officer
<i>PPUP</i>	:	<i>Pertanian Unit Program;</i> Coordinator of Agricultural Extension Work
<i>RAKORBANG</i>	:	<i>Rapat Koordinasi Pembangunan;</i> Development Coordination Meeting
<i>REPELITA</i>	:	<i>Rencana Pembangunan Lima Tahun;</i> Five Year Development Plan
<i>RRA</i>	:	Rapid Rural Appraisal
<i>RT</i>	:	<i>Rukun Tetangga;</i> Neighbourhood Organizations
<i>RTL</i>	:	<i>Rencana Teknik Lapangan;</i> Semi Detailed Watershed Plan
<i>Swadaya</i>	:	Self-help; usually refers to efforts that are not government sponsored, also traditional state of village development
<i>Swakarya</i>	:	Transitional state of village development
<i>Swasembada</i>	:	Developed state of villages
<i>Tanah Bengkok</i>	:	Village land accrued to village officials
<i>Tingkat I</i>	:	Provincial level
<i>Tingkat II</i>	:	District level
<i>UDKP</i>	:	<i>Daerah Kerja Pembangunan;</i> Regional Working Unit for Development
<i>USAID</i>	:	United States Agency for International Development.

ABSTRACT

Introduction

The challenge for land use management in the nineties is to initiate a people-centered development process which creates opportunities for local people to make their own choices about which development strategy to follow. This need is felt in particular for upland areas where government initiated blue-print programmes for land use management have a record of failure. The major reason is that these programmes are often not adjusted to cope with the complexity and diversity of the uplands. Land use management encompasses both short-term and long-term benefits and is confronted with rapid changes. The differing role of private, state and communal lands in combination with a complex system of control and utilization makes land use management difficult to fully understand. This study responds with the development of an alternative strategy for planning sustainable land use programmes at local level and has the following objectives:

- to develop a strategic model for people-centered planning of sustainable land use programmes;
- to develop a flexible planning method that can serve as land use management tool at local level;
- to test the feasibility of the strategy for the uplands of East Java, Indonesia.

Strategic model

The two major principles of the strategic model are:

- Programmes are planned and implemented through a learning process in a local and organizational dimension. The local dimension includes a learning process of planning, implementing and monitoring of small scale programmes. The planning process is short, but planned interventions are regularly adjusted based on new insights and changing conditions. In the organizational dimension the learning process proceeds through three different phases of trial, development and expansion. In this dimension, the government can learn how to manage the strategy of implementing local level planning and how to change attitudes, norms and organizational competence of organizations in order to do so. This dimension embraces local, regional and national governments.
- Three major variables have to be considered in programme planning: land use system; interventions and organizations. Sustainable land use programmes are only possible if a good fit between these variables is achieved.

In the strategic model these two principles are combined; a fit between

the variables is achieved through a learning process. Because achieving a fit between the three variables is a complicated matter, it requires a phased approach which consists of the following three steps: a trial phase, a development phase and an expansion phase. In the trial phase, the focus is on achieving a fit between interventions and land use system in the local dimension. This is achieved through the implementation of trial cases in local level planning in which villagers, field workers of organizations and local leaders become acquainted with this new approach of planning sustainable land use programmes at a local level. In the development phase, attention is focused on achieving a fit between organizations and land use system. Through the development of human resources and extension processes the skills and attitudes of those involved may gradually change to become more people-oriented. In the expansion phase the focus is on achieving a fit between interventions and organization. In this phase the planning approach is accepted and applied at a national level. Changes in government structures and procedures, such as decentralization and strengthening of local leadership need to be achieved. By dividing the process into phases, the complex problems associated with planning sustainable land use become manageable, and step by step the ultimate goal of achieving a fit between all three variables can be reached.

Planning method

In order to reach an optimal fit between the three variables of the strategic model in the trial phase, a planning method should be applied to collect and analyse data that can be transformed into the design of effective programmes. No 'off-the-peg' planning method is available, instead a combination of existing approaches, methods and techniques is needed.

Three development approaches can be distinguished to this end: planning of land use development; extension approaches and project management approaches. Generally speaking, each approach covers a different side of the strategic model. Land use development focuses on achieving a fit between interventions and land use system; extension processes can be used in achieving a fit between land use system and organizations; and the fit between interventions and organizations can be accomplished with the help of project management techniques.

For planning land use development in the trial phase a number of current methods and techniques are discussed. These are Farming System Analysis, Land Evaluation, Agroecosystem Analysis, Landscape Planning, Rapid Rural Appraisal and Gender Analysis. The criteria set by the strategic model determine which aspects of these present planning methods and techniques are useful for the development of a new planning method. None of these methods and techniques as such are ideal as an operational planning method for realizing the first phase of the strategic

model. A synthesis of all useful features into a new land use planning method is proposed.

For the trial phase the focus is on planning land use development while opportunities to develop extension processes and to influence project management are limited. Therefore plans should basically be tailored to the existing competence of organizations. Within these limitations some attention can be paid to extension processes and management techniques by introducing an additional step to land use planning, called programming which includes the preparation of a detailed design and a programme planning matrix.

Planning environment on Java

The environment for the planning of land use development programmes is diverse and complex in the uplands of East Java. Farmers react to the wide diversity in the land use system by developing a large number of different land use strategies. By contrast, government organizations use standardized programmes with uniform and mostly inflexible procedures for planning and implementation. Village development planning procedures exist, but do not yet function properly. Local organizations responsible for village development planning do not yet possess the skills and capability to develop such plans, and centrally organized sectoral agencies still dominate this 'bottom-up' planning process. The dominance of the central government can be explained by the incorporation of a number of socio-cultural features in their policy, such as the principles of 'sole authority', consensus, and harmony. The government uses these principles to encapsulate autonomous local organizations in the government administration, orienting the local leaders more to government rules and procedures than to the needs of the local population.

This orientation towards government administration has two major implications for the current planning of interventions. Firstly, the interventions are adjusted to the competence of implementing organizations rather than letting the organizations develop their competence to implement the tasks of locally planned interventions. Secondly little more than lip-service is paid to the participation of villagers in planning.

Notwithstanding these shortcomings in the present village development planning process, official government policy has some room for improvement. This may allow for a more balanced planning process new approach.

Secondly, constraints which can be expected while applying the model on Java are described. The feasibility of the trial phase of the strategy is evaluated based on experiences with implementing the trial cases on

Java. In this evaluation the question is raised as to what extent the results of local level planning on Java can respond to the research objectives as formulated at the start of this study. No experience has been gained as yet with implementing the development and expansion phase. One programme that provides some valuable lessons for the feasibility of the phased learning process of the strategic model is the Java Social Forestry Programme (JSFP). This programme has followed a comparable phasing strategy and has already reached the expansion phase.

Conclusions and policy recommendations

This evaluation results in a number of conclusions on conditions to be fulfilled for successful implementation of the strategy. To sum up:

- although the strategy is aimed at the local level, it cannot be realized at local level only as it requires involvement of regional and national government organizations to deal with changing communication processes and organizational structure;
- objectives in village development planning should be set realistically in the knowledge that short term results will always dominate long term benefits, tangible results will get higher priority than social changes, while top-down influences from sectoral agencies will prevail;
- in addressing the organizational dimension a choice should be made between following an approach of 'decentralized trial cases' versus 'centrally guided bottom-up process'. Whichever strategy is chosen it needs careful management to avoid difficulties in institutionalization or a too rapid expansion respectively;
- it is necessary for the government to be shown better results in terms of sustainable land use development programmes at local level implemented by highly committed villagers. Only then may they be motivated to accept such a participatory approach at the cost of losing some power or consensus;
- implementing a participatory planning process is an initially slow process, to which government agencies need to be committed.

These conditions are translated into a number of policy recommendations for donor agencies and governments pertaining to: long-term and continuous commitment; development of the management capacity and motivation of people involved; and strengthening the competence of a government organization for responsive governance.

Experiences in Java have illustrated the importance of congruence between the design of land use interventions; the development of communication processes and the development of organizational competence. The whole range of actors involved who strive for sustainable land use - from villagers to programme managers - will have to contribute to achieving this fit. They will only be able so when they view PLANNING AS A LEARNING PROCESS.

1 INTRODUCTION

1.1 Background

For the last three decades governmental and non-governmental agencies in the Third World have tried to tackle the problems of increasing production needs, poverty and environmental degradation with a range of different development strategies. The production-centered approach of the sixties was gradually replaced by rural development strategies in the seventies. However the disappointing results obtained in poverty alleviation, equitable distribution of benefits and the sustainability of the programmes led to an awareness of the need for a new, more people-centered development approach. The latter gained increasing support from development agencies in the eighties, but has not yet been widely implemented. The challenge for the nineties is to put the policies of human development into practice.

The conventional tools of production-centered development, whose use started in the sixties, aimed to develop resources through the application of advanced technologies. Governmental and non-governmental development agencies primarily addressed farmers as agents of economic production and stimulated them to increase outputs in order to satisfy the growing demand for food and cash crops. However this policy created a bias towards capital and energy intensive investments, without providing any prospect of meeting the basic needs of all sections of rapidly expanding populations. Although many third world countries were achieving credible advances in overall economic output, their record in alleviation of poverty and inequality was poor (Korten and Alfonso, 1983).

In reaction to this situation multi-objective rural development projects were initiated from the early 1970's onwards. The major aim of these projects was to satisfy the basic needs of the rural population. But in the rush to get development benefits directly to the poor, both the administrative and institutional dimensions of development were, for a time, neglected. Bureaucratic structures had little capacity to respond to local diversity, elicit meaningful participation or respond to feedback from the

local people involved (Korten, 1984; Uphoff, 1986). In this paternalistic approach to development people were considered to be a 'problem': unable to improve their lives, they had to be helped by applying resources and technologies in a top-down bureaucratic manner. Decisions were made by experts far removed from people and their needs, and implemented through structures intended to be more responsive to central direction than to local reality (Korten and Alfonso, 1983). As a result the imposed programmes were not sustainable, since activities could not be maintained or continued by the so-called beneficiaries themselves.

Both production-centered and rural development programmes have often been implemented via a blue-print approach, which severely limits their effectiveness. This type of approach emphasizes 'careful pre-planning for which researchers provide data from pilot projects and surveys which allow the planners to make a project design for achieving a given development outcome and reduce it to a blue-print for implementation' (Korten, 1980). In such a process, staff members of the implementing organization are supposed to execute the project plan according to this pre-determined set of guidelines. This form of allocative centralized planning is typically adapted to the requirements and preferences of bureaucratic state organizations (Friedmann, 1984) and results in the following limitations to effective programme performance (Bunch, 1982; Chambers, 1983; Korten, 1983; Korten, 1984):

- Pressures on agencies to spend too much money too quickly in time-bound, pre-planned projects in pursuit of short-term results;
- Pressure for immediate results measured by goods and services delivered;
- Limited reach of programmes. Often the government is able neither to provide the numbers of staff and facilities required, nor to ensure their effective supervision. For example, extension and training have usually been considered outlets for the knowledge developed in research stations or for policies developed at national level, and farmer groups are mainly organized for the benefit of the extension workers;
- Inability to sustain necessary local level action. Development projects produce new facilities often without adequate provision for their operation and maintenance by beneficiaries;
- Limited adaptability. The actual needs of the beneficiaries differ between community and central planners have a limited capacity to respond to this local diversity. They expect beneficiaries to tailor their needs to what the agency finds convenient to offer.
- Creation of dependency. Government programmes seek to improve the fate of the poor through doing for them what they previously did for themselves, with the government making the decisions and providing the resources by subsidizing agricultural and related activities.

The inadequacy of this blue-print development approach in responding to a changing and diverse environment, beset by complex problems, became manifest in the 1980's. Experience showed that poverty alleviation and desired changes in social structures could not be achieved through the central technocratic allocation of resources and that they required a different approach. To achieve the desired improvements in human well-being development would need to become people-centered. This approach called for the creation of people's initiatives and was to be based on the social, physical and economic resources under their control (Bunch, 1982; Korten, 1984).

Ackoff (1984) defines development as a product of learning how to use oneself and one's environment to better meet one's own needs and those of others. In this context therefore, a government cannot develop a country, it can only assist the inhabitants of the country to do so. Edwards (1989) supports this statement: 'No country in the world has ever developed itself through projects. Development results from a long process of experiment and innovation through which people build up the skills, knowledge and self-confidence necessary to shape their environment in ways which foster progress toward goals such as economic growth, equity in income distribution and political freedom'.

But although this new awareness is widely expressed in development-related literature it has not yet been reflected to any great extent in the practices of rural development programmes. Governments have not possessed the organizational structure, attitude or managerial and administrative capacity to bring about such changes, while the capacities of private or non-governmental organizations have been limited.

Thus the challenge for the nineties is to realize a development process of, for and by the people. Such a development process must create opportunities for people in deciding their own destiny and making their own choices (DGIS, 1991). Their participation will mean that they are given the opportunity and are stimulated to do much more than providing their labour, raw materials and time in development projects; rather they will take an active role in the process of decision-making regarding development efforts and the allocation of development resources which enhance their well-being in terms of income, self-reliance, security or self-esteem, or other values which they cherish (Paul, 1987; White, 1989). Such a development process requires good governance with a fundamental change in the attitude, structure and procedures of national governments, as well as skilled and motivated civil servants. Non-governmental organizations can support this change.

1.2 Land use management

The application of this 'people-centered' development strategy for land use management constitutes a challenging and complicated task. One of the reasons is that land use management involves different actors, varying from individual land users, local organizations to the government each having their own economic, political, cultural and technical reasons for managing the land. Whereas an elaborate definition of land use management will be given in chapter 2, the following sections will illustrate just how complicated the issue is through a description of:

- complexity and diversity in land use management (1.2.1);
- degradation processes in land use (1.2.2);
- government responses to problems in land use management (1.2.3).

1.2.1 Complexity and diversity in land use management

Land use management is both complicated and diverse, because it involves a wide diversity in land use conditions as well as in the nature of users. This will be illustrated by the following four dimensions of land use management:

- time; short and long-term benefits; dynamic changes
- space; local and remote
- property; private, state, as well as communal lands
- organization and management; intra-household, household and supra-household level; role of land users.

Time

Land use management should include both short term benefits as well as long term conservation needs. It is directed at both present productivity as well as conservation of vital resources and will focus on two sets of land use activities (Wiersum, 1991):

- the utilization and management of (agricultural) production processes (or indirect exploitation of natural resources), and
- the (direct) exploitation and management of natural resources

Natural resources (such as soil, water, vegetation and fauna) are on the one hand important inputs to agricultural production processes, but on the other hand, natural resources like trees, plants and animals are also directly exploited and used for subsistence use or sale. Thus natural resources are used for short-term direct benefits (exploitation) as well as for long term (agricultural) production needs. Although these long term benefits are often forgotten, or not within the scope and possibilities of the small landholders, they are crucial for sustainable land use management (Wiersum, 1991).

Another aspect of the temporal dimension is that natural resource management requires a long term perspective. For forest management it will take, depending on the required species and end-use, anywhere between 3 and 50 years before the trees can be utilized. This implies that it will be a long time before people see benefits and are willing to commit their time and effort. While agricultural products may yield within a period of a few months and thus present large possibilities for an experimental trial and error process by farmers, forestry requires more thorough planning of the desired species, planting techniques and forest management.

Land use is subject to dynamic changes. The dynamic nature is the result of interrelated factors, such as demographic changes (population growth and migration); incorporation of formerly isolated areas in the national economy, privatization of farming systems or institutional changes like new land tenure arrangements, new organizations, changes in human aspiration etc. (Maxwell, 1984; Peluso et al. 1990). These changes have influenced land use management in two ways (Mol and Wiersum, 1990). One reaction is to adjust practices and change regulations for management control and in the second reaction, where users were not able to adjust, a break-down of land use management systems takes place. Adjustments occur gradually in response to social, political and economic pressure. For example farmers adjust their land use system to the availability of external production inputs as well as the increased marketing opportunities resulting from improved accessibility and increased demands. But also in case of government control on land (like state forest land) adjustments are made by local users in the form of developing informal management systems, like the collection of fuelwood, fodder, or other side-products. Examples of break-down occur when the traditional communal management systems are privatized or transferred to open-access ("free-for-all") utilization systems.

Space

Land use management also has a spatial dimension. Land use practices on one location may have consequences for other areas downstream or downhill. For example, erosion in the uplands may lead to river floodings or sedimentation in the lowlands. Thus the question arises of distribution of costs and benefits of land use management. Do those who bear the costs also accrue the benefits? For example upland farmers who invest their labour in soil conservation or reforestation do not always see the direct benefits of improved production. This implies that upland farmers may need support in land use management so that downstream interests are taken into account.

Property

Land use takes place on private, state and communal lands. While permanent field cropping of food and cash crops is often practiced on private lands, various basic systems of land utilization may be found on common property or state lands, such as hunting/gathering, shifting cultivation, forest management or pastoralism. Three different types of common property-rights regimes can be distinguished (Berkes, 1989):

- Open access; free-for-all; resource-use rights are neither exclusive nor transferable; these rights are owned in common but are open-access to everyone (and therefore property to no one)
- State property; ownership and management control is held by the nation state or crown; public resources to which use-rights and access rights have often not been adhered to by the local people, as they have a different perception of these rights
- Communal property; use-rights for the resources are controlled by an identifiable group and are not individually owned or managed by governments; there exist rules concerning who may use the resource, who is excluded from using the resource, and how the resource should be used.

These common property resources often play a complementary role with respect to privately managed resources and thus can contribute to a more equal division of resources. Many communal forest areas provide various basic inputs free of cost to local households, such as fuelwood, fodder, green manure and timber, collected for subsistence use or for sale on the local markets. This may provide income opportunities for rural poor and especially for the landless, who often depend on the forest products for their survival. Furthermore, communal properties may offer possibilities for creating new assets in the rural community. For example, the usufruct of government reserve land that has become degraded wasteland may provide the potential for new patterns of benefit distribution and need not necessarily be allocated according to the old distribution patterns (Mol and Wiersum, 1990). Therefore the use of both private and communal land is important for the survival strategy of land users.

Organization and management

A complex system of control over the management and utilization of natural resources may take place at various levels of social organization (Wiersum, 1990). Three levels can be distinguished: the intra-household; the household and the supra-household or communal level (local organizations and government). All actors involved (male and female) are called "land users". This term involves: those who use the land, but are without control over the management (e.g. tenants); those who use the land and manage it (farmers-owners) and those who manage the land but do not actually use the land, as they lease it out or leave it for communal

use (government, big landowners).

At the lower than household, or intra-household level, decision and organization patterns occur such as a task differentiation among household members or decision-making arrangements. A household should not be seen as a homogenous grouping of people with a common production and consumption function. Members of household do different things, have access to different resources and benefits and have different responsibilities (Poats and Sims Feldstein, 1990). Access to and control over certain resources or tasks is divided between the male and female members of the household or between the different age groups or generations according to local tradition, rules, skills or capacities.

At the household level the farming system is managed by the family members who form one household. Although private land is owned and controlled by one farm family, different people may have access to the land, such as farm labourers, farmers who rent the land, or gatherers. These land users (individuals or household) are in the best position (by virtue of indigenous knowledge and residence) to maximize sustainable productivity of the natural resources. They are decision makers who, on the basis of their needs and capacities, choose certain land use activities. Their land use strategy is mainly determined by their production assets, such as capital, labour and access to land.

The survival strategy of a farmer is not restricted to his household level; communal physical and social resources also determine his decisions. Effective supra-household cooperation can open up a broad new range of technologies (including those which require joint control or are scale dependent), as well as facilitate their adoption (Grandin, 1986). For example, certain types of production systems on communal or state-owned land, require the analysis of the use and management of all natural resources to which farm household have access, such as common grazing lands or forests. But also the common use of paths and riversides, which are often heavily eroded because of intensive use by cattle and people, require a communal approach (Rocheleau and Van den Hoek, 1984). Other communal problems such as pest control or erosion call for the involvement of groups of people or local organizations. Only by having a community profile can the likely effects of an intervention on both the 'target' group and other members of the community be predicted. This demands information at the supra-household level concerning social structures, local organizations and intra-community heterogeneity by wealth, education and ethnic groups.

In order to gain better access or control to resources people may organize themselves in local organizations, with their own rules and budgets for

local community control, in a form of decentralized management of resources (Korten and Klauss, 1984). This frequently happens in the case of communal management. Management of this kind will only succeed when all users can be identified and when clear rules and decision-making arrangements can be put into practice. However, in general the users are a disparate/diverse group, ranging from the landless poor to rich landowners, which makes the management process complicated. For example, when the landless users, who are less likely to join organizations (such as locally elected bodies) do not participate, they can undercut most management schemes (Uphoff, 1986). Thus collective action by all users is crucial for sustainable common resource management.

Local (non-governmental) organizations can function as an intermediary between the local people and the government, since these organizations are rooted in the community and founded on indigenous institutions. On the one hand they should be able to promote local participation and develop cooperative activities, while on the other hand they should have the capacity to establish linkages with government departments/bodies.

Besides the individual land users and local organizations, a third category of actors in land use management is represented by the government. The involvement of the government in land use management is often necessary to resolve conflicts between different groups of users. With respect to regulating the spatial dimension of up-stream and down-stream impacts and the temporal dimension of direct needs and long term benefits the government may play an essential role in land use management. The use of existing government structures, rules and procedures may provide the necessary linkages between land use management at local, regional, and national level. Such linkages to higher levels are necessary to safeguard national interests of production and conservation. These national interests comprise common benefits, such as the development of the national economy, for instance through the export of agricultural products, or watershed management to secure sustainable use of infrastructural works such as dams and irrigation canals in the lowlands. According to Uphoff (1986): 'national institutions must certainly take some initiatives in soil conservation efforts, if only to compensate those who must bear present costs for the sake of beneficiaries in downhill-downstream areas or for future generations'. The government may also play a role in controlling and managing communal lands. Through the support of local governments, such as locally elected bodies at village level, regulations and incentives may be improved and conflicts resolved.

To summarize, land use management concerns short-term and long-term benefits and is confronted with dynamic changes to which it has to adjust. Land use management is not only of local concern but also affects more

remote, down-stream or down-hill areas. The varying role of private, state and communal lands in the survival strategies of local people, in combination with the complex systems of control and utilization, makes land use management difficult to fully comprehend. The actors in these management systems can be divided into three different categories: the local land users (individuals or households); local (non-governmental) organizations and the government. The combination of the three different land tenure conditions and three categories of land users makes land use management a complicated activity. The management of tree and land resources may belong to either community or collective groups, to private households or persons, or to the public sector. Furthermore, control and responsibility for managing these resources do not necessarily coincide. The state may control the management of forest land, while the local forest farmers are directly responsible for tree planting and maintenance activities. Table 1.1 gives an example of the different strategies for (social) forestry management, which are based on combinations of land tenure condition and management responsibility.

Table 1.1 Possible strategies for social forestry management (based on FAO, 1985)

Tenure	Individual land users at household level	Local organizations at communal level	Government organizations at state level
Household	I	IV	VII
Communal	II	V	VIII
State	III	VI	IX

I	: Privately managed tree-farming and tree-planting around households
II	: Privately managed tree-growing on communal or community land
III	: Public land allocation for private tree-growing
IV	: Communal tree-growing on private lands
V	: Communal tree-growing on community lands
VI	: Public land allocated for communal and community-based forestry
VII	: State support for farm forestry programs
VIII	: State support for communal tree-growing on community lands
IX	: State forest management by forest department

1.2.2 Degradation processes in land use

Land use management in rural areas of most tropical countries has to contend with serious degradation processes. Under the influence of dynamic changes, such as population growth, pressure to produce cash crops and governmental claims on the use of natural resources, land users are no longer able to adjust their practices or change their regulations in a sustainable manner. Thus many formerly well-adjusted and ecological sustainable indigenous management systems are breaking down, resulting in over-exploitation and ecological degradation (Gibbs and Bromley, 1986; Blaikie, 1985; Donner, 1987; Palte, 1990).

Degradation is caused as much by bio-physical as by socioeconomic influences. For example, soil erosion is only a physical phenomena as long as it is not recognized as a problem, or as long as no action is taken by the land users. When they take action (for example in the form of shifting cultivation or terrace construction) soil erosion becomes a social issue, because these changes cause new social relationships, rules and conflicts of interest to emerge between different land users in the community. These conflicts may be exacerbated by government interventions such as extensive soil conservation programmes that include attractive subsidies for specific land user groups. Land use interventions can then become political-economic issues, which may involve land tenure systems, or rearrangements in pricing structures (Blaikie, 1985).

Socioeconomic conditions have a direct effect on the degradation of the bio-physical environment. For example, poor, small and landless farmers, to a much greater extent than rich farmers, are dependent on their immediate environmental setting for their livelihoods. Limited access to land, labour and capital forces them to extract the highest possible short term economic benefits with the lowest possible inputs. This is achieved by over-exploiting sources of fuel, fodder and wood and intensifying agriculture practices, resulting in the depletion of natural resources and destruction of the environment. Chambers (1985) writes: 'Their herds overgraze, their shortening fallows on steep slopes and fragile soils induce erosion, their need for off- season incomes drives them to cut and sell firewood and they are forced to cultivate and degrade marginal lands.' The dependence of the poor increases yet more due to an expanding population living on limited and already intensively cultivated agricultural land. To conclude, their land use policy is limited to short-term benefits, while the consequences for remote, downstream areas or future generations extend beyond their vision. Thus the identification of socioeconomic conditions of the poor and landless land users that determine their land use strategy is of major importance in dealing with land resources degradation processes (Barbier, 1988, Korten, 1983).

1.2.3 Government response to problems in land use management; an example from Java

The programmes initiated by governments to respond to these problems are often designed in the form of standard development packages for the whole country, implemented according to central procedures and rules. Since in many countries the private sector is limited in its capacity to raise the resources and is often regarded as an inappropriate instrument, the state has actively intervened and managed development activities. Thus the government identifies the major problems as well as the attitude and tools of the government agencies to solve these problems (Long and Van den Ploeg, 1989).

The government of Indonesia has tried to increase agricultural production and solve problems caused by land degradation by developing a five-year development policy. In this policy sectoral plans give detailed instructions on the kind of interventions and the procedures to be followed. Due to a well-established organization structure, government programmes do reach the village level. However, experience reveals that these top-down centrally designed standard programmes are not always effective in the complex and diverse environment of the uplands of East-Java (Development Perspectives, 1988; Schulte Nordholt, 1981; Palte, 1990; McCauley, 1988; Van den Hoek, 1991).

There are several important reasons for this lack of success. Firstly, the large diversity in bio-physical conditions as well as the extensive socio/cultural and economic differences in the upper part of the country's watershed demand flexibility in planning to adjust programmes to local conditions and requirements of the land users. Secondly, the programme planning focuses on the design of technical interventions for sustainable land use, but the social capacity of the local population to manage these resources, the extent to which the new practices can be adapted to their needs, and the need for a more equal distribution of these inputs have been neglected. Thirdly, there is a lack of cooperation in planning and implementation; consequently no integration of sectoral programmes or coordination of activities can take place. Fourthly, shortcomings in the competence of government organizations to implement the programmes, because of time-consuming and strict procedures, as well as the limited capabilities of government staff, make successes even more difficult to attain. Working together with local population is still alien to many government staff members. They have been brought up in a culture where the people are supposed to be helped with the management of technologies in a top-down bureaucratic fashion. Although an administrative procedure for the so-called bottom-up planning exists, it is not implemented as such, because top-down and sectoral plans dominate the latter as well.

1.3 Research objectives and scope

The formulation of new development policies and the complexity of land use management underline a need for an alternative strategy for land use management programmes. This chapter opens with a description of the development policy of the nineties, calling for a development process that will create opportunities for local people, in which they can make their own choices about which development strategy to follow. The problems in land use management subsequently illustrated emphasize this need for an alternative strategy.

Because of the complexity and the different dimensions of land use management, planning is proposed as land use management tool. In this context, planning should be seen as a tool for good governance to formulate a strategy for long-term integrated and interdisciplinary programmes, which are based on the participation of rural people and which will increase their capacity and those of field workers of supporting organizations to manage such programmes. As such planning can be used to identify different users, interests, power structures, local constraints and opportunities for development. Thus a planning strategy is needed that is flexible in use and operates at the local level.

1.3.1 Research objectives

The aim of this study is to contribute to the development of a strategy for planning of sustainable land use programmes at local level. A strategy is defined after Paul (1983) as: 'the set of long term choices about the operating goals, services, policies and action plans of a programme. These choices are influenced by objectives laid down by the government and the environment of the programme'. This aim is further specified into the following objectives:

- to develop a strategic model for people-centered planning of sustainable land use programmes;
- to develop a flexible planning method that can serve as land use management tool at local level;
- to test the feasibility of the strategy for the uplands of East Java, Indonesia.

1.3.2 Scope

The scope of this strategy encompasses uplands in general and the uplands of East Java, Indonesia, in particular. For a long time food crop production in upland regions has been neglected by the national governments concerned, because attention was focused on the intensification of food and cash crop production in the (irrigated) lowlands. The uniformity

of terrain conditions, permanent availability of water and easy accessibility made these lowland regions preferable for agricultural production. However, in Indonesia for example the importance of the upland regions for national interest has attracted the government's attention over the past decade (KEPAS, 1988; Palte, 1990). This resulted in the recognition of issues such as: erosion in the uplands may endanger the water infrastructure downstream; the high rate of deforestation enhances the erosion process and makes large areas unproductive; the potentials for cash crop production in upland areas may become an alternative export commodity; while the number of landless and poor farmers is growing in the uplands. Box 1.1 illustrates the large diversity caused by economic, political and cultural influences on a physical complex landscape in the uplands of Java.

Variations in rainfall patterns, geological formations on a wide range of slopes of differing ages and various soil conditions in combination with human interventions have resulted in a large variety of land use patterns in the uplands. These include irrigated fields, kitchen gardens, built-up areas, perennial crop gardens of many kinds, dry arable fields, and forest lands. The latter vary from undisturbed virgin rainforests to heavily eroded waste lands. Political processes have evolved over the last two centuries under the influence of traditional feudal systems, colonial occupation and internal political/religious struggles. Until now they have determined the social organizations in villages, the function of local leadership and the role of individuals and organizations in decision making and management concerning the local resources. Different patterns of access to private and state land are a result of these processes, visible in the form of unclear land ownership, landless farmers living on the border of the forest, national land rented to the military or private enterprises and remainders of plantations either managed by farmers or by estates. Generally speaking those land users with access to money, education, new technologies, land and labour have been able to develop themselves at the expense of the landless and rural poor. Thus, in the uplands, the poor have become more and more dependent on natural resources for their daily survival resulting in over-exploitation and poverty.

Box 1.1 Examples of diversity in the uplands of East Java.

The degree of degradation in the land use systems of uplands areas combined with the fact that existing centrally designed programmes are not effective in these circumstances justifies this focus on the development of the uplands. In the uplands major achievements in increase of agricultural production and

soil conservation can still be attained. The fact that the scope of this study is on the uplands of East Java implies that the strategy does not deal extensively with the management of communal lands, as these are almost absent in Java.

1.4 Research approach

The idea for the development of a strategy for planning sustainable land use programmes at local level was triggered by experiences with the implementation of watershed management activities in the Kali Konto Project, East Java, Indonesia. The implementation phase of this Netherlands' funded project started in 1986, after research and planning activities had been carried out in previous phases, from 1979. The watershed management plan that had been developed on a scale of 1:50,000 was intended to serve as a basis for implementation. However the information it provided was too general and was biased towards biophysical data. The plan had been based on a land evaluation and a separate extensive socio-economic survey and did not offer any guidelines for operational programmes. As a result programmes were started by different sectoral agencies each based on their own centrally designed standard programmes. Lack of consistency between programmes and confusion among the local people involved, indicated a clear need for the planning of integrated development programmes at local level.

A total of four trial cases on local level planning were implemented between 1988 and 1990 with the following broad objectives: firstly to develop a flexible and simple planning approach that was implementable by local villagers and field staff in a short time frame and suitable to be adopted by the government, and secondly to formulate integrated village development plans that were detailed enough to be directly implementable. Via a process of trial and error, different planning methods and techniques were tried out. The organizational and institutional aspects of planning at local level were also dealt with. Villagers and field staff of the different sectoral agencies participated in the trial cases and existing organizations and procedures were used to enhance the acceptability and feasibility of the new planning approach.

During the implementation of the trial cases, a literature study was undertaken covering planning methods and techniques as well as aspects of administrative management of programmes. Ideas and concepts encountered during this study were incorporated in the development of the planning approach and directly tested during the trial cases. This cyclical process of applying theoretical concepts and testing in the field resulted in the development of a general concept for the planning of sustainable land use programmes at local level. Subsequently another

literature study was carried out in order to develop a theoretical model for planning sustainable land use programmes. This theoretical model was used to evaluate existing planning methods and further elaborate the concept for the planning method developed in the field.

Finally, the practical value of the strategic model and planning method for the situation in the uplands of East Java was considered by firstly assessing the possible application of the strategic model on Java and secondly by analyzing the constraints to implementing the strategic model on Java. The latter was based on experiences with village level planning and the Java Social Forestry Program.

To conclude, the research strategy was a field-based learning process in which an iterative process of trial cases and the development of theoretical concepts took place. Hence the overall approach has been exploratory and qualitative. Since the field research took place within a development project, the research was extremely objective-oriented and carried out under local conditions, using the local institutional framework. Hence, the strategic model developed is believed to be highly realistic and operational.

1.5 Structure of the book

This study reviews both the theoretical and practical dimensions of a land use management planning model. The first part describes the theoretical strategic model and the planning method (chapter 3 and 4). In the second part the feasibility of the model and planning method are tested in the Javanese context (chapter 5,6,7 and 8). An outline of the contents of each chapter is given below.

In chapter 2 major concepts in land use management are described. Given the extensive use of jargon and the different interpretations used by various authors, an overview of the major underlying concepts and their meaning is provided for clarification. Then a model for land use systems is introduced and its properties are defined. The reasons for working at the local level are further explained and an interpretation of the local level is given. Finally, the terms 'institutions' and 'organizations' are defined. The conclusion focuses on the need for the development of an alternative strategy for planning sustainable land use at local level.

In chapter 3 a strategic model for the planning of sustainable land use programmes at local level is formulated. The model provides an insight into the choice of major variables to be considered, the relationship that should be established between these variables and through which phas-

ing strategy this can be achieved. Subsequently the operationalization of the model is described.

In chapter 4, a planning method is described for the first phase of the strategic model. Existing planning approaches and methods are tested against the criteria set by the strategic model. This leads to a new planning cycle, which synthesizes existing planning methods.

In chapter 5, the environment for planning land use programmes in the uplands of East Java is described. The land use system and the role of government and private organizations in land use management are outlined and the failures and successes of two current government programmes are analyzed.

Chapter 6 of the book illustrates the implementation of the first phase of the strategic model in the uplands of East-Java, in the form of a description of the organization, planning method and results of trial cases.

Chapter 7 describes experiences with another - comparable - land use planning strategy on Java; the Java Social Forestry Programme.

Chapter 8 firstly discusses the possibilities for application of the strategic model on Java and secondly describes the constraints which can be expected while applying the model on Java.

The final chapter 9 gives some conclusions on the validity of the planning strategy, followed by policy recommendations for government and donor organizations and the epilogue.

Chapter 10 is the epilogue.

2 CONCEPTS IN PLANNING LAND USE MANAGEMENT

2.1 Introduction

Concern for the environment and its degradation has inspired a profusion of papers and articles by development planners on this issue. The terminology they use is often confusing. 'Environmental management', 'sustainability', 'local and intermediate level', 'land use systems' are just a few examples of terms for which the exact meaning is not always clear.

It seems appropriate therefore to provide concise definitions and/or interpretations of the major concepts used in this study. In the following sub-sections, an explanation is given of four components integral to the strategy developed. These are:

- planning, as part of the development process;
- sustainable land use management;
- local level;
- institutions and organizations.

2.2 Planning as part of the development process

Planning is often described as an organized, conscious attempt to select the best available alternatives to achieve specific goals. In this process data is systematically collected and analysed, alternative proposals for action are discussed and those alternatives which are predicted to best achieve the specified objectives are worked out (Waterston, 1965; FAO, 1989; Fresco et al, 1990). Planning exercises have often generated a blueprint for development containing elaborate schemes and a pre-determined set of guidelines for the development of regions or sectors. However in this study development is seen as a long process of experimentation and innovation through which people build up the skills, knowledge and self-confidence necessary to develop their environment (section 1.1). In order to effect this process, planning should take the form of a dialogue between local people and supporting (external) orga-

nizations. Planning in the development process should be seen as a learning process where, at each step, more information is gathered and decisions are made determining the next move, in order to arrive at sustainable programmes. Thus, planning cannot be artificially separated from implementation and monitoring/evaluation. Preferably the planner should also be responsible for implementation so that initial plans can be adjusted on the basis of experience. This kind of iterative planning process including planning, implementation and monitoring is also called 'planned development' (figure 2.1) (Van Staveren and Van Dusseldorp, 1980).

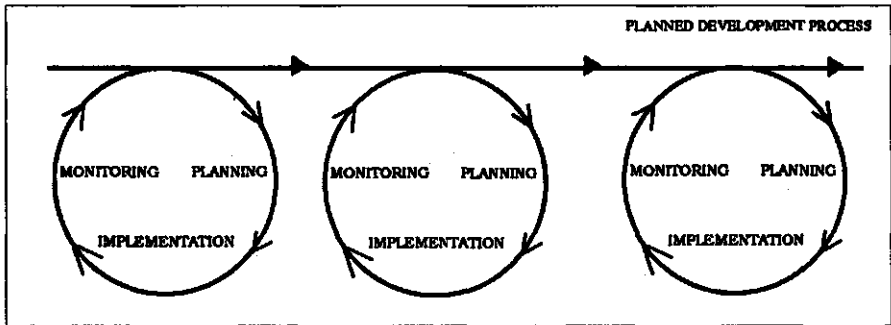


Figure 2.1: Planned Development Process

The planning strategy in this study however, concentrates on the planning per se, defined as the first step in planned development. Based on the identification of local needs, constraints and opportunities, development programmes which local people can adopt and supporting organizations can implement, are proposed.

Plans have often not been implemented because they were not practically feasible. Such plans were not tuned to the capacity of the local people to implement and manage the programmes, or to the competence of the implementing development agency to support them. To overcome these problems, planning requires, besides the design of interventions, a comprehensive programme for the implementation of the interventions. This programme should be highly practicable, suited to the capacities of local people and supporting organizations, and should include for instance: a priority list of projects for phased implementation, their locations and the specific participants; structures for local organizations and the responsible agency for implementation and support; the source

and amount of funds, cost sharing arrangements and a time schedule for operation. It should also include the design of a participatory monitoring programme. The process of preparing such a programme for implementation and monitoring is called programming and is regarded as an integral part of the planning process.

Planning of interventions can aim at the improvement of and the transformation of existing situations (Long, 1977). The first approach aims to encourage development within existing land use systems, while the latter attempts to establish new forms of land use systems through radical breaks with present systems, including the scale of operations, production techniques and socio-legal structure. In the improvement approach qualitative changes are proposed, while in the transformation approach structural changes in social organization and government organizations are suggested. The strategy developed here for planning at the local level is a mixture of these two approaches. The first phase of the strategy focuses on qualitative improvement, to be followed by some structural changes in later phases.

2.3 Sustainable land use management

In this section an interpretation of land use systems and their management is followed by a description of the properties of sustainable land use management.

2.3.1 Land use systems

Conway (1985) defines a land use system as: 'a hybrid system, which involves the interaction between the land and its users and thus encompasses numerous interactions between a bio-physical and socioeconomic system'. These interactions are based on human interventions in the natural environment formed by geology, soil, climate, water drainage, fauna and flora. In order to survive, people have exploited and managed the natural environment and changed and reorganized it into the so-called bio-physical system, consisting of the natural and built (man-made) environments (figure 2.2).

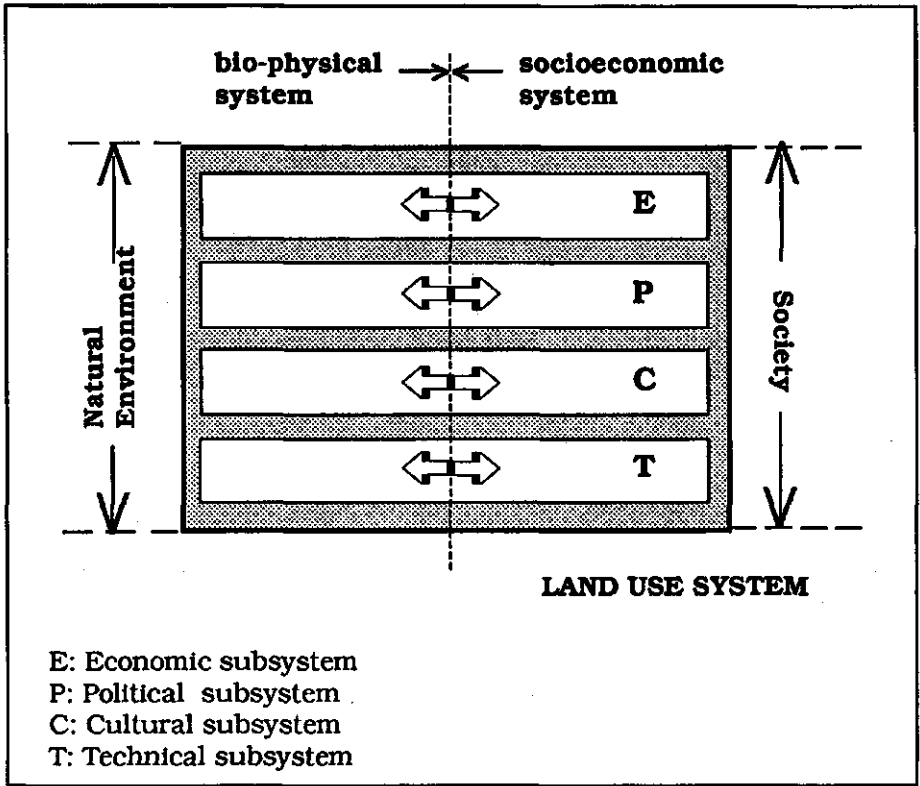


Figure 2.2: Land use system

- This bio-physical system is visible in the landscape in the form of:
- terrain conditions (land form, soil conditions, drainage patterns);
 - land use patterns (not only different kinds of land use practices or farming systems but also settlement patterns, or infra-structure);
 - spatial patterns of agricultural technology, (e.g. irrigation schemes) including the differential diffusion of innovations, such as the introduction of new crops or planting techniques.

People who intervene in the natural environment organize themselves in a local community. They have their own rules, norms and social values, in which land use and other human activities take place. The motives of people to use the potentials in the bio-physical system the way they do are determined by economic, political, cultural and technical reasons (Eckholm, 1979). According to Kleefmann (1985) these together constitute the sub-systems of the socioeconomic system as illustrated in figure 2.2. The interaction between the socioeconomic and bio-physical system

forms the land use system.

The interaction between the bio-physical and socioeconomic systems is manifested in a number of ways. The interaction of the economic sub-system with the bio-physical system is reflected in the settlement patterns or infrastructure established as a result of the occurrence of economic production centers or distribution systems. Specific income opportunities are either to be found only at a specific location (such as irrigated land), or are more profitable at one location because of distance criteria, suitability of soils or water availability. (Blaikie, 1985). The influence of the political sub-system can be direct, such as the imposed boundaries between forest and agricultural lands and indirect, as in the case of the expansion of irrigated rice-fields through government subsidies. The impact of the cultural sub-system on the bio-physical system may be visible in the form of land use patterns such as the inhabitation of hamlets by specific ethnic groups or family clans, division of land holdings, or by indigenous rights concerning the management of common lands. The availability of technical knowledge can re-shape the bio-physical system, with interventions such as the construction of water pumps and/or irrigation systems, the introduction of new cash crops, or the development of infrastructure (drinking water pipes, electricity or roads), each creating new possibilities for land use. In this land use system, the bio-physical system can be considered a 'reflection' of the socioeconomic system, but equally the bio-physical system provides potentials and constraints for land use that influence the socioeconomic system.

In this study the management of land use systems is of central concern. With the use of this land use system model, management of land use systems can be defined more explicitly as the process of formulating and implementing a course of action involving the potentials and constraints of the bio-physical and socioeconomic systems, taking into account the economic, political, cultural and technical factors that determine the system. Thus, land use management is more than the management of ecological resources such as soil, water, vegetation and fauna. It also involves socioeconomic activities in which political relations and cultural patterns, such as ownership of land, the production of cash versus subsistence crops, or the availability of labour may be crucial. Land use management programmes must take these relations into account and make these patterns explicit at the different scale levels (Blaikie, 1985).

2.3.2 Properties of sustainable land use management

A general consensus on the concept of sustainable land use is that its goal should be to maintain land use practices at levels necessary to meet the

needs and aspirations of the present population without compromising the ability to meet future needs as a result of excessive environmental degradation (York, 1988 in Wiersum, 1990).

In order to be able to identify the constraints in present land use and to plan sustainable programmes, it is useful to identify the properties of sustainable land use management. For this purpose the properties of Agroecosystem Analysis are taken as a basis. Agroecosystems are identical to land use systems in the sense that they are defined as ecological systems modified by human beings to produce food or other products. Agroecosystem analysis is a methodology that investigates relationships between the bio-physical characteristics and the socioeconomic patterns which have emerged in the system (Conway, 1987). Its properties can be classified as: productivity, stability, sustainability and equitability (see chapter 4 for details).

The first three properties all refer to the maintenance of production potential. The importance of creating opportunities or planning activities that can be adapted by the users (comprising both owners and non-owners) and which fit their land use strategy, is not explicitly included in these properties. Chapter 1 illustrates that this is a major criterion for the sustainability of development interventions. A key factor contributing to environmental degradation and low productivity on marginal uplands is the inability of farmers to adapt their farming and cultivation system to the changing conditions found (Barbier, 1989). Adaptability is used here to indicate the way farmers can resist or overcome dynamic changes in bio-physical (e.g. droughts, diseases) and socioeconomic conditions (e.g. changing markets, prices and/or tenure arrangements) and can respond to new opportunities (e.g. new production inputs, technologies or organizations) to improve their living standard (Wiersum, 1990). This adaptability of farmers should not be confused with the adaptability of the interventions, which should be flexible enough to adjust to local conditions. The latter depends on the potential costs of interventions, the social and technical feasibility of the interventions and the time before benefits are realized (Conway, 1987). The adaptability of farmers is an important property of sustainable land use. Thus, the necessity to understand the way farmers can adapt to economic, political and technical interventions and make decisions concerning choice of crops, farming system and land use management becomes paramount.

Besides the two properties of maintenance of production potential and the ability of farmers to adapt their management practices, a third property of sustainable land use is the (more) equal division of resources and benefits. A more equal distribution of agricultural inputs and outputs is important for the maintenance of production capacity. This can be

illustrated by the fact that the management strategy of the poor and landless land users is a major cause of soil erosion. Unequal division of inputs and outputs makes people more individualistic and self-seeking and people's willingness and ability to work together, a precondition for permanent improvements in land use management, is undermined (Budd et al, 1990). In section 1.2 it is mentioned that the management of natural resources requires collective action to deal with the long-term and remote impacts of land use management. To an even greater extent, the management of communal property requires the involvement of all land users involved, as otherwise the activities of one group can undercut the management schemes of others. Since the poor are dependent on the exploitation of common resources for their survival, improvement of the situation of the poor, by a more equal distribution of resources and benefits, is a prerequisite for sustainable land use.

Thus, sustainable land use is not only characterized by maintenance of production level of the resources, but also by the social capacity to manage these resources. Hence, the term 'sustainability in land use' should not be used to refer to the maintenance of production level, but rather to the maintenance of production capacity (Wiersum, 1990). This includes the social capacity of land users to adapt their land use practices, and equity in the division of resources and benefits. In the functioning of land use systems, the land user constitutes the crucial link between the bio-physical and socioeconomic system. His behaviour is determined by his ability to adapt to changing conditions and equity in distribution, which is the key to sustainable land use. Therefore, the three major properties of sustainable land use systems are (Conway, 1985; Wiersum, 1990):

- maintenance of production potential;
- adaptability of land users;
- (more) equal distribution of resources and benefits.

These properties can serve to describe the land use system, as well as to give an indication of its performance. These indicators are important in the analysis of constraints and opportunities in the land use system. Furthermore the effect of interventions on the land use system can be checked against these properties during planning and monitoring of implementation. This interpretation of sustainable land use management forms the basis for the development of a strategic model for planning land use management programmes as presented in chapter 3.

2.4 Local level

The term 'local level' has already been mentioned several times in previous sections. Why the planning strategy focuses on the local level

and what is really meant by local level can be explained as follows.

Firstly, a development process of, for and by the people, in which opportunities are created for development where they can make their own choices, requires an approach at local level in which the local land users become the planners. Their involvement helps to ensure that the programme will respect local cultural values and will be continuously oriented towards the people's felt needs and capacities (Bunch, 1982). Through their involvement the different land user groups and strategies can be identified. They can then become responsible managers for their own development programmes.

Secondly, the wide diversity and complexity in land use management demands a careful and detailed analysis at local level. Problems with landownership or land use entitlement, use of irrigation water and delineation of boundaries can only be dealt with at local level. These details are needed in order to identify adaptable practices and to aim at a more equal division of resources. Moreover, a study on the interaction between the bio-physical resources and the social capacity of the local people to manage these resources requires an interdisciplinary approach which is most feasible at local level.

Thirdly, planning is part of a process of planned development in which feedback from implementation and monitoring may result in adjustments to the plan. Thus a flexible learning-by-doing approach is proposed which can respond promptly to rapid changes. Small scale programmes should therefore be planned at local level. Since in such programmes only small sums of money are involved, the villagers can set the pace for development, rather than the programme's funds or development agencies leading the way (Bunch, 1982).

Having justified this focus on the local level, the next question to be answered is: what is the local level? Land use management at local level has two dimensions (fig. 2.1). The first (left part of the model) is the bio-physical system that forms a physical unit for planning. Watersheds or coastal zones are examples of bio-physical units and can be defined as the immediate physical setting for the livelihoods of the rural population. The second dimension is the social system (right part in the model). It consists of the land users, their rules, social structures and norms, formalized in an institutional framework. The social system provides the local level with the administrative and social unit for planning and managing programmes.

In practice this combination of physical and administrative units often does not coincide. Experiences with watershed management projects

(DHV Consultants, 1990; Hufschmidt, 1986; McCauley, 1985) have taught that a watershed provides a useful unit for managing the physical system, but that the people who are making use of it cannot be treated as a well-defined socioeconomic system. The reason is that boundaries of the bio-physical and socioeconomic system are not always contiguous. For example, within each watershed a broad range of tenure arrangements, stratified social groups and various farming systems and land use patterns exist (Cernea, 1985). Since in a people-centered development approach these social units are of utmost importance, this strategic model is developed primarily on the basis of socioeconomic rather than physical units. This means that programmes should be developed for a village, or cluster of hamlets or settlements that form some other sort of social or administrative unit. Planning for administrative units also provides the opportunity to involve existing government organizations and procedures in the planning.

When planning is carried out at this local level, villagers or members of a clan, tribe or other social organization become the planners. Their contribution in providing knowledge of local conditions, identifying problems and conflicts or opportunities, identifying groups of different land users, judging the cultural acceptability of different strategies and helping decide when, where and how certain activities should be carried out, is most valuable. However, they should be helped in the identification and formulation of interventions by a moderator from an external organization. As they gain experience and develop their capabilities they will become increasingly able to participate in planning and more important, increasingly enthusiastic.

This does not mean however, that all land use problems can and should be solved at local level. Chapter 1 illustrates the importance of involving the government in land use management as their influence on national policies such as subsidies, prices, land tenure or other institutional aspects are crucial to the success of sustainable land use programmes. Moreover, linkages to government administration may give access to government budgets, new technologies and rules concerning the management of common resources. Government should be the initiator of the planning strategy and provide the institution for its management.

Although rural people are in general rather wary about government interventions, this should never be a reason for leaving the government out of the development process. Rural people have often mistrusted governments whose historical relationship with its people has been one of overseer, rule-enforcer, potential grabber of part of their benefits and bribe-taker (Blair and Olpadwala, 1987). However, a shared perception of the problems by land users and government organizations, or an

arrangement in which both local land users and government organizations bear some responsibility for costs and benefits, is essential for successful land use management (Blaikie, 1985). Carson (1989) formulates this dilemma as follows: 'The closer one gets to the villager's situation, the better the information on how to best manage the land. The closer one gets to the central government officer in the capital, the better the ability to influence government policies and budgets'. The present system of orders flowing down the chain of command will no doubt continue, but somehow useful information on what to do and how to do it must be permitted to flow from the local to the higher levels.

An oft-cited, practical constraint to planning land use management programmes at local level is the fact that it is time-consuming and therefore has a limited reach. This is not usually to the liking of government agencies and international donors, who in practice, prefer to measure the impact of their development efforts by size or quantity rather than quality of the programmes. Although the development programmes planned at local level may be small in size, this may be compensated for by their high degree of effectiveness. The enhanced ability of local people and supporting field workers to plan sustainable land use interventions may result in better and faster planning of interventions in the long run. A participatory planning process is thus of greater importance from a long-term perspective, than the short-term results of planning interventions. Developing the planning process at a slow pace requires relatively intensive external support in the initial stages and a strong commitment from project managers and donor organizations. But this is justified by the gradually increasing impact that local level planning will have in the future.

Another constraint to participatory planning at the local level is that it requires a large number of villagers and supportive field workers to be actively involved for a certain period of time. The poorest sections of village society in particular devote all their time to their daily survival. Because of this problem of 'opportunity costs of time' of both villagers and field workers and the limited skills and available resources for implementing the planning process in each village, the first step in the process of planned development (figure 2.1) should be quick and fairly simple.

2.5 Organizations and institutions

The terms institution and organization are commonly used interchangeably and this contributes to confusion and debate among development planners. The following definitions and interpretations of these terms are used in this study.

Uphoff (1986) defines organizations as structures of recognized and accepted roles. These organizations may operate on a formal or informal basis. The latter means there is no legal or otherwise explicitly prescribed basis for the roles or for the authority and other resources associated with them. Institutions are complexes of norms and behaviors that persist over time by serving collectively valued purposes. Not all organizations are institutions. However, when an organization has acquired special status and legitimacy for having satisfied peoples' needs, one can say that an organization has become 'institutionalized'. Some kinds of institutions have an organizational form with roles and structures, whereas others exist as pervasive influences on behaviour. An example of the first is a government with generally accepted roles and organization form, whereas an example of the second kind of institution is the principle of self-help, which lacks a structure of generally accepted roles. A distinction can be made between 'made up' and 'traditional' institutions. 'Made-up' institutions are (often) newly established institutions assigned specific development tasks by the national government or donor organizations. 'Traditional institutions' are evolved and supported by rural people.

The term institutional development is used for both organizations and institutions. Waardenburg (in Schulte Nordholt, 1990) defines institutional development as: 'the package of supporting measures and programmes aiming at strengthening and enabling institutions or organizations so as to guarantee their continuity'.

2.6 Summary

In chapter 1 a shift in development approaches towards a development process of, for and by the people is advocated. The wide complexity and diversity of land use systems found in upland areas supports this need for a change. Land use management encompasses both short-term and long-term benefits and is confronted with rapid changes. The differing role of private, state and communal lands in combination with a complex system of control and utilization makes land use management difficult to fully understand. Government initiated blue-print programmes have not always been successful in the upland areas because these programmes were not adjusted to cope with the complexity and diversity of the uplands. Therefore it seems warranted to respond with the development of an alternative strategy for planning sustainable land use programmes at local level. The concepts introduced in this chapter are used in the development of a strategic model for planning sustainable land use programmes, described in the next chapter.

3 STRATEGIC MODEL

3.1 Introduction

The need to develop a strategy for planning sustainable land use programmes at local level has been made clear in the previous chapters. The next step is to determine the kind of strategy that can provide a flexible framework for policy makers to follow when planning effective, sustainable and operational land use programmes at local level. This chapter describes a model which indicates the main principles, elements and relations to be considered in formulating such a strategy. The main principles of this strategic model are:

- programmes should be planned and managed in the form of a learning process;
- three variables should be considered in programme planning; land use system, interventions and organizations. Sustainable land use programmes are only possible if a good fit between these variables is achieved.

The learning process is implemented in a local and organizational dimension. The local dimension includes a process of planning, implementation, monitoring and adjusting small scale programmes based on new insights and changing conditions. In the organizational dimension the learning process proceeds through three different phases of trial, development and expansion. In this dimension the government can learn how to manage the strategy of implementing local level planning at a local, regional and national level.

Achieving a fit between the three variables is a complicated matter requiring the phased approach. In the trial phase, the focus is on achieving a fit between interventions and land use system by implementing trial cases in local level planning. In the development phase, attention is focused on achieving a fit between organization and land use system through the development of human resources and communication processes. In the expansion phase the planning approach is accepted at national level and changes in government structure and procedures are needed to be achieve a fit between interventions and organization.

Section 3.2 presents the two basic principles of the model. A description of the model, with its major components and the relationships between

the components is given in section 3.3. Section 3.4 describes the achievement of fit between the components in phases, while conclusions are set out in section 3.5.

3.2 Principles in planning development programmes

3.2.1 *The learning process*

In chapter 1 development is defined as the slow process of people learning how to use their own capacities and those of their environment to better meet their own needs and those of others. 'Planned development' should imitate this process and therefore should be seen as a learning process.

The reasons to opt for a learning process, rather than the development of blue-prints for planning land use programmes, are in many ways identical to the arguments used to support the choice for planning at local level. An additional argument in favor of the learning process approach is the fact that land use systems are characterized by many changes and uncertainties, such as:

- changing conditions in the socioeconomic/political system including land ownership situations, marketing conditions, prices of products, labour availability; political struggles over resources;
- changes in physical conditions, caused by erosion, diseases in trees/crops, rainfall.

The fact that people should be the central focus of development, further increases the level of uncertainty in planning and managing interventions. Participatory development as described in chapter 1 does not produce neat, time-bound, predictable results, that can be planned and budgeted in advance. Instead it involves a high degree of uncertainty as local people may change their minds about priorities and/or the means to achieve them (Hofstede, 1981; White, 1989). The nature and benefit of participation depends on the local land users, their organizations and local institutions. It also depends on objectives, the kind of activities undertaken and the circumstances under which these are implemented. To deal with this multitude of constantly changing variables and uncertainties, flexibility is required in the process of planning and managing land use programmes. In fact land use management is so complex that any good programme should be constantly discovering new and better approaches to use (Bunch, 1982).

Therefore a learning process approach is proposed, in which adjustments can be made to planning and management practices, based on experiences with small scale programmes shared by the various land users. The latter can be individuals, local organizations and implementing agencies. In this approach the first step of planning land use improvements is

relatively short (a period of one month). Any shortcomings in these rapidly drawn up plans are revealed during implementation and monitoring of programmes, and the plans are adjusted accordingly. This approach is an educational process in which participants (local people and field staff) gain an increased awareness and understanding of the various factors which affect them, thereby increasing their control over the development process (FAO, 1988). Error detection and new experiences are the main features of this learning process.

A learning process is not only desirable to adjust interventions to the needs, opportunities and constraints in the local land use system. It also allows adjustments to be made at organizational level. Intervening governmental and private agencies should learn how to implement the new tasks that come with a people-centered development approach. A typical task might be to train and motivate a group of farmers to teach innovative methods to other farmers, as well as to teach them how to improve on those innovations by themselves (Bunch, 1982). This requires a change in attitude on the part of government staff and also an adaptation of their organization structures and procedures. Thus, the learning process operates in two dimensions. In the local dimension a learning process of planning, implementation and monitoring of interventions takes place. In the organizational dimension, organizations learn how to implement the local planning process. This involves changing their structure, norms and attitude in order to carry out the new tasks which local level planning demands.

In the organizational dimension the learning process progresses through three phases: a trial phase; a development phase; and an expansion phase (Korten, 1980). In the trial phase (phase I), small scale planning activities start on an experimental basis with high inputs from agents within the external environment, such as donor agencies and national government. At this stage the planning activities are implemented by a temporary planning team, which is relatively free from normal administrative constraints. In the development phase (phase II), the required external inputs, such as financial and human resources, are gradually reduced and the important planning activities are routinized. Organizational constraints are recognized and an expanded cadre of field workers is trained to support participatory planning processes. Some loss in quality of design will be the necessary price of increasing their skills and capacities. In the expansion phase (phase III), the central concern is with expanding the competence of agencies to manage land use planning at a local level. Because expansion will inevitably mean a reduction in (external) support and training, compared to the first phase, constant attention is needed to maintain an acceptable quality of planning (Korten, 1980).

To summarize, a learning process should take place in two dimensions:
- the local dimension; a learning process of planning, implement-

ing and monitoring land use management programmes at local level with active involvement of the local land users;

- the organizational dimension; a learning process of developing and managing local level planning via a trial phase, a development phase and an expansion phase.

3.2.2 Three variables to be considered

A project can be successful when: 'it has worked out a programme model, responsive to the beneficiary needs at a particular time and place and when it has built a strong organization capable of making the programme work' (Korten, 1980). Korten identifies three variables of a programme model, namely: (a) beneficiary needs, (b) programme and (c) organizations. In this study the variables of a programme model have been modified to become: (a) land use system; (b) interventions and (c) organizations. The purpose of these modifications is to provide a better insight into all factors that play a role in planning and managing effective local level land use programmes. The three new variables are briefly described below:

Land use system

The variable 'beneficiaries', as used by Korten (1980) is replaced by the broader term 'land use system'. An interpretation of the term land use system is given in section 2.3. The reason for doing so is that the design of sustainable land use programmes should not focus on the need of 'beneficiaries' only. If for example, possibilities and constraints for the management of natural resources or the introduction of technologies are identified, attention should not only be paid to the short-term demands of the local people, but also to long-term benefits focused on ecological and economic requirements for sustainable land use. Interventions are needed that respect all three properties of sustainable land use systems mentioned in section 2.3: maintenance of production potential; adaptability of practices by land users; and a more equal division of resources and benefits. Hence, for the identification of sustainable programmes, both physical and social constraints and opportunities must be taken into account. The use of the term 'land use system' instead of 'beneficiaries' provides, above all, an opportunity to analyse this interaction between the physical and social systems. This ensures that not only are the needs of beneficiaries taken into consideration when designing interventions, but also the capacity of 'beneficiaries' to manage these interventions, in addition to long-term ecological and economic requirements. In this model the land use system is considered at the local level (as described in section 2.3).

Interventions

The variable 'programme' as used by Korten (1980) is replaced by 'interventions' and thus has in fact been given a narrower interpretation. Korten (1980) defines 'programme' as programme design, resulting in outputs (resources and services) and task requirements (box 3.1). However, 'programme' is often interpreted as 'project' and in this more common interpretation, the term 'programme' is used for the total performance that is a product of the fit achieved between the land use system, the interventions and the intervening organizations. Therefore, to prevent misinterpretation, the term 'interventions' is introduced. An intervention is a systematic effort to strategically apply resources to manipulate seemingly causal elements in an ongoing land use process, so as to permanently reorient that process in directions deemed desirable by the local land users and the intervening organization (Röling, 1988). Interventions encompass resources (or inputs) and services directed towards the land use system (resource management actions), and the implementation tasks that evolve from these interventions to be undertaken by the implementing organizations.

Services may be defined as the total and inter-related set of activities for delivering the resources or inputs for technical, economic and social support needed by the local people. Examples of services are supply of information, credit facilities, marketing programmes, introduction of regulations, training in technologies, development of local organizations and tenurial arrangements. The specification of tasks identifies the activities and functions the organization must perform in order to provide the services, such as the supply of material or (production) inputs, extension and training, mobilization of people, or capacity building of local organizations (Paul, 1982).

Box 3.1 Definitions of services and tasks

Thus interventions are not simply the execution of a pre-specified plan of action with expected outcomes. They are always part of a chain of events located within the broader framework of the activities of the state and the action of different interest groups (Long and Van der Ploeg, 1989). Therefore, the planning of interventions is an adaptive process which should always start with an inventory of what local people already do and know, so it can further build on available knowledge, resources, practices, capabilities, institutions and political disputes. If not, interventions may enhance the inequity and heighten confrontations between differing interests and values in the local environment (Heaver, 1982,

Hofstede, 1981, Long and Van der Ploeg, 1989). For example, in a social forestry programme the distribution of lucrative reforestation plots among the local population is a political struggle, in which the rural poor, who are the main target group, are often left with the worse plots (Peluso, 1986). However, via the planning of well-adjusted and adaptable interventions, local people can be supported in their development with knowledge, material and organizational inputs for sustainable development. Therefore, interventions should be a blend of what people want, know and are able to do and what intervening parties are able to provide, in terms of tangible opportunities, research based information, attractive and effective products and sound ideas (Röling, 1988).

Organizations

In this study a distinction is made between local organizations as part of the land use system and (external) government and private organizations, who intervene in this land use system. The variable 'organizations' will be used as a reference to the latter (otherwise the term local organizations will be used). Thus, organizations can be defined as structures of recognized and accepted roles, which operate on a formal basis (Uphoff, 1987). In the analysis and planning of capable organizations, two interrelated features can be distinguished. These are (a) the competence of an organization and (b) the processes by which the organization communicates and makes decisions. The competence of the organization to implement its tasks relates to (Korten 1980): the structure, routines and norms which govern the organization's functioning, and the technical and social capabilities it employs when providing interventions. Communication and decision-making processes can be defined as the influences on human behaviour leading to decisions and actions to help people form sound opinions and make decisions (Paul, 1982; Van den Ban and Hawkins, 1988).

Summarizing this section, the two principles for the planning of sustainable land use programmes are:

- planning is a learning process;
- planning considers three variables: land use system, interventions and organizations

These form the basis for the development of a strategic model for planning land use programmes at local level, which is further elaborated in the next section.

3.3 Strategic model for planning sustainable land use programmes

In this section a strategic model for planning local level land use programmes is presented. The model is obtained as a result of integrating the two afore-mentioned principles and can be depicted as a triangular

relationship between the three variables; land use system, interventions and organizations. The basic assumption underlying the model is that sustainable land use development programmes can be achieved when a fit is realized between all three variables (figure 3.1).

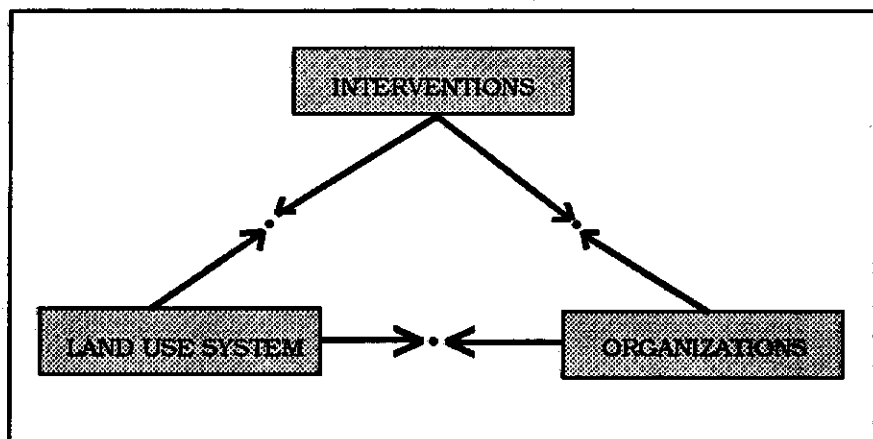


Figure: 3.1 Triangle of fit requirements

The first fit to be achieved is between land use system and interventions. The land use system presents needs, opportunities and constraints from the physical and social system separately, as well as from the interaction between them. The interventions respond in the form of resources and services. The second fit to be achieved is between the land use system and organizations. Channels may need to be established through which local people can express their needs and organize themselves, and the organization can respond and offer support. The way in which this fit is achieved will largely determine whether interventions build or diminish the community's capacity for local problem-solving. The third fit, between interventions and organizations, is achieved either by adjusting task requirements to the competence of the organizations charged with the implementation of these tasks, or adjusting the competence of organizations to suit the new tasks associated with the planned interventions. (Korten, 1980).

Social interventions can be part of both planned interventions and communication processes. For example, the identification of local organizations, informal leaders, need for communal land management arrangements or training can be an integral part of planned land use interventions to be accomplished in the local dimension. However, to develop the capacity of local and intervening organizations to implement

social interventions on a long-term basis, long-term commitment and structural changes within communication processes are required. These have to be accomplished in the organizational dimension and concern routine interventions. Thus routine interventions form a direct and long-term relationship between organizations and the land use system, while locally planned interventions can take place in the short-term (figure 3.2). Implementation of these planned short-term interventions will stimulate the long-term development of communication processes.

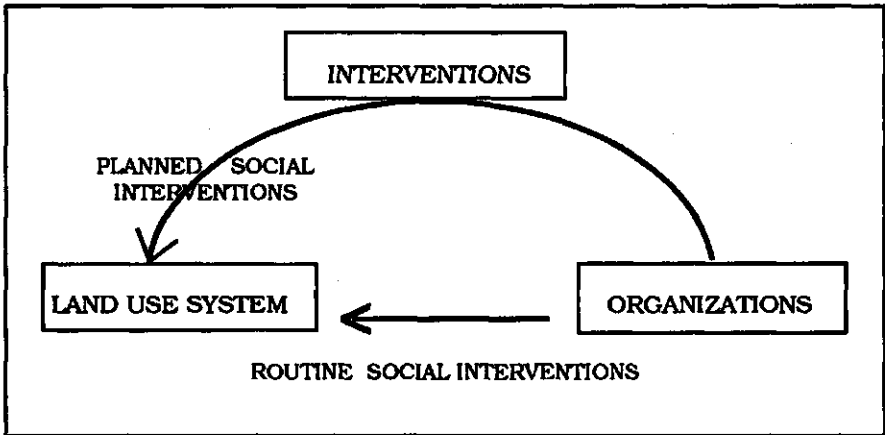


Figure 3.2: Planned and routine interventions

Achieving a fit between the three variables is a complex operation and demands attention to each relationship between these variables at different phases. As discussed in section 3.2.1, three phases can be distinguished in a learning process approach: a trial phase; a development phase and an expansion phase. In this model, each phase focuses on achieving a specific fit. Figure 3.3 illustrates the three phases and the focus of each phase on a specific fit. Generally speaking, the trial phase is implemented at the local level, the development phase also involves the regional level, while the expansion phase requires involvement of the central level. The time scale in which the fit is achieved is also indicated.

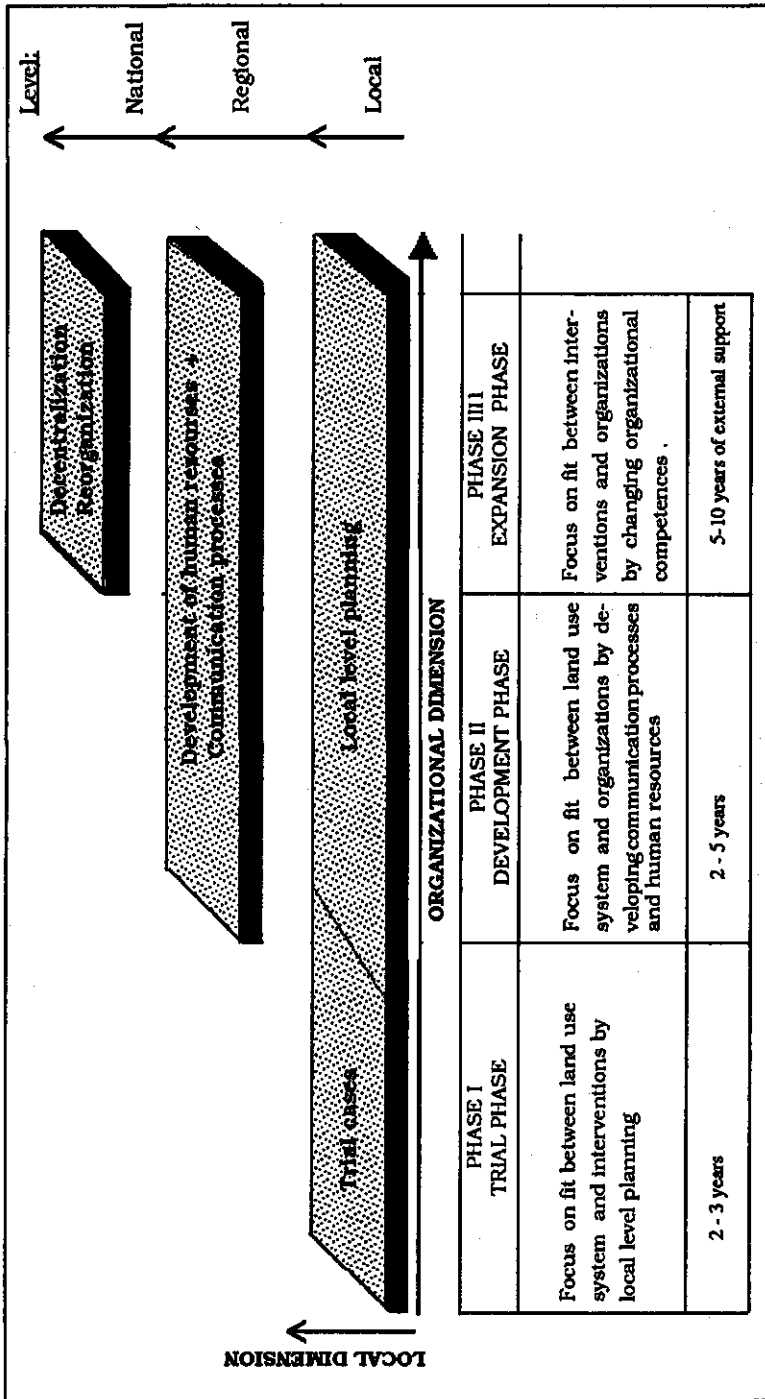


Figure 3.3 : Three phases of the strategic model and the specific fits to be achieved

In the trial phase (phase I) activities start on the basis of trial cases in local level planning, usually with a high level of inputs from the external environment, to assess what is required to achieve a fit between the three variables. A cycle of planning, implementation and monitoring of the small scale trial programmes provides the necessary data and experience for planning sustainable land use programmes at local level. External inputs, such as finance and consultancies are required for the implementation of these trial cases. In this phase, the focus is on achieving a fit between the design of interventions and the local land use system. In a trial case, local field workers and villagers are involved in the planning and existing organizational structures and procedures are used whenever feasible. In this way both local people and the supporting organizations become acquainted with a more people-centered approach to planning sustainable land use programmes at local level.

In the development phase (phase II) the external inputs are gradually reduced and the local level planning, implementation and monitoring processes are routinized. The focus is on achieving a fit between organizations and land use system by developing communication through human resources development resulting in capable local organizations and a cadre of experienced planners/managers. A learning process of local level planning and training programmes aims to increase the motivation, skills and commitment of field staff, local people and local leaders to cooperate. Also guidelines on local level planning have to be prepared at this stage. These activities are coordinated at a regional level and may extend over a period of several years. Thus, the planning process as developed in phase I becomes institutionalized and embedded in organization structures.

In the expansion phase (phase III) attention is focused on the fit between interventions and organizations. Achieving this fit requires decentralized decision-making processes, autonomous responsibility in organizations, strong local leadership and adjusted structural forms of organizations. The experiences with local level planning and training programmes provide the necessary examples for these changes. This stage may be the most difficult to attain, since it requires some fundamental changes in the government structure, norms and organization, to be induced by the central government.

Because each phase involves different activities and organizations, the organizational structure needs to be adapted for each phase. In the trial and development phases multiple integrated programmes need a structure which permits dual control by the programme manager of the government administration and the regional managers of the sectoral agencies who will be responsible for project implementation. This

requires a matrix structure in which management control is effected through a decentralized arrangement. The final control of the planning strategy still rests with the top management of the programme, but decision-making concerning the organization of the planning process and the implementation of planned interventions is delegated to regional and service level, where managers are required to exercise joint control (Paul, 1983). Experience with integrated development programmes have revealed the difficulties with cooperation between different sectoral agencies. However, as long as the matrix structure is implemented at sub-district or district level, inter-agency cooperation may be possible. In the expansion phase the programmes are expanded to a national level, which can no longer be controlled by one lead agency, but requires a network structure in which the different agencies work together. The lead agency coordinates, but does not control. The network performs well only if the lead agency can influence the other members of the network by joint allocation of funds, joint planning of activities, political support and review of the planning strategy. This network permits a high degree of decentralization to respond to extreme complexity in local environments (Paul, 1983). In practice, establishing such a network structure still appears to be a difficult task.

When changes in organizational structures occur, the need for different managers arises. In the local dimension, local people and the field (extension) workers of supporting organizations form the planning team, who identify needs, constraints and opportunities and formulate development programmes. Their activities are coordinated and supported by a local government leader (like the head of a sub-district) or a leader of a local NGO. In the organizational dimension of implementing the development and expansion phase programme managers should be able to see the totality of fit between the variables and search for congruent combinations at the different phases (Paul, 1983). Thus they should focus attention on the design of locally adjusted interventions at the trial phase, improved communication processes at the development phase and decentralized organization structures at the expansion phase. Such a programme manager should come from a government organization with the power and capacity to integrate programmes, mobilize other organizations, use budgets in a flexible way and get political support from other ministries. Depending on the circumstances of individual countries this may be an organization in the Ministry of Interior Affairs, the Ministry of Rural Development or others. This lead agency guides the implementation of the strategy at a local, regional and national level, through monitoring results of the planned programmes; motivation of people involved; constraints within government structure; constraints to decision making and communication processes and political changes; and by involving key people with experience in trial cases as regional managers or trainers.

It can be concluded that by subdividing the planning of sustainable land use programmes into different phases, the whole process becomes more manageable. The difficulties in bringing about changes in the attitude and structure of organizations are no longer an excuse for not starting a programme: in fact they justify phasing of the strategy. Besides making the process more manageable, the division into phases provides the opportunity for a learning process, in which, step by step, a fit can be achieved between all variables.

3.4 The achievement of fit per phase

The following sub-sections describe how and to what extent a fit can be achieved between the variables for each phase.

3.4.1 *Fit in the trial phase*

In this phase the focus is on achieving a fit between a land use system and interventions, through the design of interventions that fit the local needs, wishes, constraints and opportunities. Local is defined in chapter 2 as a village, a cluster of hamlets or settlements that form some sort of social or administrative unit. Not only should the question of what interventions are needed be raised, but also the questions how, when, and by whom these interventions should be implemented deserve attention. These form the task requirements for the organizations. Since the trial phase is started with trial cases, no structural changes in organizations can be expected yet and hence these tasks should be adjusted to their present competence.

Interventions should be geared towards the land use system, by the planning of appropriate physical inputs (material, finances), resource management technologies, technical services and socioeconomic services. Examples of resource management technologies are: agroforestry, soil conservation or cropping systems. The design of technical services encompasses techniques and practices that focuses on management of bio-physical resources. The latter include training and help in production, supply and use of material (seed, seedlings, fertilizers, construction material). The design of socioeconomic services focuses on the human resources. It encompass the implementation tools (e.g. extension, training, incentives, organizing local groups) for the local people to carry out these practices, as well as the institutional arrangements at local level, within which the implementation of these technologies can proceed. Examples of institutional arrangements are: land tenure arrangements; marketing contracts; or legislation of local organizations.

Although land use management technologies and technical services focus on the management of the bio-physical system and the socioeconomic services on the socioeconomic system, the interaction between technologies, technical and socioeconomic services is of utmost importance in the formulation of land use strategies. In chapter 2 it is mentioned that bio-physical resources are only sustainable and productive when the local people have the social capacity to manage these resources and when such management is economically attractive. A description of sustainable land use systems is presented, culminating in the definition of three properties that describe and characterize sustainable land use systems. Thus, to achieve a fit between interventions and the land use system the design of technical and socioeconomic interventions should be such that these three properties of sustainable land use are pursued:

- maintenance of production potential
- adaptability of land users
- a more equal distribution of resources and benefits

This requires the identification and analysis of needs and capabilities of different categories of land users, so-called land user groups *) and their specific strategies for using/managing the natural resources. Chapter 1 illustrates the fact that land users consist of a large variety of rural people, many of whom are neither owners nor managers of farms. Their behaviour is the key to sustainable land use and a major reason for land degradation or problems with land management practices lies in their land use strategy. In their survival strategy, people will actively strive to achieve a fit between their consumption necessities, the production factors at their disposal and the alternatives for generating monetary and non-monetary income (Wood, in Rutten, 1987). This strategy is determined by economic, political, cultural and technical motives. While the economic and technical motives are normally acknowledged by many planners of interventions, the political and cultural factors are often neglected. It is however of the utmost importance to understand all the motives behind land use strategies, in order to plan interventions that can be adopted and managed by the land users.

It would be impossible to identify the strategy of each individual land user. Instead different land user groups are classified according to the strategies they employ (Rocheleau, 1987). The strategies of land user groups can be distinguished on the basis of five more practical criteria:

- activity (farmers, herdsmen, labourers, off-farm employment);
- tenure (ownership/sharecroppers, tenants, labourers);
- location of their land (fertility, accessibility, water availability);
- division of activities within households or gender specific activities for male or female farmers, each having different modes for access and control of resources;
- unit of organization and management (individuals, households, communities).

*) In this context a group should be interpreted as a 'category' rather than a group as a unit of social organization.

The identification of main activities of land users is determined by the consumption needs, production factors and alternatives for generating income, while the rights of access and ownership may be determined by identification of production systems (private, communal or state owned land), or land and tree tenure arrangements.

Location of land determines farmers access to fuelwood, water, markets, information and thus influences his land use strategy. Another distinction between user groups is gender related. Female farmers often have different access and control to land, production inputs and information compared to men, which influences their land use strategy.

For the identification of units of organization an investigation of farming systems, local organizations, land users' associations and social patterns is needed (Rocheleau, 1987). Processes such as reforestation, environmental protection, watershed rehabilitation and the group management of natural resources in general require planners to concentrate on the dynamics of collective behaviour and select those social organizations capable of sustaining a technical innovation. It is important to identify precisely which social units of organization can and will carry out certain activities and which social units or groups can form a sustainable social structure. Social organizations will vary with the technologies for resources management. For example, on-farm forestry may require the farm family as the social unit, while forestry on common lands may demand the involvement of whole communities and village organizing bodies (Cernea, 1985). This distinction between land user groups not only helps to formulate interventions that can be adopted, but it also provides an opportunity to examine the distribution of benefits among the groups.

The fact that resources, resource management technologies and technical and socioeconomic services are needed, means that an integrated programme of multiple project activities is needed (Paul, 1982). For example, the introduction of a new land use practice is useless, unless at the same time supportive socioeconomic services are provided, such as credit facilities, usufruct rights, management arrangements or training. Also, specific technologies and services have to be designed for specific land user groups, requiring multiple programme activities. Moreover, the combination of technical and socioeconomic interventions is needed as technical interventions are often the motor behind socioeconomic changes. The tangible results of technical interventions inspire individuals and organizations to change their mode of operation.

There is a limit to the number of innovations that can be introduced at any one time: a wide diversity in multiple services demands temporal and

spatial phasing of the programme. Too great a variety of services arranged by different organizations may be confusing for the land users involved. Other reasons for sequencing can include insufficient financial resources, limited management capacity of organizations, or too many uncertainties about the impact of services. However, the most important reason for sequencing is that it provides the opportunity for a learning process approach, in which the local people and the supportive organization share their experience and ideas based on experimentation, and adapt services to fit the changing conditions (Paul, 1982). The advantage of working with a limited number of interventions is that priority can be given to those interventions proposed that best combine simplicity and low risk with major increases in income. This provides the best chance of achieving a high rate of success. In addition a limited programme is likely to reach more people, especially the poor (Bunch, 1982).

Another dimension of planning interventions relates to its measurability and outcome. The results of physical development such as soil conservation measures, or reforestation programmes are easier to measure than programmes focused on changing the behavior of land users, or other social changes. This may be one of the reasons why government (and donor) programmes tend to focus on measurable results. They are highly visible and provide a clear indication that money has been spent according to the standard design, which serves as yardstick for the performance of the implementing organization. Therefore a combination of physical and social measures may be a realistic compromise, although the neglect of social services to date justifies greater emphasis on social changes.

In this trial phase, communication and decision processes that are of importance for the fit between the land use system and organizations are initiated under trial conditions (figure 3.4).

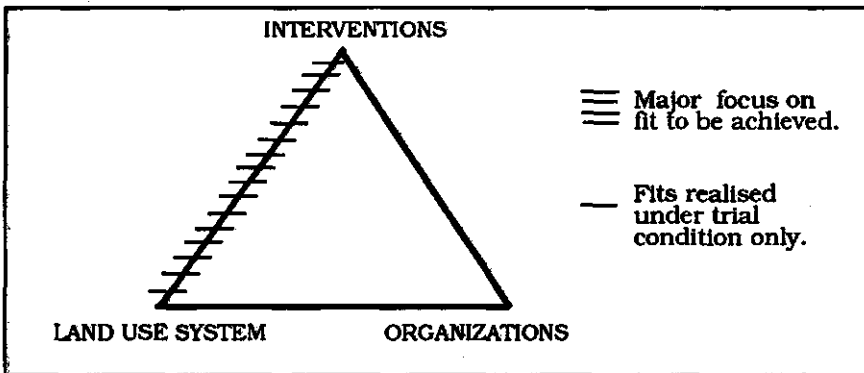


Figure 3.4 : Degree of fits achieved in the trial phase

No structural changes in the competence of organizations can be expected yet at this stage. The planning of trial programmes is carried out by a temporary planning team with a temporary organization and the design of interventions should be adjusted to their current competence. This can be established by identifying the present capacity and competence of local people and field workers, budgets available, transportation means, decision-making procedures and other aspects of the competence of organizations. By participating in the trial cases for local level planning, field workers and their organization immediately become acquainted with more people-centered processes: the learning process starts by listening to farmers and considering them as equal partners in a team, by involvement in participatory planning techniques and through the mobilization of human resources. This accumulation of experience reorients attitudes and habits of thought (Chambers et al, 1989). Thus, behavior is changed (in this phase) before attitude (in the development phase). Also in these trial cases, villagers may develop the capability of their local organizations to organize themselves and to express their needs. Such experiences may pave the way for more structural changes.

To sum up, in the formulation of sustainable land use programmes the interaction between bio-physical and social interventions is of utmost importance. These programmes should focus on the three properties of sustainable land use systems: maintenance of production potential; adaptability of land users and a more equal distribution of resources and benefits. This requires the identification and analysis of the motives of different land users for their specific land use strategies. Land user groups can be subdivided by main activities, by tenure, by location of land, by gender and by unit of organization. Multiple services should be interactive and implemented in sequence to keep the programme manageable by the local land users and to create an opportunity for a learning process. Planning socioeconomic services merit greater emphasis than technical practices as they are more difficult to measure and thus easier to neglect. In the trial phase no structural changes can be made to the competence of organizations. However, the involvement of their extension workers in the trial cases of local level planning may influence their behaviour in working with the local people.

3.4.2 *Fit in the development phase*

In this phase the focus is on achieving a fit between a land use system and organizations by the development of communication processes. Different forms of communication between the local land users and the staff of organizations already take place during the planning process in the local dimension. Local people and staff of organizations work together in a team and implement the process of planning, implementation and

monitoring jointly. Moreover a learning process in which information is shared between all actors involved is a main principle of the planning strategy. In the development phase, these communication processes have to become institutionalized and embedded in an organization's structure.

In this phase communication processes take place through the implementation of local level planning and human resources development activities, managed at a regional scale. In the process of implementing local level planning the government will gain experience and motivation to further develop and implement local level planning (figure 3.5). In order to understand the necessity for human resources development an analysis of the present state of communication between many government organizations and local people is presented below.

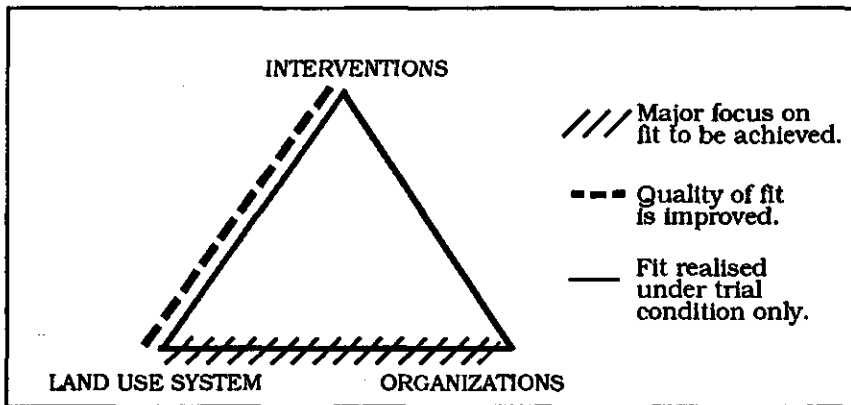


Figure 3.5 : Degree of fits achieved in the development phase.

Absence of fit between the organizations and the land use system is often caused by an incompatibility between the institutions of the organizations and the institutions of the local people. This has limited the success of sustainable land use programmes (Fox and Fisher, 1990). The institutions of local people are formed by their local social system, which determines the capability of local organizations or individuals to participate, organize themselves, make decisions, express their demands and present options for communication with the organizations. The institutions of organizations present decision and communication patterns (through their norms and values), but do not react to the social system of the local people. Thus, situations may occur in which a set of rules or practices accepted by organizations are opposed to a set that is accepted in the land use system. This incompatibility presents a need for the development of communication and proper decision processes between the local people and the organizations.

From the point of view of the local people, this reluctance to communicate may be induced by a lack of motivation. This in turn may be caused by any one or a combination of the following factors: poor benefits; limited flow of information; lack of access to (financial) resources; differing economic interests; the absence of local organizations; political interests of elite groups in the local societies; lack of involvement with, responsibility for and disappointments with previous programmes; resentment of officials (because of corruption). As a result their countervailing power to actively 'pull down' services (such as extension and research) from the organization, is lacking (Röling, 1988). In this respect, participation of the rural poor in the communication process deserves special attention, as they are often the least organized because they have no education, no access to extension and no time to organize themselves.

A major cause of the inability of organizations to communicate with local people is the attitude and administrative style of government staff. They are heavily dominated by hierarchical authority, they tend to focus on observing procedures rather than achieving results and are characterized by an inflexibility engendered by standardized and routinized processes. For example in centralized bureaucratic programmes, a paternalistic approach is followed which implies that everything must be done for local people in a top-down, bureaucratic manner. Agency personnel come to expect that the people served should accept the greater expertise of the professional. Skills in listening to people and reshaping programmes accordingly are simply not developed (Korten, 1983). Local field staff are often reluctant to undertake participatory planning because it is a time-consuming and difficult process. Instead they prefer to follow the standard designs laid down by central government without the risk of taking, often unappreciated, initiatives. Moreover, they doubt the capability of local people to analyse their own problems and come up with valuable ideas. Hence, in many developing countries government agencies are not tuned to motivating and helping local people to carry their own development process. If local organizations exist, they are often exploited or formed for the benefit of government organizations. Farmer groups may be used for extension meetings and the distribution of inputs, while the local people often do not see the benefit of such organization and they: 'will last as long as the villagers feel they must keep the organizations going to satisfy a development agency or receive whatever subsidies may be forthcoming' (Bunch, 1982).

In the last decade, often under pressure from donors, central governments have gradually shown a more positive attitude towards a participatory approach to land use management programmes. The introduction of social forestry programmes is an example. However, they often still lack

confidence in the social capacity of local people to manage resources. This results in an ambiguous approach that aims at handing over responsibility for land use management to communities without also handing over effective control, which is tantamount to saying: 'You have full authority to manage the forests the way we want' (Fox and Fisher, 1990).

As a result of conflicting institutions and incompatibility in the communication process, the motivation for development programmes often differ, as illustrated in table 3.1.

Table 3.1 Conflicting motivation of local people and organizations for development programmes

LOCAL PEOPLE	ORGANIZATIONS
* are responsive to subsistence needs	* are responsive to planned and cash production and conservation objectives
* are sensitive to their time and capital constraints	* follow existing organizational and planning procedures
* require flexible programmes to respond to changes	* require reliable results and minimal trouble to implement
* want clear farmers' rights and responsibility	* want clear rights and ownership and no questioning of state's ownership and control of state land by local people

These obstacles to communication require the identification and formulation of new communication and decision processes between local people and development practitioners of organizations. Extension processes may be an answer to these needs.

Röling (1988) defines extension as: 'a professional communication intervention deployed by an institution to induce change in voluntary behaviors with a presumed public or collective utility'. Such a communication intervention aims at changing people, not things, nor does it promote private interests. 'Change in voluntary behaviour (behaviour that is enacted in the absence of surveillance and incentive structures) cannot be changed by degree. It requires persuasion, transfer of information and other communication leading to changes in knowledge, awareness, motivation, understanding or feed-back, which allow target

clients to decide that behaviour change is in their interest'. Such extension requires technical innovation and human resources development, which should mutually reinforce each other (Röling, 1988). Bunting (1986) is rather more specific when he defines the task of extension as: 'to comprehend the social, economic and technical environment of the producers and their objectives, resources, existing methods and difficulties; to represent their need to the administrative apparatus as well as to the rest of the knowledge system; and to help convey the products of that system and options derived from them to producers'. This assumes that agricultural extension which utilizes technical information from both indigenous and scientific knowledge systems is likely to be more effective over time than approaches from only one of these sources (Axinn, 1988).

Thus, communication programmes require a steady flow of reliable information from both sides, and local people and organizations should have the capacity to communicate and react to new information. Local people should be able to participate actively in solving their own problems by utilizing their indigenous knowledge, skills and their capacity for self-help (Ashby, 1985). On the other hand they should benefit from resources and services provided by organizations with the help of extension workers, who function as advisors rather than persuaders. This approach to extension is known as the 'agricultural extension participatory approach'.

A first step in achieving optimal extension processes has already taken place in the planning process in the local dimension. This planning process does the following: mobilizes local people and organizations; stimulates their cooperation; responds to the diversity of the different land user groups; helps them become aware of their situation, constraints and opportunities; develops their capacity and helps them gain countervailing power. In this development phase, communication processes are institutionalized by being incorporated into local organizations and intervening organizations through: developing local organizations; training; motivation and monitoring. Before these processes are discussed, the issue of managing and implementing these human resource development will be explored.

According to Röling (1988) the ability of any civil service institution to perform the functions required by this type of human resource development is doubtful. Such activities are incompatible with the present work ethic, incentive systems and career perspectives. 'It is agricultural extension workers themselves who are the target of much of the mobilization, organization and training. One cannot expect extension workers to increase the claims made upon themselves' (Röling, 1988). So, as long

as changes in government structure have not yet taken place (this occurs in phase III), an intermediate organization may have to be involved to develop the human resources so that ultimately a balanced approach can be reached between technical agencies and farmers organization. These farmer organizations should aim at the development of a self-sustaining system and must avoid creating dependence. NGOs can make a valuable contribution as the intermediate organization. The mainstay of their contribution to development is not financial, but organizational, since the essence of their approach is to organize people into structures for group action. Since many NGOs are rooted in communities they are able to reach the rural poor and set up outreach programmes in remote areas; they can promote local participation and operate on a low budget, and have the capacity to innovate and adapt to local situations. However they have limited replicability and self-sustainability, because their activities are often small, localized and dependent on highly motivated staff (Cernea, 1988; White, 1989). Moreover they are often not accepted as an alternative power in development processes by the government. In the following some components of extension processes will be discussed.

Local organizations

By developing local organizations, local people unite and thus may be better able to voice their needs or objections, implement and manage development activities, while for the intervening organizations these local organizations are easier to contact and cooperate with than individual farmers. Local organizations can enhance mobilization of local knowledge and resources thus allowing people to help themselves and to press for services that would otherwise have passed them by. In this way they are endowed with a greater voice in planning, management and evaluation, making them less dependent on government and private organizations (Uphoff, 1986; Röling, 1988).

The development of a single model for local organization is in fundamental conflict with the wide diversity found in village organizations (Fox and Fisher, 1990). However, there are a number of aspects of well functioning local organizations which may serve as guidelines to developing or supporting local organizations. Social organizations should be small closed groups, who have a clear management unit, who share management objectives and who show direct relation between inputs and outputs of group activities. There should be effective leadership in which members have access to management positions. Power may be delegated to a management group in the local organization. The acceptance of sanctions and/or rules on management and use of resources by members of the organization will prevent the prevalence of individual benefits over those of the group (the so-called 'free-riders' phenomenon). To support the legitimacy of the organization for members and outsiders the

organization may need legal status. However, this may carry the danger of monopolization of positions in the organization or the use of organizations by the government for political purposes (Werter, 1992). Such social organizations can be either indigenous (existing) groups, such as family households, clans, or created groups, like women's groups, or cooperatives (Cernea, 1985; Uphoff, 1986). Any support offered to local organizations should not conflict with the general cultural values, attitudes and behavior patterns of the people (Ozgediz, 1983).

Caution is necessary when using an existing organization, because of the possibility that in doing so existing social inequalities will be maintained. Because the more powerful succeed in acquiring most benefits, the involvement of the 'elite only' in local organizations should be avoided (Frerks, 1991). This is vital since the prospect of a more equal distribution of benefits and resources among the village community is a major incentive for the rural poor to cooperate in development programmes.

Establishment of an organization is a slow and difficult process especially where groups of different socioeconomic background have to be brought together (Werter, 1992). Experience has taught that such organizations should begin with only one or two highly salient activities. Once these are performed effectively, and as members gain both competence and confidence in their organization, the scope of its activities can expand. In situations of low mutual trust in managing communal resources smallness is a necessary condition for the viability of a local organization (Röling, 1988). To achieve some autonomy, organizations must mobilize some of their own resources and not depend entirely on outside sources, while government agencies need to be willing to let the organizations learn from making their own mistakes. These resources may consist of goods and services, information and status or legitimacy. The most tangible and appreciated are the economic resources, such as cash and credit, goods and labour and thus the local capacity of organizations for economic resource mobilization and management should be of concern (Uphoff, 1986). Since the creation of organizations is such a difficult process intensive guidance and training will be a prerequisite for their autonomous functioning.

Training

Training and education of local people is important for their capacity building. These activities can be simple and organized in a local setting so as to use training material drawn from their own environment and to reach a greater number of people directly. Training covers the development of knowledge and skills in technology management, but also involves developing the management capacities of local organizations

via conflict management, decision making and book-keeping. In addition more formal training and education for government staff is needed to change their attitude, skills, and capacities for participatory planning, implementation and monitoring processes. This may take the form of in-service training as well as support to schools and universities to train future extension workers and planners. Thus a cadre of experienced staff of organizations to manage the planning process can be developed.

Motivation

Different participants and types of programmes will need different combinations of incentives to motivate commitment. The aim of these communication processes is to bring about voluntary change, which means that enforcement and surveillance are not considered to be valid incentives. This combination may include, besides economic incentives such as increases in productivity and income, other incentives such as status, recognition of local organizations and a more equal distribution of benefits. In order to become motivated to carry on their own development process, people must acquire enthusiasm and a willingness to experiment, study, make decisions and cooperate with others (Bunch, 1982). Early recognizable successes are crucial in instilling enthusiasm.

The political struggle for resources which is apparent in most development bureaucracies implies that development programmes must not only make sense for the local population, but should also provide incentives to the supporting government staff. Therefore, a new task will be the assessment of the motivation of government staff and planning of incentives to stimulate their concern for the rural poor (Heaver, 1982). Examples of such incentives may be: providing status to successfully developed local organizations; promotion and training facilities, or provision of allowances.

Monitoring

An important feature of extension processes is the way in which participants learn from each other opinions and experiences. Farmers' ability to make decisions will increase when they can learn from their own action, from observing others' action and from discussing relationships between cause and effect (Ban and Hawkins, 1988). This calls for monitoring procedures, which enable people to improve their efficiency and effectiveness. By undergoing an educational process local people and field staff increase their awareness and understanding of the various factors which affect them, and thus increase their control over the development process (Bajracharya et al., 1987; FAO, 1988).

Governments in third world countries tend to rely more on the observance of procedures and rules governing the processes of decision-making

and budgetary control than on the real performance of development programmes. Frequently, existing monitoring systems are geared towards providing higher level policy makers and planners with information on productivity and yields, levels of technology, access to information and advisory services. However, in land use management programmes at local level it may be much more useful to monitor the process of operations, the performance of those involved, the progress or results they achieve, resources used and the overall impact on the lives of the beneficiaries. In practice much more use can be made of qualitative rather than quantitative indicators of success such as: the degree of enthusiasm of farmers, the requests for more training, the numbers of days work farmers are willing to put into innovations, the spontaneous spread of such innovations from one village to another, or the willingness to experiment with new practices or activities (Bunch, 1982).

Error detection is a main feature of the monitoring process. However, revealing when and how projects deviate from their design during implementation is a difficult task and often conflicts with cultural norms. People in many developing countries are reluctant to confront their superiors or donors with poor results. The role of local leaders can be important in this respect by stimulating feedback from the community. They should give local people the inspiration and security to openly criticize the programme without giving rise to bad feelings or repercussions, as well as the reassurance that their suggestions will be acted upon (Bunch, 1982).

To sum up: in the development phase the focus is on achieving a fit between local people, situated in their specific social system, and organizations (figure 3.5), through the development of communication processes. The intervening organizations should help local people to decide on changes in their land use strategies based on changes in knowledge, awareness, motivation, or power derived from local organizations. Extension processes can help to bring about this communication. Important components of these extension processes are: the development of local organizations, training, motivation and monitoring. As long as changes in government structure have not yet taken place, an intermediate organization may have to be involved for human resources development.

In this development phase the fit between interventions and organizations becomes less experimental since a growing number of government organizations become involved in local level planning, training and monitoring. The organization of the local level planning already requires some changes in operation. For example, the organization of interdisciplinary planning teams of field workers and villagers requires cooperation

between the different sectoral agencies. They should be coordinated by a manager of the local government which will require a form of decentralized (deconcentrated) management. In this way the first step is taken to achieve a fit between interventions and organizations.

In this phase, the external inputs (from donor agencies) will be reduced, while the government will have to make routine budgets available for implementing local level planning and training programmes. This will only happen if the political will exists to implement this new strategy of land use planning on a larger scale. If this is the case, it will be manifested by a greater motivation on the part of the staff of organizations to cooperate with villagers and an increased concern for the rural poor. It should also lead to an increased willingness to invest in improving their public service management. This includes arranging training schemes and incentives for staff and creating structures and procedures in which participatory planning is possible and accepted (Korten, 1983; Paul, 1982). The latter has to be completed in the expansion phase.

3.4.3 Fit in the expansion phase

In this last phase, a fit between interventions and organizations can be achieved if the organizational competence is adjusted to the task requirements, as dictated by planned interventions. Interventions in land use management at the local level in which the people are the centre of development, require a fundamental reorientation in purposes, structure and operation of government organizations. They should move away from direct service delivery and resource management towards capacity-building of local organizations and individuals. These tasks, which have been mentioned in the trial and development phases, require an organization that can:

- adapt to local situations;
- analyse economic, cultural and political factors that determine farmers' strategies for resource management;
- organize extension processes which utilize technical information from both indigenous and scientific knowledge systems;
- develop and support local organizations;
- organize training programmes for local organizations and government staff with the involvement of intermediate organizations;
- introduce moral and financial incentives for local people and government staff;
- set up a participatory monitoring programme;
- integrate services and coordinate activities.

Existing government organizations often do not possess the competence

to implement these tasks, but many of them recognize the necessity to build it up. Chapter 1 discusses how the policies and programmes of many developing countries are designed by sectoral agencies at central level and are financed with national budgets, while lower levels of government administration are responsible for implementing the programmes according to prescribed guidelines. However, governments have increasingly been forced to change their planning and administration procedures in the past decade because of: (a) poor programme performance and disappointed electorates; (b) shifts in international development strategies towards the poor; (c) financial problems, because of decreasing exports and diminishing foreign assistance. This has persuaded government organizations to find ways of using limited resources more effectively through a careful move towards changing their competence (Rondinelli et al, 1984; Alfonso, 1983; Ickis, 1983).

The identification of the competence of the organization required to implement their new tasks should be based on the identification of possibilities and constraints in structure and operation of government organizations. Firstly structural changes in the form of decentralization processes are examined, followed by a discussion of the role of local leaders.

The implementation of a strategy for planning local level programmes which are adjusted to the local situation and take the form of a learning process implies a need for decentralization. Rondinelli (1984) defines decentralization as 'an incremental process of building the capacity of subordinate or semi-autonomous organizations that assume greater responsibility for development planning, management and resource raising and allocation'. Decentralization brings planners and implementors closer to the opportunities and constraints of the land use system. Four types of decentralization are apparent (Uphoff and Esman, 1974, Cernea, 1988, Rondinelli et al, 1984):

- Deconcentration; the decision-making is moved to lower levels, but the responsibilities and sanctions remain with the top;
- Delegation; managerial responsibility for specifically defined functions is transferred to organizations that are outside the regular bureaucratic structure and that are only indirectly controlled by the central government;
- Devolution; sub-national units of government are created or strengthened, financially or legally, and their activities are substantially outside the direct control of the central government. Both decision making and operations are in the hands of these sub-national units, where regionally or locally accountable people manage activities;
- Privatization; responsibility for functions is transferred to volun-

tary organizations or performed by private enterprises. Both of these represent forms of organizational autonomy.

In general, decentralization processes are still difficult to achieve and are often judged to cause competition between the central authorities and the local organizations: one of the reasons why deconcentration is more apparent in many developing countries than devolution. Even when local administrative units have, in theory, been given broad powers to perform development planning and management functions, adequate financial resources and qualified personnel to carry them out have often been withheld (Paul, 1982, Uphoff and Esman, 1974). The decentralization process needs to be accompanied by capacity-building of local agencies to implement their tasks as well as the involvement of NGO's or more autonomous government agencies.

Decentralization of the planning and the management of land use programmes may also involve decisions concerning rules and regulations for the management of resources at local level. These bureaucratic changes become apparent when the interventions require legal provisions to pursue a participatory approach that allows for greater local access to and control over resources, if it is to be responsive to community interests and desires. In many contexts meaningful participation in management of local resources can only be generated if certain rights of the people expected to participate are recognized, such as distributive arrangements, authority mechanisms for collective decision making, usufruct and landownership rights.

Consequently decentralization has a cost in terms of the increased complexity of management control and development of better trained decision makers at lower level (Paul, 1982; Uphoff and Esman, 1974)). The need for capacity-building of local agencies and exerting control over them requires this 'expansion phase' to pay attention to the identification of needs and the development of programmes that focus on strengthening the role of local leaders, by giving them autonomous financial responsibility of local agencies and autonomy in decision making;

The functions transferred to local administrative units must be suited to their current or potential managerial capacities, and indeed shortages of skilled leaders at the local level has been an important factor contributing to the disappointing results of decentralization programmes so far. Experience has taught that changes in the structure of organizations may occur in response to the actions of a local leader, who builds a commitment within the organization to a new set of values, leading it through the difficult adaptation process (Ickis, 1983). Such a local leader may be the

head of a (sub-)district, a local extension centre, an NGO, a village or a local cooperative. When the planning strategy enters the expansion phase, the need for developing a cadre of capable local leaders, who can manage the implementation of the strategy is pivotal. This has already partly been accomplished through human resource development processes in phase II. However, such processes also require improvements in public service management as well as autonomy in decision making and financial responsibility.

Decentralization implies that local leaders will firmly enter the political arena of conflicts and competition for influence and resources. The local development manager should be able to develop the political know-how to compete for resources; identify the critical points for interventions; detect errors; secure commitments from persons over whom he has no direct control and institutionalize linkages between organizations as key inputs to this capacity-building process (Ickis, 1983). In addition to the wrenching human and organizational problems of adapting existing structures to new strategies, the local leaders have to deal with vested interests of their superiors. Therefore, some form of accountability is necessary to control the acts of leaders of local organizations both from above (central government) and from below (local people). Simple procedures and the use of administrative units may make these decentralized levels of government more responsive to the people they serve and thus better controlled. The accountability of local leaders to their constituencies is of major importance to their functioning.

Although central governments prefer to transfer resources rather than giving the real power to self-generate resources, autonomous financial responsibility is at the core of the concept of decentralization and crucial for the strategy of planning land use programmes at local level (Cochrane, 1983; Rondinelli et al, 1984). Therefore, decentralization must boost the power of sub-national units to raise revenues and increase the sums that are actually generated. This will diminish the dependency of local authorities, and increase their responsibility to impose taxes (instead of central government) and justify to the local population how revenues have been spent. However, local governments face difficulties in finding revenue sources among the rural poor, because they are politically and administratively difficult to gather.

In local level planning more adaptive and innovative activities are to be performed, which suggests that programme agencies require greater autonomy from the central government. Moreover, when task requirements call for structures and processes different from those of the government, or when governments have been reluctant to become

involved in controversial or experimental activities, programme organizations with some degree of independence from government (voluntary or private organizations) may have to be set up (Paul, 1982; Rondinelli et al, 1984). For example, the management of communal natural resources requires a strong social organization capable of enforcing incentives and control. Management of these resources by government bodies has not always been effective as they were not able to generate similar patterns of social organization. This absence has allowed open access resulting in resource destruction and environmental degradation by individuals. This may best be filled by the people themselves, grouping themselves into local (non-governmental) organizations supported by (temporary) intermediate organizations (Cernea, 1988). Also the involvement of NGOs as intermediate organization in developing training programmes for local organizations and government staff is an example of a need for independent organizations.

Although decentralization is proposed for effective organization of the local level planning strategy, local autonomy by itself is judged to provide too little leverage for development. Chapter 2 demonstrates that linkages are a more significant variable than autonomy when it comes to promoting sustainable land use programmes (Uphoff and Esman, 1974). Therefore decentralization must be viewed realistically, as one of a range of administrative or organizational devices that may improve the efficiency, effectiveness and responsiveness of various levels of government under suitable conditions.

To summarize: in the expansion phase the competence of the organization can be adjusted to the tasks and legal requirements of the interventions (figure 3.6). Decentralization processes are deemed necessary. The

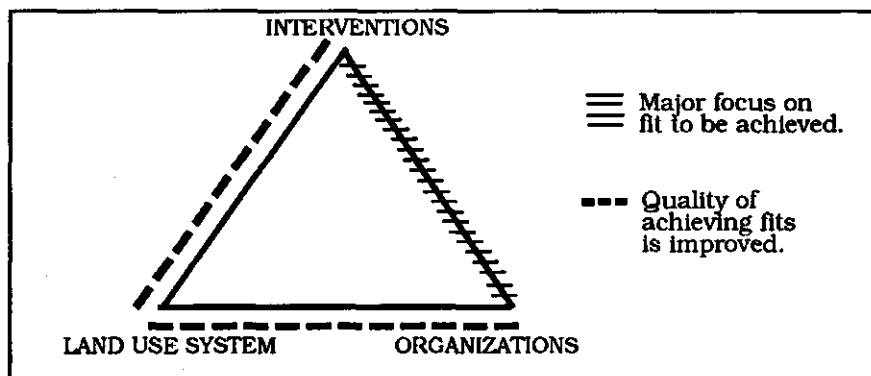


Figure 3.6 : Degree of fits achieved in the expansion phase.

central government should pursue this decentralization and promote a stronger capacity for autonomy in decision-making and finance, by stimulating the raising of revenues and management of finances at the local level. Also, it should develop personnel management at the local level to strengthen the role of local leaders by organizing training, incentives, increased accountability and coordination. However, attitudinal, behavioral and cultural conditions should be conducive to decentralization, such as the quality of local leadership, the attitude towards corruption, the attitudes of rural people toward government, or traditional customs and behavior.

3.5 Summary

In this chapter a strategic model for planning sustainable land use programmes at local level is developed. The two major principles of this model are:

- Programmes are planned and implemented through a learning process in a local and organizational dimension. The local dimension includes a learning process of planning, implementing and monitoring of small scale programmes. The planning process is short, but planned interventions are regularly adjusted based on new insights and changing conditions. In the organizational dimension the learning process proceeds through three different phases of trial, development and expansion. In this dimension, the government can learn how to manage the strategy of implementing local level planning and how to change attitude, norms and organizational competence of organization in order to do so. This dimension embraces local, regional and national governments.
- Three major variables are considered in programme planning: land use system; interventions and organizations. Sustainable land use programmes are only possible if a good fit between these variables is achieved.

In the strategic model these two principles are combined; a fit between the variables is achieved through a learning process. Because achieving a fit between the three variables is a complicated matter, it requires a phased approach which consists of the following three steps: a trial phase, a development phase and an expansion phase. In the trial phase, the focus is on achieving a fit between interventions and land use system in the local dimension. Trial cases in local level planning are implemented in which villagers, field workers of organizations and local leaders become acquainted with this new strategy of planning sustainable land use programmes at local level. In the development phase, attention is focused on achieving a fit between organizations and land use

system through the development of communication processes. The development of extension processes and the implementation of local level planning on a larger scale may gradually change the skills and attitude of those involved. Communication processes, as initiated in the trial cases become institutionalized. In the expansion phase the planning approach is accepted and applied at national level. Changes in government structures and procedures, such as decentralization and strengthening of local leadership need to be achieved. By dividing the process into phases, the complex problems associated with planning sustainable land use become manageable, and step by step the ultimate goal of achieving a fit between all three variables can be reached.

The next chapter reviews planning methods suitable for use in the implementation of this strategic model. This discussion will be directed specifically at methods which are appropriate for the implementation of the first phase of the model.

4 PLANNING METHOD

4.1 Introduction

In the strategic model, as described in chapter 3, the various elements and phases to be taken into consideration when planning sustainable land use programmes were outlined. For practical application this strategic model should be combined with an operational method for planning land use programmes at local level. This chapter describes a planning method appropriate for the trial phase of the strategic model.

Three basic questions should be addressed when developing an operational planning method:

- what criteria does the strategic model set for the planning method?
- what planning methods exist for planning land use programmes?
- if we use these criteria, which existing planning methods are appropriate for implementing the trial phase?

The basic principles underlying the strategic model set the following criteria for the development of such an operational planning method in the trial phase:

local level

- implementable at the local level of an administrative or social unit;
- implementable by villagers and field staff of organizations;
- simple and quick planning process;
- provides linkages between local and higher physical and administrative levels.

learning process

- provides the possibility for sharing of knowledge and experience between local people and field staff of organizations;
- implementable as an iterative process;
- provides flexibility by planning small scale trial programmes.

Fit between variables

- adjusts interventions to local needs, constraints and opportunities;
- analyses the bio-physical and socioeconomic systems and their interaction;
- distinguishes land user groups by their land use strategies;
- pursues the three properties of sustainable land use systems in design of interventions;
- designs integrated programmes;
- identifies the capacity of local organizations and (external) organizations to respond to each other;
- adjusts the planned interventions to the present competence of organizations.

A number of different approaches have been developed in the past, to deal with situations or problems of poverty, environmental degradation or agricultural development. Three sets of approaches can be distinguished: land use development; extension approaches and project management. Each of these approaches is described and subsequently their relation to the strategic model is outlined.

Land use development

Land use development approaches include: rural development, watershed management, agricultural and sectoral development. As in this chapter the development of a planning method is central, attention will focus on the planning of these approaches.

Rural development planning aims at a process of change in the rural areas leading to better living conditions and greater security of existence for the population within the guidelines or policies established by national development objectives and priorities (Hamilton and King, 1984, Sterkenburg, 1987). Although land use development is often a major component, the programme coordinates all aspects of rural development, including health, education, transport (FAO, 1989). These so-called sectoral development programmes are often the responsibility of sectoral agencies such as forestry, public works (irrigation, road construction), agriculture, health care, industry). One of the major drawbacks of such integrated rural development programmes is the fact that they are difficult to implement. Institutional rivalries and widely varying budget allocations hinder a coordinated strategy for dealing with integrated programmes. Sectoral ministries and agencies are organized along rigid vertical administrative and political structures with hardly any cooperation between them. Thus the institutional framework is often lacking for integration of such sectoral programmes. Moreover, these rural development programmes have often been implemented via top-down central-

ized planning and management, which makes them difficult for local land users to adopt.

New concepts have been developed for integrating programmes and restricting the number of sectoral agencies involved. For example, watershed management considers the drainage basin concept as a valid and useful integrating unit for understanding the structure and function of social and natural systems (Hamilton and King, 1984). Easter and Hufschmidt (1985) define integrated watershed management as: 'the process of formulating and implementing a course of action involving natural, agricultural, and human resources of a watershed, taking into account the social, economic and institutional factors operating within the watershed and the surrounding river basin....to achieve specific objectives'. As such, watershed management can be distinguished from other approaches by its physical unit for planning. However this approach has also faced problems of cooperation between different sectoral agencies.

Another approach is regional (agricultural) planning, which is described by Fresco et al. (1990) as: 'The process of analyzing and planning the development of the agricultural sector of a region'. It is a specific form of intermediate level planning of sectors and regions with a view to bridging the gap between general macro-planning and specific project planning. The justification for highlighting the agricultural sector within a region is that in most developing countries agricultural activities are very important especially at regional level, because usually the largest part of the employment and income is generated within this sector.

Extension approaches

Axinn (1988) recognizes eight major extension approaches in current extension practice (see box 4.1), which can be combined in any number of permutations and variations, depending on any particular place, time or purpose. The first three approaches have many advantages to central governments: national policies are interpreted; they cover the whole nation; they are easy to control and effect rapid communication from central to local level. However, these approaches are not adjusted to local knowledge, needs and capacities. The participatory and farming system development approaches however, are difficult to control by the government, but show high relevance to local needs and interests, both in the content of the extension programme and in the communication methods used by extension workers (Axinn, 1988).

1 The general agricultural extension approach

The basic assumption is that technology and information are available which are not being used by farmers, and if this knowledge (technologies) could be transferred to farmers, farm practices would be improved and production increased. Programme planning is mainly controlled by the central government, who employs a large number of field staff throughout the country at high cost. A major implementation technique is demonstration plots (introducing new technology from the government).

2 The commodity specialized approach

To increase productivity of a commodity crop all functions (extension, research, inputs supply, marketing) are organized under one administration. Programme planning is controlled by a commodity organization and implemented through its field staff by giving instructions to cultivators.

3 The Training and Visit approach

This approach assumes that field staff under the Ministry of Agriculture are poorly trained, not up to date, lack supervision and logistic support and that they do not visit and have contact with farmers. The approach aims at realizing a two-way flow of communication between research and extension units, and extension staff and farmers, through a highly disciplined system of training of village extension workers by subject matter specialists and visits by extension workers to farmers. Control of programme planning is centralized and with funds from international sources, total staff size and logistic support can be greatly increased. Success is measured in terms of production increases.

4 The agricultural extension participatory approach

The assumption is that farming people possess much wisdom regarding production of food from their land, but their standard of living could be improved by learning more of what is known outside. Effective extension cannot be achieved without active farmer participation. Focus is put on group forming, group learning and expressed needs of farmers. Programme planning is controlled locally, often by farmers' groups, and thus priorities vary according to group or location. Implementation is through group meetings, demonstrations, excursions and local sharing of appropriate technologies. Once local organizations are functioning local people become the key field personnel of the extension organization. (Examples of such methods are (van der Kamp and

Schuthof, 1988): the 'farmer-back-to-farmer model', as described by Rhoades (1984); farmer participation in on-farm trials (Ashby, 1985); and Groupe de Recherche et d'Appui pour l'Autopromotion Paysanne (GRAAP) (Ileia, 1985).

5 The project approach

This assumes that a temporary concentration of efforts within a limited area can demonstrate what can be achieved when resources are applied adequately. Programme planning is controlled by central governments, often with large inputs from international development agencies. Implementation includes higher allowances, better facilities than regular government programmes, and foreign advisors.

6 The Farming System Development Approach

This assumes that appropriate technology is not readily available, and has to be generated locally (in farmers' fields), to fit the needs of small farmers in particular. Implementation is through cooperation between research and extension personnel with each other and with local farmers, taking a system approach to the farm, which requires different disciplines to be involved.

7 The cost sharing approach

The assumption is that the extension programme and personnel are more likely to suit local situations if part of their cost is paid for locally. Helping farm people to learn those things they need to know for self-improvement and increased productivity is the purpose. Field personnel tend to be recruited locally, cost less, and remain in one location for a long period of time. Thus agricultural extension can become affordable and sustainable at central and local level.

8 The education institution approach

The assumption is that faculties or colleges of agriculture have technical knowledge which is relevant and useful to farm people. Success is measured by attendance and the extent of participation by farm people in the school's agricultural extension activities.

Box 4.1 Eight different extension approaches (Axinn, 1988).

Project management

The drive for efficiency and control of development projects resulted in the introduction of a number of management techniques in the 1960's and 1970's, which are still used. These management techniques were developed in western countries for private enterprises and use a complex set of financial, economic, technical and administrative criteria to test the feasibility and monitor progress of projects. Development projects are identified, prepared, appraised and selected through comprehensive and systematic analysis, which aim to control development. Examples of such systematic analysis tools are: 'Management by Objectives' (MBO), the 'Logical Framework' developed by USAID, 'Zero Based Budgeting', cost-benefit analysis, or the project cycles developed by the World Bank. However, this careful project appraisal, analysis and management techniques displays many limitations, as Rondinelli (1983) points out:

- costly and ineffective analysis;
- long delays because of detailed planning, which generate more uncertainty and inconsistency;
- complexity, which results in an undesirable dependence on foreign experts;
- inadequate understanding of local social/cultural conditions;
- rigid designs, which suppress the ability of field staff to innovate, experiment, modify or improvise;
- political conflicts and low levels of administrative capacity;
- reluctance to reveal when and how projects deviate from the designs during implementation. Projects are measured by inputs used, rather than by impact on beneficiaries, nature of changes or quality and quantity of outputs.

When trying to relate these three approaches to the strategic model, it can be concluded that, conceptually, the land use development planning focuses on achieving a fit between interventions and land use system, extension approaches are more concerned with the relation between the land use system and organizations, while project management focuses on the competence of the implementing organizations to implement and manage the interventions. In other words, each approach emphasizes a different side of the model (figure 4.1) Since, all three fits have to be considered for the planning of sustainable land use programmes, a combination of approaches is needed, rather than choosing one specific approach to development planning.

This combination of approaches has not yet received much attention in planning land use development programmes (figure 4.1). Land use planning often forms an important preparatory stage of a development programme but related human resource development for capacity-building of local or intervening organizations is ignored, while the

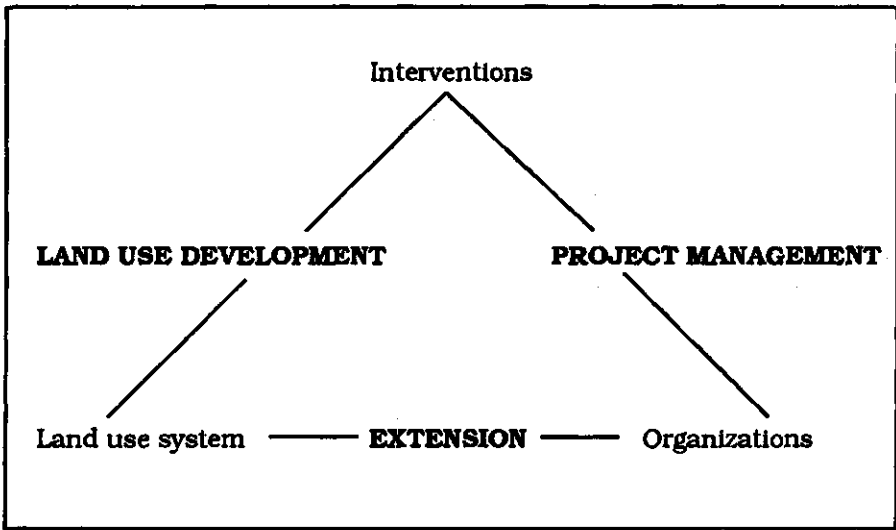


Figure 4.1 : Development approaches in the strategic model

organization and institutional setting are decided by a short term project formulation mission only. Because in such cases planning of land use interventions is carried out independently of the planning of communication processes and organizational competence, the planned services may not be implementable or effective. Thus expensive and time-consuming land use planning exercises have often produced negligible benefits. In other cases, development projects are identified, prepared, appraised and selected through comprehensive and systematic analysis methods for project management without proper use of land use planning methods to identify the constraints and opportunities of the local land use system. These centrally designed programmes are not adjusted to opportunities, needs and constraints in the land use system and may not be appreciated or effective.

A combination of the three approaches is proposed. However, for the trial phase (phase I), the opportunities to develop extension processes and to influence project management are limited and the plans should be tailored to the existing competence of organizations. This can be dealt with by introducing an additional step to land use planning, called 'programming'. Programming is the preparation of a detailed action programme with:

- a priority list of projects or activities;
- their location;
- the people who are to be involved;

- their labour and financial capacities;
- their local organization;
- the intervening organization;
- communication means; the source and amount of funds needed;
- a time schedule for operation;
- a participatory monitoring and evaluation schedule;
- the (management) tasks for the implementing organizations.

This planning and programming is followed by approval of plans and budgets; implementation, operation and maintenance and participatory monitoring and evaluation of the programmes, executed on an iterative basis. This chapter however will emphasize planning and programming as the first step in the process of planned development. In the following section an evaluation of current land use planning methods is carried out (section 4.2), followed by an analysis of present programming activities (section 4.3). Finally a planning method which synthesizes the positive features of each planning method, technique and tool evaluated in the previous section, is proposed and described (section 4.4).

4.2 Land use planning methods

The aim of land use planning is to make the best use of limited resources in view of accepted objectives, opportunities and constraints in the land use system. Data obtained from the analysis of the bio-physical and socioeconomic sub-system are synthesized and transformed into an integrated land use strategy, that will serve as a basis for deciding on future land uses (FAO, 1989; Fresco et al., 1990). Competition between different uses of the same land and degradation of the natural environment has led to an increased need for this kind of systematic land use planning (Chambers, 1987).

To avoid confusion about the terminology used, the concepts of planning methods, techniques and tools are first outlined. A planning method for sustainable land use programmes can be defined as: the systematic collection and analysis of bio-physical and socioeconomic data that determine land use patterns; the development of those alternatives for land use activities which meet specific strategies of land user groups or development goals; the designing of land use interventions; and the drawing up of policies and programmes for the use of land (Dent, 1988). Planning techniques are ways of collecting, processing and analysing data and/or transforming these into designs. In practice data collection techniques are fairly well developed: these include land resource surveys, household surveys and Rapid Rural Appraisals (RRA). However the steps from data collection to design are often much less clearly understood. Planning tools are instruments to be used in the planning

techniques. Examples of tools are: formal and informal interviews, group discussions and observations for data collection; use of aerial photos, maps, diagrams for data analysis and visualization of problems and solutions.

Different methods have been developed which contribute to land use planning. The most important ones are Farming System Analysis (FSA) and Land Evaluation. Below, the major objectives of each method are described.

FSA aims to gain an understanding of the structures and functions of farm systems and of the agroecological and socioeconomic constraints on agricultural production at the farm level. It looks for ways to translate this understanding into adaptive research and development programmes for specified categories of farmers. In FSA theory it is acknowledged that the interaction between sub-systems and the multiple factors that govern farm management, is crucial to understanding the performance of the system as a whole. Farming System Research and Development (FSR&D) transforms and develops agricultural strategies through both technological advancement and institutional and economic reform in the environment of the farming system (Fresco et al., 1990).

Land Evaluation aims to select the most suitable form of land use given the physical characteristics of land and the requirements of land use enterprises (Douglas, 1989). Thus it adapts land use to land and brings about an understanding both of the natural environment and of the kinds of land use envisaged, confronting the planners with comparisons of land resource data with land use types (FAO, 1976; Fresco et al., 1990). The purpose of Land Evaluation in planning can be twofold (Putte, 1989). Firstly it provides analytical results; an analysis and resulting classification of land resources to be used as input for planning. Secondly it provides normative indications of the likely situation in the future and thereby imposes a framework for planning activities. In the first instance Land Evaluation is used as analytical technique in an iterative planning process, whereas in the second instance it acquires the capability to make realistic simulations, including the effects of possible interventions. According to FAO guidelines Land Evaluation tends to be applied for the second purpose.

Firstly, these two methods are evaluated for their usefulness in the first phase of the strategic model (section 4.2.1). Subsequently two planning methods which are based on FSA and Land Evaluation are evaluated: Agroecosystem Analysis and Landscape Planning. This evaluation is followed by a description of two planning techniques: Rapid Rural Appraisal and Gender Analysis.

4.2.1 Review of Farming Systems Analysis (FSA) and Land Evaluation

Before reviewing these planning methods, it should be realized that a distinction must be made between their shortcomings in theory and in practice. Criticism is often directed at those who apply these methods. Getting it right in practice is a matter of using the right method on the right scale with the appropriate intensity of research. This can be described using the funnel- principle, which illustrates a hierarchy of surveys, parallel to the hierarchy of land use systems at national, regional, or local level (Fresco et al., 1990) (figure 4.2). Two criteria for applying the appropriate planning method correctly become apparent in this funnel principle (Chambers, 1983):

- know what is only worth knowing: selective data collection;
- proportionate accuracy: recognition of the necessary degree of accuracy required.

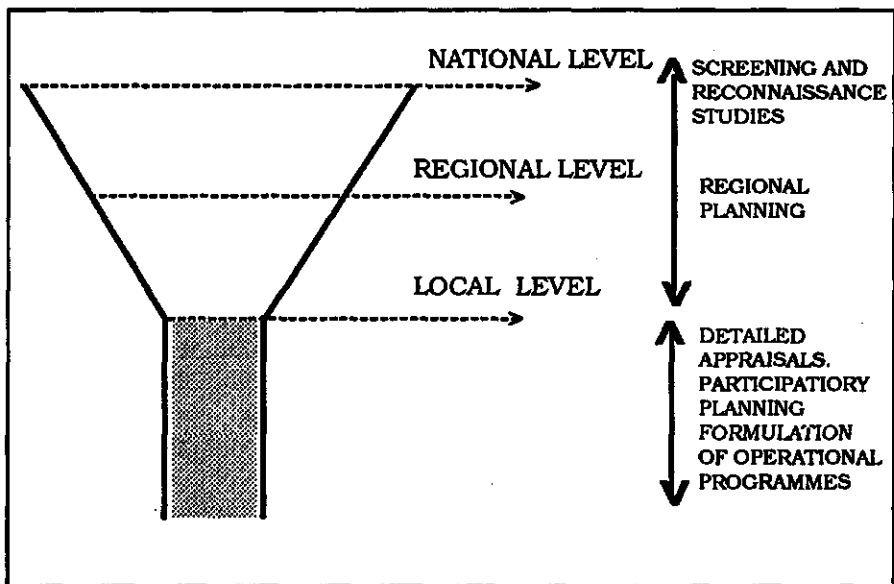


Figure 4.2 : Funnel principle

This means that planning on different scales requires information on different scale levels. Besides selecting the right scale level, the method chosen for the purpose of planning should be appropriate to a particular situation. To achieve this both the information needs and the data collection techniques should be target-oriented and selective.

For example, at national or regional level (the top end of the funnel) no detailed plans should be prepared; screening and reconnaissance studies can aid policymakers in deciding on priority areas and allocation of funds. At the bottom end (local level) more detailed procedures are implemented (Fresco et al., 1990). This is the appropriate level for the design of operational and sustainable land use programmes (figure 4.2). The guiding principle is thus that it is important to apply the right planning method at the right level for the right purpose.

The extent to which FSA and Land Evaluation meet the conditions set by the strategic model are discussed in the light of this funnel-principle.

FSA can contribute to land use planning by its diagnosis of the current situation with regard to farming and land use practices at intra- and household level. As such FSA has successfully shown the importance of a detailed analysis of farmers' constraints and the usefulness of an ongoing dialogue with farmers.

FSA uses several techniques for data collection, of which the two most distinctive are: formal statistical surveys and Rapid Rural Appraisal (RRA). The first are costly and time-consuming and only useful when precise information requirements are known and it is certain that this quantitative information will make a significant contribution to the understanding of the local situation (Fresco et al., 1990). Formal surveys of this kind are not implementable by villagers and local field staff, as they lack the skills and experience to systematically collect and analyse such a large amount of quantitative data. Rapid Rural Appraisal is now routinely employed to limit the costly and time-consuming quantitative questionnaire survey work (Hildebrand, 1981, Carruthers and Chambers, 1981) and to make FSA implementable at local level.

Maxwell (1984) criticizes FSA for its limited flexibility in adapting to dynamic changes in the land use system. When formal, statistical surveys are used, FSA and a subsequent experimentation phase may have a five to 15 year time horizon. During this time farming systems as well as research priorities may change under the influence of economic and political factors. Also with traditional questionnaire surveys the options for sharing knowledge between field staff and villagers in an iterative process of research and design, are limited. When RRA is included, the process can be much more flexible, a dialogue may be initiated and feedback between design, analysis and data collection is possible. In practice however, RRA techniques used in FSA are not yet very participatory. Farmers' involvement is often limited to answering questions posed by scientists, while field workers of government agencies may be left out of the research teams.

Although FSA stresses the need to understand farmers' circumstances, in practice little attention has been paid to the importance of community level processes and institutions, and their impact on access to resources, production goals and management practices (Grandin, 1986). Although FSA provides the opportunity to identify land user groups based on their farming systems, it tends to focus its research on the individual land-owners. These are often the richer and more accessible land users, while women farmers, agricultural labourers and other landless people, who depend on communal lands for an income, are neglected (Fresco et al., 1990; Grandin, 1986). Consequently, FSR&D programmes are often detailed but fragmented, focusing on measures of how to improve the efficiency of agricultural technology. Simmonds (1986) states: 'the design of sustainable land use systems, rather than minor improvements in existing farming patterns, has been neglected'.

In practice, FSA studies make only passing reference to bio-physical conditions and devote most of their attention to the socioeconomic factors. For example very few geographical references, such as soil mapping units, are made. Most FSA work to date has been conducted by small teams of agronomists and economists, as interdisciplinary studies are difficult to organize (Douglas, 1989; Fresco et al., 1990).

Thus it can be concluded that the degree to which FSA is a suitable planning method in the trial phase depends on the chosen technique and the way it is applied. One useful feature is its detailed analysis of the interaction between the bio-physical and socioeconomic system at the household level as well as the opportunity for identifying different land user groups, based on their farming systems analysis.

Land Evaluation is a more suitable tool for land use planning at semi-detailed and reconnaissance level than at local level, because in general it emphasizes the variation between land units, rather than the variation within land units. The local level planning method requires more detailed participatory analysis and problem-solving than the comparison of land resource data with land use types can provide. Such detailed quantitative physical and economic land suitability classifications may be possible with Land Evaluation, but will require high technical standards and be expensive and time-consuming (Fresco et al., 1990; van den Hoek and Schomaker, 1988; van den Hoek et al., 1988). This contradicts the criteria of a simple and quick process, implementable by villagers and local field staff.

Land Evaluation is most commonly carried out in a top-down manner by scientists at regional level. This approach to land use management cannot cater for dynamic changes in land use management nor can it simulate all

the static as well as dynamic variables affecting a farmer's land use decision (Fox, 1987). Thus, there is hardly any flexibility in the method for adapting to dynamic changes and an iterative planning process is difficult to carry out.

Although in theory Land Evaluation involves an analysis of the interaction between socioeconomic and bio-physical systems, in practice largely bio-physical evaluations are carried out. Land Evaluation assumes that technology of the land utilization types and its performances in the study area are known, and awards insufficient consideration to accessing and understanding the circumstances of the land users themselves as part of the suitability evaluation exercise. Also the FAO framework concerns itself with individual land use enterprises or broadly defined farming types rather than the reality of complex smallholder farming systems (Douglas, 1989). Hence, Land Evaluation is essentially concerned with land and neutral with respect to people (Fresco et al., 1990). This inadequate knowledge about the strategies of the different land user groups for the management of natural resources and agriculture in the tropics makes the matching procedures less reliable. Consequently, according to Fresco et al. (1990) and Young (1985) Land Evaluation is of little help in areas where development takes place through the modification of existing systems.

To conclude, Land Evaluation can be a useful technique for land use analysis, but it does not go far enough to offer a complete planning method for solving the land use management problems of different land user groups. Its utility lies in the analysis of bio-physical characteristics of the land in relation to different land use types. However, such an analysis should be simple and quick to implement, in order to be useful for the planning strategy at local level. Its strong geographical orientation provides the opportunity to localize problems in land use management and to make use of maps for the visualization of these problems and the design of land use interventions.

In reaction to the shortcomings of FSA and/or Land Evaluation, alternative or refined methods evolved, including Agroecosystem Analysis (Conway, 1985, 1987a), Agroforestry Diagnosis and Design, developed by ICRAF (ICRAF, 1984, 1987; Raintree, 1987) and Landscape Planning (Duchhart, 1989). A study on combining methods to compensate for the drawbacks of one method with the advantages of the other resulted in the formulation of the LEFSA (Land-Evaluation / Farming-System-Analysis) sequence (Fresco et al., 1990).

The importance of Agroecosystem Analysis and Landscape Planning as methods for implementing the trial phase warrants their analysis in the

following sub-section. The main asset of Agroecosystem Analysis is that it provides a structure for interdisciplinary analysis, while Landscape Planning is one of the few land use planning methods that reaches beyond analysis into design.

4.2.2 Agroecosystem Analysis (AEA)

Agroecosystems are ecological systems modified by human beings to produce food or other agricultural and forest products. Like the ecological systems they replace, agroecosystems are complex, a situation which arises primarily from the interaction between socioeconomic and ecological processes. Hence, the delineation of an agroecosystem zone is determined by both bio-physical and socioeconomic patterns (Conway, 1987a,c). Such zones can, for example, be identified on the basis of the prevailing altitude, terrain and agro-climatological characteristics, each of which is further defined by taking into account key social and economic patterns affecting land management. These social and economic patterns include the education and wealth of farmers, their cultural traits and the availability of markets. The use of such agroecosystem zones provides considerable scope for transferring information, management techniques and skills identified per zone from one region to another (Carson, 1987; Conway et al., 1989).

Agroecosystem analysis uses a system analysis approach in a workshop environment. A system-oriented perspective may be used to identify how productivity of the entire system, in which a particular commodity is but one component, may be improved. For example, the complexity of the uplands presents a need to analyse farmers' access to the different land use systems, like dryland gardens, uplands wet-rice systems, household production systems and communal land management systems. AEA is a method which can establish the most important linkages between and within systems and analyse farmers' decisions with regard to system management. It is a method of interdisciplinary analysis, that investigates relationships between the bio-physical characteristics and the socioeconomic patterns of agroecosystems, to identify key on-farm resource management problems. After the formulation of recommendations for solving key on-farm management problems, the remaining phase of the procedure is one of conventional farming system research and development. So far, workshops and trial cases, based on agroecosystem analysis have had the following objectives (Conway, 1985):

- to identify research priorities that will lead to improvements in the level and stability of net income of farm household in regions;
- to identify tentative guidelines for improving agricultural productivity of the poor farmers in villages.

KEPAS (*Kelompok Penelitian Agro-ekosistem*), a Research Group for Agroecosystems, based in Bogor, Indonesia, added the objective of (KEPAS, 1985):

- the development of a simple mechanism of communication, which can more directly link extension workers, researchers and farmers.

Agroecosystems are described and analysed by the following four system properties; productivity, stability, sustainability, and equitability. Productivity is the yield or net income per unit or resource. Stability relates to the degree to which productivity is constant in the face of small disturbances caused by environmental variables. Sustainability is the ability of a system to maintain productivity in spite of major disturbances. Equitability expresses how evenly the products of an agro ecosystem are distributed among its human beneficiaries (Conway, 1985). The four properties are interlinked and according to Conway (1987a); 'AEA can be used as a method to analyse existing and future land use by making the 'trade-off' between the system's properties explicit and accounted for.' The influence of changes in land use on the interrelationship between productivity, stability, sustainability and equitability can thus be distinguished. Four patterns are chosen as likely to reveal the key functional relationships that determine system properties. These are: space (location of activities); time (seasonal or long term changes); flows (of energy, material, information, money); and decisions (choices of individuals; sphere of influence of decision makers, decision patterns of local organizations; politics of local authorities) (Conway, 1985). Figure 4.3 illustrates possible results of a pattern analysis. The introduction of two new parameters - flows and decisions - offers new options for identifying decision and communication processes and relationships such as those between the different land user groups, their organization forms and their relationship to organizations. Above all this type of analysis provides the opportunity to integrate bio-physical and socioeconomic data.

Agroecosystems can be identified at all different levels, from cropping system to national level, each to be analysed in its own right. To date, AEA has usually been carried out at village level. One or more villages may be selected per zone, for which an agroecosystem analysis is carried out by an interdisciplinary team. The analysis is based on farmers' perceptions and the researchers' knowledge of land management possibilities.

The procedure of AEA rests on four assumptions (Conway, 1987a):

- 'It is not necessary to know everything about an agroecosystem in order to produce a realistic and useful analysis.
- Understanding the behaviour and important properties of an

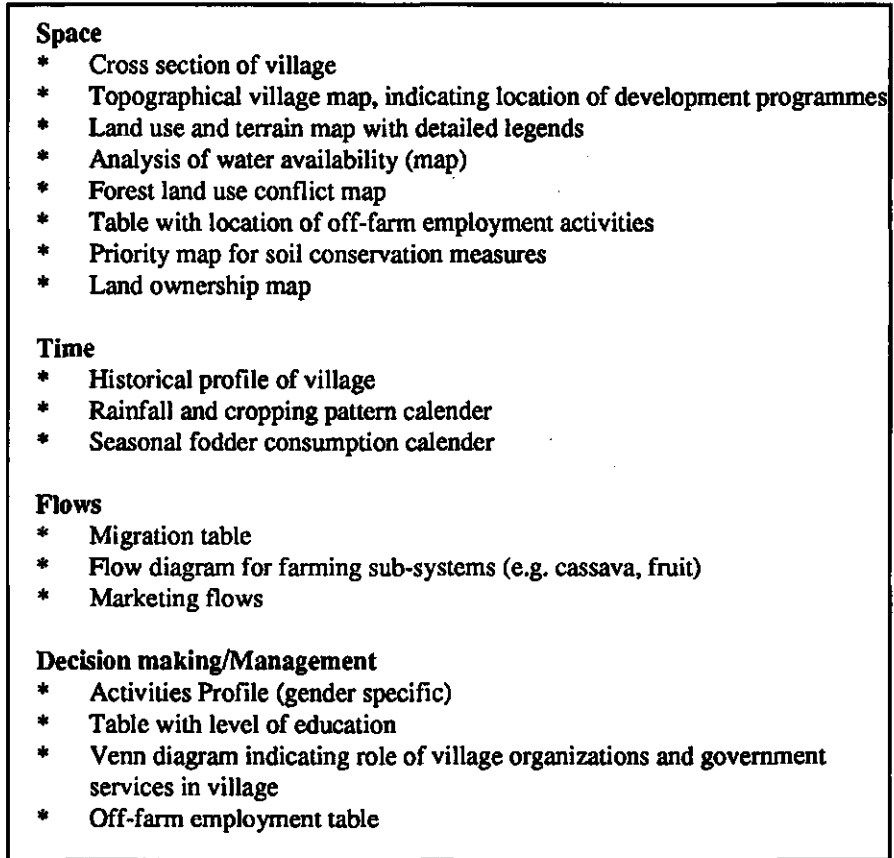


Figure 4.3 Example of data inventory and analysis results

agroecosystem requires knowledge of only a few key functional relationships and thus research can focus on key issues (or key problems) for development.

- Producing significant improvements in the performance of an agroecosystem requires changes in only a few key management decisions.
- Identification and understanding of these key relationships and decisions requires that a limited number of appropriate key questions are defined and answered.'

These assumptions form the basis for a learning process approach. In this iterative process, new knowledge and perspectives at each stage are likely to require revision of earlier stages. In particular, answers to key questions will modify earlier assumptions. Because the method is based on Rapid Rural Appraisal (RRA), it is quick (one to three months), flexible in design and encourages wide and easy participation and new ideas. Hence, AEA can easily adapt to changing conditions in the land use system. The use of key issues to focus the data collection and analysis throughout the planning process facilitates this rapid approach.

AEA guarantees an integrated approach, in which the relationship between the bio-physical and socioeconomic aspects of the system becomes clear. In practice however, a tendency exists to pay more attention to the agro/socio-economic side than to bio-physical factors. Although, AEA is explicitly based on the assumption that land use involves the interaction between the land and the user (Conway, 1985), none of its properties refer explicitly to the adaptability of the actual land user (Wiersum, 1990). So far, AEA has focused on agricultural productivity, which is illustrated in the definition of three of the four properties: productivity; stability and sustainability, all relating to the maintenance of production potential.

To conclude, AEA is a very useful method for the analysis of land use systems. It can be applied at local level in the form of a learning process and focuses on the interaction between the bio-physical and socioeconomic sub-systems. However, due to the rather complex theoretical framework of properties and pattern analysis the AEA approach is difficult to understand and implement in the field by field workers and villagers. As a result, the AEA-concept has often been applied as a form of RRA (KEPAS, 1985; 1988), without full comprehension of the framework for analysis.

4.2.3 Landscape Planning

Landscape planning is one of the few land use planning methods that goes beyond the analysis stage and involves design activities. The aim of landscape planning is to plan land use patterns that provide immediate profits to the local population, at the household level, and at the same time offer long term sustainability to the landscape (Duchhart, 1988 a,b).

The method consists of three major steps: a data inventory and analysis process, a creative design process and the implementation of pilot projects and monitoring (Duchhart et al., 1989). Continuous feed-back between the different steps is at the core of the planning method. In order to leave enough flexibility in the plan to adjust practices to new economic

demands or social changes (Duchhart, 1988), the plan is implemented via pilot projects, which are monitored and evaluated. Although implementation and monitoring are part of the method, this final step has not yet been fully developed.

In the first step, a landscape analysis takes place at both regional and local levels. At the regional level a reconnaissance study is carried out, in which a hypothesis is formulated as to how the present landscape was formed, and an analysis of social and ecological influences on the study area is carried out. At the local level, the analysis aims at obtaining insight into the natural processes and human activities taking place in the landscape of the study area. This analysis is mainly based on secondary data collection and observations in the area. This first step ends with a general problem definition and the design of a conceptual plan, which gives suggestions of how and where problems may be solved in an integrated way. It may serve as a framework for more detailed research to be undertaken by different disciplines. In the case studies on landscape planning that have been carried out so far, the concept has been based on stabilization of the drainage network by land restoration and rehabilitation for the mid- and long-term (Duchhart, 1988; van den Hoek, 1983; Rocheleau and van den Hoek, 1984), and thus focuses on the biophysical system.

In the second step detailed studies and designs are executed to gain an understanding of what people need and how the implementation of activities can be organized. Attention is paid to the planning of implementation of proposed measures by holding discussions with villagers and local authorities to explore local capacities, available budgets, technical skills, problems of land tenure, politics, or managerial capacity. Studies from various sectors and scale levels can be integrated, and short and long-term benefits are combined in the design. Visualization of the spatial lay-out of planned interventions makes design an excellent discussion tool. For example, the consequences of interventions for other scale levels or other sectors will become visible and localized in a map (Duchhart, 1988 a,b).

Landscape planning can justifiably claim to be an integration of so-called top-down and bottom-up processes. The first step can be seen as a form of top-down planning, while the second and third step (of implementation and monitoring) are more concerned with participatory planning. However, in practice the planning method is developed for 'outsiders', such as staff of regional planning institutes, and involvement of local organizations and local people is still limited.

Thus the major assets of landscape planning are the design phase and the two scale levels on which it operates. The design phase ensures that the

method does not end with an analysis and general recommendation, as in the previously discussed methods, but results in the detailed design of programmes. The use of two scale levels - the users' level and the landscape level - offers the possibility of focusing on the linkages between supra-, intra- and household levels. A serious shortcoming, however, is that the different steps in the planning process, especially the collection of socioeconomic data, have not yet been sufficiently well-defined for the process to be simple enough to involve local villagers and field staff.

Having evaluated these planning methods, two planning techniques are now discussed: Rapid Rural Appraisal (RRA) and Gender Analysis. Both of these have great potential for the planning method in the trial phase.

4.2.4 Rapid Rural Appraisal (RRA)

Rapid Rural Appraisal is a relatively simple and quick technique for data collection and analysis and is designed to involve researchers or the staff of organizations, and local people. According to Molnar (1989) RRA was developed because planning methods using formal surveys presented problems related to:

- the time lag between analysis of data and tangible results;
- the high administrative costs;
- the low level of data reliability due to errors in questionnaire design and interview techniques;
- the irrelevance of many of the questions for specific implementation purposes.

RRA is essentially a toolkit for information-gathering, and there is no set way of combining the different tools of the RRA for the purpose of a survey or planning method. However there are a number of so-called 'package approaches' developed by various RRA experts. These are often geared to a specific purpose, such as in-depth problem analysis, general programme formulation or village-level planning of activities (Molnar, 1989). Examples of these packages are the Diagnosis and Design (D&D) at ICRAF (ICRAF, 1987; Raintree, 1987); AEA as developed by Conway (1985; 1987a,c); FSR&D developed by the Consultative Group of Integrated Agricultural Research (CGIAR); and local level planning approaches (KEPAS, 1985, 1987; Khon Kaen University, 1987; van den Hoek, 1991; Savenye and Huysman, 1991)). However, RRA can also be used for planning of participatory development processes in the form of developing community self-awareness, training, methodology development (supplementing or improving other methodologies) or for general understanding of situations (Khon Kaen University 1987).

RRA is based on the principle that it is not necessary to know everything about a land use system to produce a realistic and useful analysis. RRA focuses on key problems and is selective in data collection. As data collection is rapid it is important to collect representative information in different areas, from different user groups and through different data collection techniques. To address the time constraint on data collection and analysis organized data collection and cross-checking of data by triangulation are important. Also, reliance on available secondary information, use of detailed, open-ended interview guides to ensure key issues are covered and extensive team interaction are all incorporated in the RRA approach to prevent biases.

RRA is the selection and combination of a number of data collection techniques and tools and may include (Khon Kaen University, 1987): collection of secondary data; field observations; formal and in-formal (open-ended) interview techniques and group meetings. All RRA exercises make use of individual, (intra) household and key-informant interviews to gather information about the local situation. Information on key issues is collected by posing open-ended questions: What, When, Where, Who, Why and How. Also, group interviewing is an important element of the RRA, because it collects information from a wide range of people relatively quickly; it generates discussion on key issues and stimulates local participation in village level planning of activities. For field observations observational techniques, like walking transects and spending time in central places and measurement and recording tools are used, such as a camera sketch maps and auger. The use of interactive data-gathering and planning tools stimulates the involvement of people in the planning process and enliven the discussion. Examples of these tools are; agricultural calendars, cross sections, ranking games, sketch maps, cross sections, labour calendars and (village) planning games. Minimum data sets have been developed in recognition that RRA often fails because important aspects of a particular issue are not covered.

The appropriateness of RRA as a planning technique depends on various factors. For example RRA is more useful when open-ended learning is needed, than when quantitative data is requested (Khon Kaen University, 1987). In general, RRA is an extremely useful technique for implementing local level planning, because of the following:

- RRA is a relatively simple and quick technique for data collection and analysis and is designed to involve researchers and local people. RRA is often carried out at village level. The duration of a RRA exercise can vary between three days and two months.
- RRA is a short and flexible learning process in which the villagers, local authorities and staff of organizations can share their knowledge and experience. It provides a forum for exchanging ideas and rapid and progressive learning. Re-evaluation of defined key issues or hypotheses during the course of fieldwork makes adjustments possible in a exploratory and highly iterative process. Also, the use of interactive tools for gathering data on

land use management through close discussion with local people facilitates substantial use and exchange of indigenous knowledge (Khon Kaen, 1987; Molnar, 1989).

RRA is not limited to the household or landscape level, but provides the opportunity to investigate at intra-household, household and supra-household level.

4.2.5 Gender Analysis

Gender Analysis in agricultural development programmes has resulted largely from the application of Women in Development tools to FSR&D. In every society women and men do different things, have access to different resources and benefits and have different responsibilities. These differences are rooted in social organization and are supported by cultural beliefs and values. Gender Analysis has become the commonly accepted term for analysing these gender roles and intra- and inter-household dynamics within farming systems (Poats and Sims Feldstein, 1990).

Gender Analysis stems from the recognition that the household is not an undifferentiated grouping of people with a shared and equal access to resources for and benefits from production. It encourages planners to find out, from empirical data, who does what, when and where, and the resources the different members in a community have at their disposal in order to carry out their respective tasks. The framework for Gender Analysis uses four interrelated components: Activity Profile; Access and Control Profile; Analysis of Factors Influencing Activities, Access and Control; and Project Cycle Analysis (Overholt et al., 1985). Table 4.1 presents areas in which Gender Analysis can make an important contribution.

Table 4.1 Gender analysis; areas of analysis and tools

AREAS OF ANALYSIS	TOOLS
1 Labour or activities 2 Resources 3 Benefits and incentives 4 Inclusion	1 Activities profile 2 Access and control profile of resources 3 Access and control profile of output of production User preference profile 4 Profile of who is included in each stage of analysis, planning, implementation and monitoring .

The Activity Profile will indicate who does what, by delineating the economic and social activities of the population in the planning area first by age and gender and then by ethnicity, social class or other distinguishing characteristics. An activity profile can be constructed by making seasonal calendars and agricultural activities calendars revealing periods of labour shortage or identifying all competing tasks by gender. The profile will indicate the amount of time spent by individuals on each of these activities. The profile may also specify where the activity is being performed. Because of the diversity within the social system it is essential to develop separate activity profiles for each of the distinct land user groups.

The Access and Control Profile will identify what resources individuals can command to carry out their activities and the benefits which they derive from them. It is essential to differentiate between access and control, since access to resources does not necessarily imply the power to control them. Control can be defined as the power to decide whether and how a resource is used and how it is allocated. Access is the permission to use the resource. Resources include land, capital, tools, livestock, labour, credit, education and knowledge. These profiles consist of a matrix, with the gender and age groups on one side and on the other the activities to which these groups have access and/or control.

It is also important to differentiate between access to and control over the benefits derived from the mobilization of resources. The motivation for allocation of labour and other resources depends largely on who benefits from it and the intended use of the output of each activity. A profile may indicate uses of products such as consumption, storage, sale, fuel, manure and desirable characteristics for these uses

Another aspect of Gender Analysis may be the analysis of who is included at each stage of planning, implementation and monitoring of development programmes. How are the different users included, what criteria are used for selecting them and what methodologies are used to ensure their participation? For the design of operational programmes issues pertaining to the relationship of each user group in the area to field workers of intervening organizations, organizational structures, operations etc. need to be considered (Overholt et al., 1985; Poats and Sims Feldstein, 1990).

To sum up: Gender Analysis provides an insight into the distribution of activities, resources and benefits/incentives between household members. It contributes to the identification of the role, capability and organizational forms of the different land user groups in managing their land use system and helps to adjust the programme to their opportunities

and constraints. Thus, information may be gained on the adaptability of the interventions, and also on the equity in division of resources and benefits among the local population. The profiles created by Gender Analysis provide the means for pinpointing the (more equal) distribution of the costs and benefits of particular interventions.

4.3 Methods for programming

The methods previously discussed focus on the planning of land use interventions. Referring to the strategic model, these land use planning methods can be applied to achieve a fit between interventions and a land use system. In order to achieve a fit between a land use system and organizations and between interventions and organizations in the trial phase, programming is proposed. Programming will include only those extension processes actually feasible in the trial phase, in addition to those already incorporated in the planning method. Similarly only simple project management techniques will be included in the detailed design and the development of an integrated programme.

4.3.1 Planning extension means

At the start of this chapter different extension approaches were described, of which the agricultural extension participatory approach appeared most closely related to the local level planning strategy. Its' communication processes are already incorporated in the planning method. At this stage of programming a discussion of which communication means should be planned is pertinent.

A number of extension means are useful in planning participatory development. These are: group extension methods (demonstrations, [on-farm trials], excursions, group discussions, farmer organizations); face-to-face dialogue, use of folk media and audio-visual aids, introduction of incentives etc. The planning of demonstrations and on-farm trials are of great importance to enable farmers to acquire the enthusiasm that will motivate them to continue development activities by themselves (Ashby, 1985). Enthusiasm can best be instilled by early recognizable successes in the form of small scale, low-risk, low-cost experimentation, resulting in demonstrable increases in income. Thus farmers can learn more, they can compare results and have the satisfaction of doing it themselves. According to Chambers et al. (1989): 'identifying farmers' priorities and helping farmers meet them leads to innovations which are adopted'. In other words it is a kind of self-help therapy. However, linkages with formal research and development programmes are also required to introduce complementary knowledge about newly developed technologies and species.

In order to stimulate communication and enhance participation of local people in the planning process a technique known as the 'Problem census' may be used. During group meetings, local people are asked to form small groups and write their major problems on big paper sheets. They present these problems to each other and subsequently one combined list of problems is made. In a next step the small groups have to assign priority to these problems, which are again presented to each other. Finally the facilitator of this group meeting adds up the priority and presents one final ranking of priority of problems. This technique results in a clear picture of problems and constraints as perceived by the land users. This technique may also be used during the analysis of problems or planning of interventions (Crouch, 1984).

4.3.2 Planning project management techniques

An integrated programme, with the involvement of different local organizations or sectoral agencies who cooperate at local level, requires good governance by the programme manager. The following techniques and tools may be useful in planning the organizational competence in the trial phase:

- project design summary;
- programme planning matrix;
- cost-benefit assessment;
- monitoring formats;
- problem tree diagram (visualization techniques).

Each of these will be briefly outlined as follows.

Project design summary

The project design summary originates from the 'Logical Framework', which consists of four sets of data (Rondinelli, 1983):

- 'the goals or objectives of the project, and the programme or sector goals to which the project will contribute, in which the specific purpose of the project must be described, the intended outputs delineated and the required inputs or resources identified (including budgeting);
- objectively verifiable indicators, including measures of goal achievement, conditions that will indicate at the end of the project that the purpose has been achieved, the magnitude of the outputs and type and quantity of implementation targets;
- means by which the indicators can be verified;
- important assumptions concerning the ability to achieve goals and targets, project purposes, and outputs, and the means of providing inputs.'

This design summary has three features of use in the trial phase of the model. First, it can assist planners to design detailed project activities. Second, if the framework is formulated in the planning stage, achievements can be measured during the implementation, through close monitoring. Third, it can be used to begin the evaluation process (Bryant and White, 1982).

Programme planning matrix

In the programme planning matrix all the proposed projects are brought together into one integrated framework of land use programmes. Priority of projects is indicated and location, involvement of local people, their local organization, the supporting organization, budget requirements and time schedule for implementation of projects can be coordinated and synchronized. By using this framework planners are forced to deal systematically with these important management issues.

Cost-benefit assessment

Cost Benefit Assessment is based on the idea that in a successful programme, the benefits should outweigh the costs. It can be used for estimating the feasibility of a project/programme prior to its start and later for project evaluation. Although the method is widely used, the consensus is that the identification, quantification and valuation of indirect and external effects, and of the intertemporal effects that characterize land use management, creates immense problems (de Graaff and Schipper, 1991):

- Measuring costs and benefits is difficult. In particular qualitative effects, such as social change, are difficult to translate into quantitative measures.
- Determining indirect and long-term effects of measures poses problems.
- Determining the discount rate (or the value of the money today and its value at some future date) is rather arbitrary. Estimates depend on the way projects are managed and therefore organizational design and implementation considerations should be included in the analysis (Bryant and White, 1982).

These difficult judgements require the specialized professional skills of a multi-disciplinary group of specialists in which the gathering and verifying of data is time-consuming (Price and Gittinger, 1982). However, assessment of the direct costs of interventions and short-term benefits is feasible and of great importance in planning sustainable programmes. Moreover, using the strategic model does not require as detailed a cost-benefit analysis as the top-down planning. Since local villagers and field staff implement the planning process, social considerations, or farmers' strategies are already accounted for in the design of

programmes. In their land use strategies farmers have already made a cost-benefit estimate of expected inputs, outputs and risks. Also, by pursuing adaptability and equity in distribution in local level planning, some important aims of cost-benefit analysis are already incorporated in the planning process.

Therefore, calculations on expected inputs and outputs are restricted to a short-term time horizon only, so they can be simple and the aforementioned problems can be circumvented. A major aim of these calculations is to obtain some parameters that can serve as indicators for budget allocation and programme performance during the monitoring. These calculations are part of the project design summaries.

Other forms of economic assessments of the programmes such as: the availability of budget resources; the capacity of the land users to implement the programmes; and the sustainability of programmes (can expenditures on operation and maintenance be met in the future?) are needed (de Graaff and Schipper, 1991). These questions are raised during the formulation of project design summaries and the integrated programme planning matrix.

Monitoring and evaluation

The project design summaries form the basis for the monitoring and evaluation of the programmes. In these design summaries, the expected programme outputs are formulated (with the support of the cost-benefit analysis) and the assumptions that are made about programme performance during the planning can serve as guidelines during the monitoring and evaluation.

Problem tree diagram

A 'problem tree diagram' helps to structure information. A systematic visualization technique as developed by 'Metaplan' is used in the analysis of problems and objectives. Everybody involved in the discussion can write problems and constraints as he sees them on cards which are attached to large pinboards. A 'moderator' helps to structure all the contributions and guides the group, step by step, through the whole process of problem analysis. In the problem analysis the significant problems in the programme environment are structured according to the causal linkages. This produces a rough model of the problem hierarchy or 'problem tree'. A main feature of the technique is that it allows many people to express their opinion simultaneously without hesitation and assures a lively discussion. This problem inventory technique is useful during the formulation of key issues, as one of the first steps in the planning process.

4.4 Proposed planning method

In the previous sections land use planning methods and techniques as well as some techniques for programming have been described and analysed, using criteria set by the strategic model. None of these methods and techniques as such are ideal as an operational planning method for realizing the first phase of the strategic model. Given their different focus, each has useful features either in data collection and analysis, in design, or programming. Therefore a synthesis of all these useful features into a new planning method is proposed. Table 4.2 presents this planning sequence, in which the applied methods and techniques are indicated for each step. It should be realized however, that this planning sequence is flexible in use, in the sense that other, new techniques and tools may be added. Alternatively when the local capacity, or time, is limited some techniques and tools may be left out of the sequence. The sequence shows an integration of land use planning and programming techniques.

Preparation and organization of the planning is the responsibility of the local government organizations, who may be supported in this task by private organizations. They select the planning area, either a village or another administrative unit at local level, confronted with serious land use problems. This selection is based on the regional development or watershed plans at the meso and national level and on the development policies of the regional governments. Hence, linkages can be established between the local and regional or national level. Results of these locally developed land use plans may refine the regional or national plans. Operational issues concerning who takes part in the planning team, their permission to participate, the planning period, a day-to-day work programme, the organization of facilities and the funding of the exercise, are dealt with. Funds and equipment are allocated and information in the form of maps and reports from the regional and national level is collected. Although the procedure is presented as a linear process, in reality the planning is an iterative process in which continuous feed-back takes place between the different steps. For example during the analysis the planner may realize a need for additional data collection and takes a step back in the process. In the following section the different steps are further outlined.

Step 1

Brain-storming sessions, the interpretation of secondary data and a problem census among the members of the planning team provide the necessary information to define the major key issues in land use management. The use of a problem-tree diagram, may help in the formulation of causes and effects of problems and their grouping into main key issues. The identification of major land use problems is relatively easy, as local people and field workers, who form the planning team, live and work in

Table 4.2 Proposed planning sequence indicating the applied techniques and tools for each step

PLANNING STEPS	TECHNIQUES/TOOLS
<p>1 Inventory of problems Identification of key-issues and main user groups</p>	<p>1 Problem census and problem tree - group discussion</p>
<p>2 Primary data collection (focused on key-issues and land user groups)</p>	<p>2 RRA including: field observation (land use and terrain survey) - informal interviews - formal interviews (household survey) - group meetings (problem census)</p>
<p>3 Data Processing and analysis</p>	<p>3 Combining and visualization of information in maps, diagrams, tables. Pattern analysis of key-issues including: - group discussion per issue - gender analysis (activity and access/control profile) - land evaluation</p>
<p>4 Conceptual plan development</p>	<p>4 Conceptual plan map Checking proposed programme with AEA properties</p>
<p>5 Detailed analysis</p>	<p>5 RRA including: - detailed field survey - group meetings; problem census and analysis - informal interviews - visualization techniques</p>
<p>6 Detailed design</p>	<p>6 Group meetings (participatory planning) Detailed project design summary</p>
<p>7 Formulation of land use development programme</p>	<p>7 Programme planning matrix and land use plan</p>

the area and have been directly confronted with these issues over the past years. As data collection is rapid representative information has to be collected. Therefore, the team identifies the major land use units and land user groups in the village. Both key issues and user groups should be daily checked and if necessary adjusted.

Step 2

A special RRA-package is developed, which is: implementable by local people and field workers; pays equal attention to bio-physical and socioeconomic aspects; and results in qualitative, descriptive information, with geographic references to be used for detailed programme design. RRA forms the basic technique for data collection, but some more standardized and quantitative data collection techniques are included. These are a terrain and land use survey, and a small and simple household survey focused on the identification of different farming systems. Also, Gender Analysis tools are included for an inventory of activities and access to and control over resources by the household members of different land user groups. Participation of local people in problem identification and information collection can be stimulated by using the 'problem census' tool. Special studies on certain key issues, such as an inventory of eroded land, land ownership situation, accessibility of the area, market facilities or local organizations, may also be part of this RRA-package. The content of this package is such that information is collected on all three properties of sustainable land use: maintenance of production potential; adaptability of farmers and the division of resources and benefits.

Step 3

The analysis of data follows the pattern analysis of the Agroecosystem analysis method. The results of data collection are processed in a number of maps, diagrams, tables as presented in figure 4.3. For each land user group and per key issue the relevant maps, tables, diagrams of the pattern analysis are discussed. This results in the identification of land use systems and their constraints. This pattern analysis offers the option to integrate the bio-physical and socioeconomic data and focuses on the management of resources at intra-household, household and supra-household, rather than limiting it to on-farm key issues. The supra-household level includes the use and management of communal resources (forest, grazing, water) and socioeconomic services for managing these resources, such as local organizations, infrastructure and markets. A simple form of Land Evaluation (land classification) at a supra-household level may be added to the pattern analysis of space, in order to pay more specific attention to bio-physical potentials and constraints in the area. For example, a comparison of terrain conditions with actual land use may result in an erosion hazard map. The intra-

household level can be incorporated by using the gender-specific activity and access/control profile in Gender Analysis.

The use of the rather theoretical framework of Agroecosystem Analysis and the addition of Land Evaluation and Gender Analysis techniques makes the whole undertaking difficult to grasp for the planning team. Therefore, the local planners have to be guided, step-by-step, through the process. Also, the presentation of the results of analysis needs to be clear and practical. The analysis is presented according to key issue in the form of cross-sections, (sketch) maps and simple tables. This will facilitate understanding and enliven discussion within the planning team, as well as during meetings with villagers. This data collection and analysis can lead to the detailed design of programmes, rather than the provision of general recommendations. For example, the analysis of the role of local, private and government organizations in the village and their linkages, provides some basic information for the design of extension processes.

Step 4

For each key issue, constraints are discussed and possible solutions are formulated. They are finally integrated into a conceptual plan, in which the relationships (and possible conflicts) between the different interventions become visible. In this plan, general guidelines are given for solving the key problems and at this stage of planning special attention is given to the supra-household level. The three properties are used to check the sustainability of proposed land use interventions.

Step 5

For each proposed programme activity a detailed analysis is carried out together with those land user who are to become involved. The purpose of this measure is to assess which specific technical practices and social measures and arrangements are needed to enlarge their capacity for sustainable management. This implies that detailed land surveys may be needed, as well as discussions with the intended participants (individuals and local organizations) about their specific wishes, needs, constraints and capacities. A gender analysis focused on this group of people, as well as a problem census exercise with the intended participants to be involved may be included.

Step 6

The local people who will become the implementors and managers of the interventions share responsibility in the design. Discussions are held on possible technical and social interventions in the field or at home with the aid of sketches and maps. Their capacity to implement and manage the activities are included in the design. Hence, programming starts in formulating the detailed designs. Detailed design summaries are made

for each proposed project, indicating its objectives, intended outputs, required inputs/resources/material, physical measures, social indicators of project performance, outputs and assumptions concerning the achievement of objectives, project outputs and the means of providing inputs.

Step 7

Finally, these designs are integrated into a programme planning matrix. Priority for project implementation is indicated and local capacity for implementation and management as well as total budget requirements, possible financial sources and cost sharing arrangements are discussed. The programmes should be checked for sustainability with the three properties. A time schedule for implementation is prepared. The location of proposed interventions is visualized in a land use plan map.

4.5 Summary

In order to reach an optimal fit between the three variables of the strategic model in the trial phase, a planning method should be applied to collect and analyse data that can be transformed into the design of effective programmes. No 'off-the-peg' planning method is available, instead a combination of existing approaches, methods and techniques is needed.

Three development approaches can be distinguished to this end: planning of land use development; extension approaches and project management approaches. Generally speaking, each approach covers a different side of the strategic model. Land use development focuses on achieving a fit between interventions and land use system; extension processes can be used in achieving a fit between land use system and organizations; and the fit between interventions and organizations can be accomplished with the help of project management techniques.

For planning land use development in the trial phase a number of current methods and techniques are discussed. These are Farming System Analysis, Land Evaluation, Agroecosystem Analysis, Landscape Planning, Rapid Rural Appraisal and Gender Analysis. The criteria set by the strategic model determine which aspects of these planning methods and techniques are useful for the proposed planning method. None of these methods and techniques as such are ideal as an operational planning method for realizing the first phase of the strategic model. A synthesis of all useful features into a new land use planning method is proposed.

For the trial phase the focus is on planning land use development while opportunities to develop extension processes and to influence project

management are limited. Therefore plans should basically be tailored to the existing competence of organizations. Within these limitations some attention can be paid to extension processes and management techniques by introducing an additional step to land use planning, called programming. Programming includes the preparation of a detailed design and a programme planning matrix. The detailed designs may include a cost-benefit analysis as well as social indicators and assumptions concerning the performance of the project. The latter can form the basis for a monitoring and evaluation programme. The programme matrix indicates priority for project implementation, the local capacity for implementation and management as well as total budget requirements, possible financial sources and a time schedule. Thus, the proposed planning method consists of land use planning and programming activities.

5 THE ENVIRONMENT FOR PLANNING LAND USE PROGRAMMES IN THE UPLANDS OF EAST JAVA

This chapter describes and analyses the present environment for planning sustainable land use programmes in the uplands of East Java. This environment consists of the three variables: land use system, interventions and organizations. Firstly the land use system for the uplands of East Java is described (section 5.1). Secondly, governmental organizations, their planning procedures and the role of Non Governmental Organizations (NGO's) in rural development on Java are outlined (section 5.2). Thirdly, interventions are illustrated with two examples of government programmes (section 5.3). While the description of organizations and interventions applies to the whole of Java, the land use system is described more specifically for the uplands of East Java. After this description an analysis of the two government programmes is provided, based on the principles of the strategic model (section 5.4). The final section presents a summary and conclusions.

5.1 The land use systems

The concept of a land use system, as described in chapter 2, is an interaction between the bio-physical and socioeconomic sub-systems which is influenced by economic, political, cultural and technical factors. Because in the uplands of Java these bio-physical and socioeconomic factors differ locally a wide diversity in land use systems occurs. Therefore a general description of land use systems would be inappropriate. In the following sections, a brief general description of land use conditions precedes a more detailed description of three agroecological zones.

5.1.1 General data on land use in the uplands of East Java

The land use system in Java has been described extensively by numerous authors either from a bio-physical or a socio-cultural-economic viewpoint. Those factors most salient to an understanding of the major issues in planning sustainable land use in the uplands of East Java are discussed below.

According to the World Bank (1988) the majority of slopes in upland areas of Java have a gradient steeper than 30%. Approximately 51% of the land is devoted to rainfed agriculture, 23% to irrigated rice cultivation and 25% to forest. Further information is provided by Barbier (1989): '...the area of severely eroded uplands is increasing at the rate of 1-2% per annum and now covers a total of over two million hectares, approximately one-third of Java's cultivated uplands. Roughly 12 million people live in the uplands. Population densities in these areas average 600-700 people per square km and holdings average 0.4 ha or less. In some areas as much as 20-25% of the population are landless. Yields for upland rice and corn average 0.9 to 2.5 ton per hectare.'

A more practical description of the uplands, emphasizing their diversity, can be gleaned from the following examples: total annual rainfall varies from less than 1000 mm to more than 3000 mm; rainfall distribution ranges from as many as nine wet months per year to as few as three wet months; upland landscapes are diverse with volcanic, alluvial and sedimentary deposits on a wide range of slopes of differing ages. Differences are further caused by variations in seasonal and perennial crops sown, cropping patterns, and management practices of dryland crops (KEPAS, 1988). Furthermore widely divergent socioeconomic groups can be distinguished among village communities such as (McCauley, 1985):

- landless labourers (those who own at most a homestead). These families are dependent upon wage labour, handicraft production, fuelwood collection and sale, and other marginally productive economic activities;
- farmer-labourers (those who control insufficient land, through ownership, rental or share-cropping, to completely depend on agricultural production for a living). They carry out additional work similar to the landless labourers;
- 'self-sufficient' farmers (those who support themselves almost entirely from the products of paddy and dryland cultivation on their own land);
- farmer-entrepreneurs (often relatively prosperous farmers, who earn additional income from trading, teaching, or being a village official). They rent out part of their land to landless or near-landless households.

- entrepreneurs (those who are able to prosper from non-farming activities).

Each of these socioeconomic groups employs its own land use strategy. For example, small farmers and labourers have no other choice than to cultivate the land for subsistence food production, regardless of the gradient or fertility of the land. However, diversified farmers cultivating pieces of land of varied quality have the flexibility to select land use practices in accordance with these qualities. Farmer-entrepreneurs possess the cash income, but lack the time required for intensive cultivation and thus may choose extensive land use strategies such as tree crop production. The complexity of the social patterns in villages can be further illustrated by the insecure land tenure arrangements and the presence of people of Madurese origin as a result of political and economic forces in the past.

5.1.2 Historical influences on present land use in the uplands of East Java

Java's rich history of land use has been described extensively (Raffles, 1830; Nibbering, 1989; Palte, 1990; Peluso et al., 1990). However the account which follows focuses on only those historical events which continue to influence current land use in uplands of East Java. The major impacts are eroded land, insecurity of land tenure and the settlement of Madurese on Java.

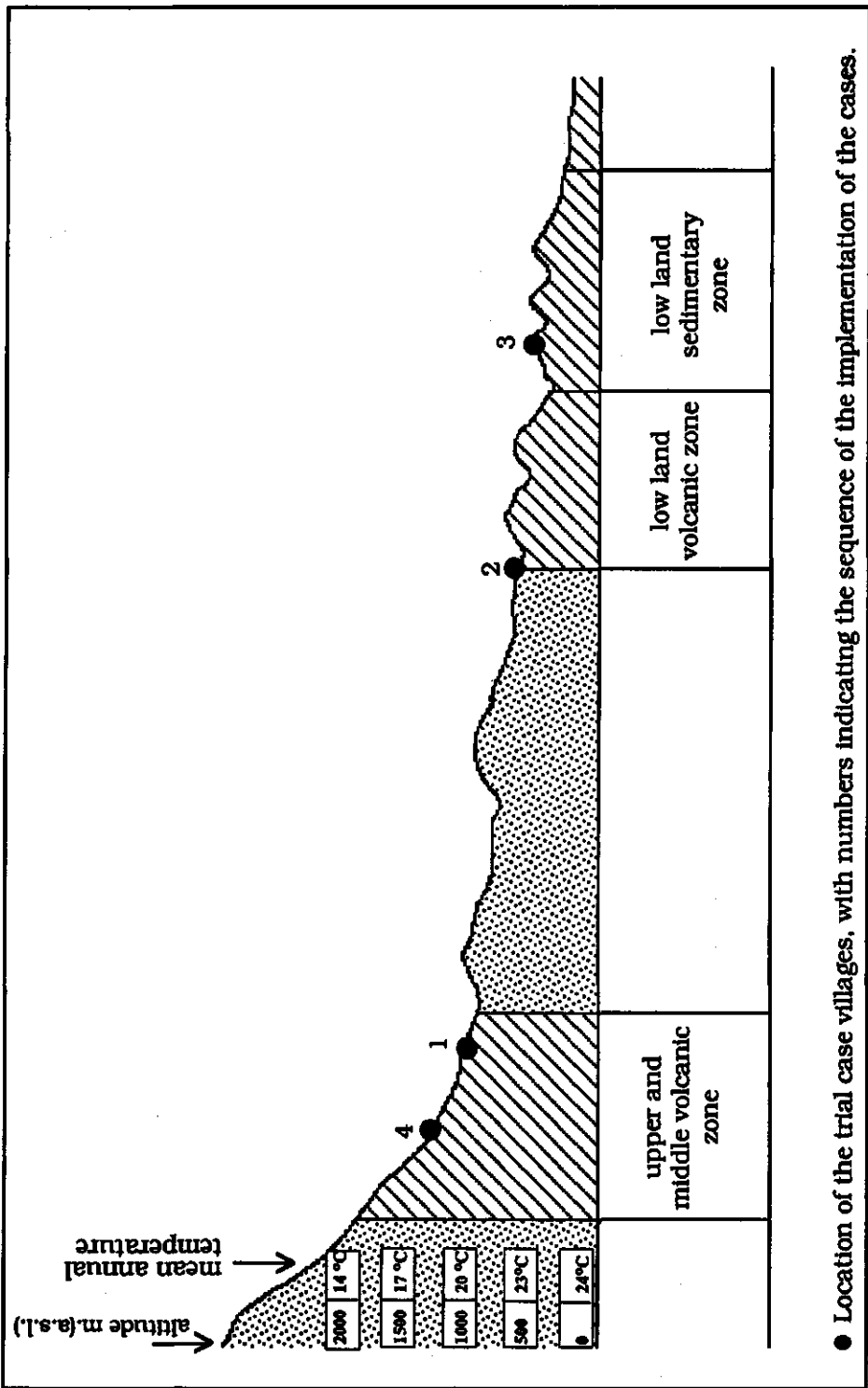
During the colonial period most upland areas in East Java were covered by forest, and coffee and rubber plantations. However during the Japanese occupation, the revolution and for some time thereafter, large tracts of these forests and plantations were cut and converted into dry arable fields. Besides land-hungry farmers, the Japanese occupation army was largely responsible for the destruction of forests and poor land management on former plantations. It requisitioned areas to produce food crops as well as certain commodity crops (i.e. castor) to support the war effort. Little attention was paid to soil conservation on these lands, resulting in high rates of erosion (Wiersum, 1980; Nibbering, 1989; Palte, 1990). Also after the war, during the struggle for independence, large areas of plantations and forest fell victim to settlement and cultivation (see for example Bekkering and Kucera, 1990). Rappard (1951) mentions that in the Brantas watershed a total of 43,000 ha of forests were destroyed and the land given over to cultivation, and that the percentage of forested areas shrank from 24% in 1924 to 18% in 1951. During the colonial period other authors had already forewarned of the problems that deforestation would cause for future land use and the hydrological situation on Java (Heringa, 1939; Altona, 1914).

According to Peluso et al. (1990): 'These war production policies have led to contemporary disputes over land rights between the State Forest Corporation, the Department of Agrarian Affairs and individual farmers. Part of these former forest or estate lands still face the problems of lack of security of tenure. Palte (1990) estimates that illegally cultivated forest and estate lands on Java cover hundreds of thousands of hectares. One example is military land, which is located on former estate land and now rented by the military from the government. People are allowed to live on certain parts of the land and cultivate it under strict conditions. Another example is the so-called *Magersari* land: temporary forest camps converted by forest labourers into permanent settlements, which are now unofficially accepted by the State Forest Corporation. One effect of this insecurity of land tenure is to make squatted former estates or squatted forest land liable to degradation, because farmers are not willing to invest in land when they still fear expulsion. Given the extent of these lands, the problems of erosion assume grave proportions (Palte, 1990). In addition the presence of Madurese in many upland villages in East Java has had an impact on land use and the success of land use programmes. During colonial times people from the island of Madura came to work in the coffee plantations and since then have settled in these areas, often forming their own communities, living in separate hamlets. Madurese people can be distinguished from the Javanese by their strong religious sentiments, loyalty to informal leaders, wariness of government services and high level of illiteracy (Bijlmer, 1987). They are very skeptical of government programmes and the government finds them extremely difficult to cooperate with. Although their social ties are strong, especially on their homesteads which often consist of two households, they are highly individualistic when it comes to their economic domain (Bijlmer, 1987). Madurese farmers have a different land use system from the Javanese: they rear cattle for fattening and plant hedges around their fields and/or home, a land use practice they inherited from Madura, where no alternative fuelwood and fodder grows near their homes.

Given this diversity in land use in upland areas, a general description would not be appropriate, while a description of each land use system at local level would be impossible. In order to give a more specific picture of land use in the uplands, a description of three agroecological zones is presented.

5.1.3 Land use according to zone

Agroecological zones are areas with relatively uniform bio-physical characteristics such as altitude, geo-morphology, dominant slope ranges and climate, which have a similar range of production possibilities. The



● Location of the trial case villages, with numbers indicating the sequence of the implementation of the cases.

Figure 5.1 : Cross-section of upland zones in East Java

cross-section in figure 5.1 depicts the different zones that can be distinguished in the uplands of East Java (Carson, 1989; DHV Consultants, 1990a).

Land use is described for three of the zones in figure 5.1: upper and middle volcanic zone; lowland volcanic zone and lowland sedimentary zone. Field research (in the form of trial cases) has been undertaken in these three zones. They are delineated on the basis of terrain and climate conditions and agricultural production systems. For each zone socioeconomic conditions such as off-farm employment, tenurial arrangements or forest management issues are discussed. However, it should be noted that since bio-physical criteria are used to distinguish these zones, these factors are predominant in the description. The different socioeconomic capacities of land users to manage these bio-physical resources are illustrated by describing soil conservation strategies for each zone.

UPPER AND MIDDLE VOLCANIC ZONE

Terrain and climate conditions:

The altitude ranges between 500 and 1500 m, with the demarcation between upper and middle zone occurring at 1000 m a.s.l. These uplands are situated for most part on the middle volcanic slopes and on some inter-volcanic plains and plateaus (Kucera, 1990). The zone has deep fertile permeable soils with slopes of four to eight degrees. However, in sharply fissured areas, steep slopes and shallow topsoil are more common. The climate is warm and humid with annual average temperatures of 20°C.

Agricultural production systems:

Traditionally the agricultural production system in this zone consisted of subsistence crops and coffee plantations. However the rising demand for fruits, vegetables, meat and milk from the rapidly growing cities has transformed the subsistence cropping pattern into one dominated by commercial crops. This was made possible by intensifying farming practices, using high yield varieties and fertilizers, and improving accessibility (Nibbering, 1989). Nowadays land use in the upper volcanic zones is characterized by vegetable and apple cultivation (World Bank, 1988). Besides the commercial crops, maize and cassava are still cultivated, especially by the resource-poor farmer. Whereas commercial crops are grown on perfectly maintained terraces, subsistence crops can be found on steeper areas, highly prone to erosion and with rather poorer terrace systems. The rate of erosion of these maize fields can exceed 200 ton/ha/yr (Carson, 1989). (Dairy) cattle-rearing, for meat and milk production, is a profitable occupation: in the Kali Konto Project area dairy cattle management activities showed an 13% increase in income and a 20% increase in employment during the period 1986-89. At the

same time a 120% increase in average arable land area planted under grass per household was observed (de Graaff and Dwiwarsito, 1990). Cattle is kept in stables and a cut and carry system is practiced. Grasses are grown on the benches of terraces, while additional fodder is collected in the forest. Homegardens are small. The most important (fruit) trees are grown on dry arable land near the homes.

Forest management:

Forest land is divided into natural and plantation forests, both managed by the State Forest Corporation (Perum Perhutani) either for protection or production purposes. All the remaining natural forests are protected in accordance with their assumed hydrological function in downstream areas. However the numerous sawpits found in forests where high quality timber species are still abundant are evidence that protection has not been very effective. Plantation forests are planted according to the *tumpangsari* agroforestry system, in which landless farmers receive 0.25 ha of forest land on which they have to plant trees. The recipients derive benefits from annual crops grown among the newly planted trees during the first two years in return for their labour inputs in cleaning, planting and weeding the forest site. Since the contract is short-term, these farmers often have no real interest in the well-being of the trees. Knowing that their contract can be extended if the trees fail to establish farmers have even been prompted to damage trees intentionally. Also after the contract period is over, initially successful plantations may still fall victim to illegal cutting by local people as nobody feels responsible for them and forest patrols are ineffective (DHV Consultants, 1990b).

Socioeconomic conditions:

Average farm size is relatively low at 0.47 ha per household. Of the three zones the proportion of landless and small farmers is greatest in this one (table 5.1). Although most employment is found in agricultural activities, off-farm activities provide the biggest source of income (table 5.1). The relatively favourable employment situation in this zone can be partly attributed to the vicinity of forest lands (DHV Consultants, 1990a). In villages close to the forest 'professional' fuelwood collectors sell the wood on local markets (Palte [1990], citing Nibbering et al., 1985). However, the major employment opportunity in the forest area is created by the reforestation activities generated by the *tumpangsari* planting system. Substantial earnings can thus be obtained from cultivating agricultural crops on the fertile freshly opened forest soils. Apart from some trade and artisan activities few alternative off-farm employment opportunities are available. Migration occurs in all three zones; members of 20-30% of all households temporarily migrate for an average of five months per year. However the income level of 31% of the people living in this zone is still below the poverty line (= income of Rp 120,000/

person/year; in 1989 US\$ 1.0 equalled approximately Rp 1,800) (DHV Consultants, 1990a).

Commercial production has led to increased economic stratification of farmers, especially in apple cultivation. Small farmers who are unable to make large and risky investments rent out their land to (often Chinese) investors from the cities and become labourers on their own land. Or they borrow money to make the investments, but do not manage to pay it back within the set period and are forced to sell their land and cultivate it as a labourer. Large farmers are much less vulnerable to such financial risks. They are better able to benefit from commercial opportunities and manage to acquire economic power, which is often translated into local political power as well (Palte, 1990; van den Hoek et al., 1990).

Soil conservation strategy of farmers:

With well-maintained terraces high investments in commercial crop management inputs such as mulch, chemicals and organic fertilizer can be optimized and thus influence the expected profitability of these crops in the future. However, poor maize-farmers have a different perspective as poor terracing does not directly affect their yields. The use of large amounts of fertilizers on deep soils compensate for these poor terracing practices. Cropping may continue for some time without soil loss affecting its productivity. The supply of low-cost (highly subsidized) chemical fertilizers, has encouraged these farmers to neglect the more expensive but more sustainable methods to increase fertility and conserve soils, such as manuring, mulching and using compost (Carson, 1989). Generally speaking, in this zone, the land that shows greatest erosion is not managed by the owner, but rented by other people for a short period, who only receive short-term benefits. Tree cover on agricultural lands for fuelwood or fodder is of little importance. The forest bordering the village is perceived by farmers as the most obvious place to collect their daily fuelwood. Moreover, farmers are not interested in planting trees on highly productive land, as they fear competition with their crops.

LOWLAND VOLCANIC ZONE

Terrain and climate conditions:

Altitude ranges between 0-500 m a.s.l. and the landscape is dominated by ancient volcanic landslide material, overlying older sedimentary limestone materials. This thick blanket of volcanic debris originally formed an almost flat plain (Carson, 1987). However, natural and man-induced erosion has eroded the sloping areas and hilltops, where the older limestone material is now visible at the surface. Overall gradients of the plateau lie between zero and five degrees, while the drainage ways are between 10 and 35 degrees in gradient. The climate is warm and humid with a mean annual temperature of 24°C.

Table 5.1: Some socioeconomic data for three agroecological zones

	Upper and middle volcanic zone	Lowland volcanic zone	Lowland sedimentary zone
av. family size	4.5	4.3	4.7
av. farm size (ha)	0.47	0.79	1.16
Type of land cultivated (%)			
-irrigation	9	11	7
-dryland annual crop.	32	67	42
-perennial gardens	42	3	30
-homegardens	13	18	20
-forest/other	4	1	1
Land tenure:			
-% of h.h. landless	5	2	3
-% <0.06 ha	28	13	4
Livestock/hh:			
-no. of cattle	0.6	0.9	1.5
-no. of small rumin.	0.9	0.4	0.5
Employment:			
-% agri. activities	30	37	43
-% on-farm labour on other farms	13	12	7
-% off-farm employment	15	13	9
-% home and other	42	38	41
Income:			
-% agri. activities	34	43	57
-% on farm labour	15	18	15
-% off-farm employment.	51	39	28
-% of persons with inc below poverty line	31	49	47

Source: Integrated baseline survey-LESMAS (DHV Consultants, 1990)

Agricultural production system:

Rainfed annual crop production dominates the farming systems. Sugar cane, cassava, maize and beans are among the major crops. Sugar cane is the main cash crop, largely because of the government's pricing policy (Kepas, 1988). Cassava is grown by rich and poor, both as a cash and subsistence crop (Carson, 1987). Productivity of cassava and maize in general is low, because of poor quality planting material and low inputs. In small valley bottoms, where water flows from local springs, rice is grown. Fruit trees are usually grown in homegardens. Cattle is raised for draft-power, meat production (mainly by the Madurese) and as savings capital. However the number of cattle per household is small (table 5.1).

Forest management:

Forest lands are mainly covered by teak plantations, although recently fast-growing species, such as *Paraserianthes falcataria* and *Gmelina arborea*, have also been planted. Reforestation often fails for the same reasons cited for the upper and middle volcanic zone. Organized timber theft occurs, as does the collection of fuelwood for household consumption and for sale. Another major problem in most reforestation areas is the grazing of cattle. In the dry season particularly not enough fodder can be collected on private lands and farmers are forced to buy it in other places and/or depend on the forest for fodder collection and grazing (van den Hoek et al., 1989).

Socioeconomic conditions:

Average farm size at 0.79 ha. is slightly larger than in the upper and middle volcanic zone. Agricultural activities provide the major source of income, while off-farm employment plays a smaller role than in the previous zone. Nearly half the total households (49%) has an income below the poverty line. Initial capital costs of planting sugar cane and restricted access to the sugar factory results in sugar cane being grown predominantly by resource rich farmers. Moreover, sugar cane has to be grown on gently sloping areas, often owned by the rich farmers (KEPAS, 1988).

Soil conservation strategy of farmers:

Farmers' interest in soil conservation of sugar cane fields is limited either because terraces will take up some of their productive land, or because land is often rented and the tenants are not willing to invest in land they only cultivate for a period of two years (van den Hoek et al., 1990). The government programme for terracing sugar cane fields has failed as farmers were unwilling to cut their sugar cane during programme implementation, which often did not coincide with their harvest time (after 14 months) (van den Hoek et al., 1988).

LOWLAND SEDIMENTARY (LIMESTONE) ZONE

Terrain and climate condition:

This zone lies between sea level and 200 m elevation and ranges from undulating to rolling cultivated lands in the north (volcanic origin) to strongly rolling karst (limestone) terrain along the coast. In general soils are a combination of limestone and volcanic soils; they are shallow, stony and clayey. Subsoils grade abruptly into bedrock. Slopes range from 1 to 45 degrees with dominant slopes of 10 to 15 degrees. The climate is hot and moist with a mean annual air temperature of 25°C and annual precipitation of 2000 mm. Drought can be severe and is exacerbated by the shallow stony soils of the area (Carson, 1989).

Agricultural production system:

Subsistence farming is the most important farming system. Rainfed annual cropping together with coconut plantations are the dominant forms of land use. The main crops grown are cassava, maize and dryland rice, which give low yields due to poor planting material and lack of inputs. Valuable fruit trees are grown in relatively extensive homegardens for household consumption. Cows are kept for ploughing and by the Madurese inhabitants for meat production as well. Large areas of bare or marginally cultivated lands with some teak and coconut plantations occur on the karst terrain in the southern part of the zone. Poor land management, which started with the cutting of forest during the war, has resulted in severe erosion, a sharply dissected landscape and decreased soil productivity. Large areas of this land are already abandoned or under-utilized (Carson, 1989).

Forest management:

A small coastal strip of some production and protection forest remains. In general the forest is too far away for the villagers to go there to collect their daily fuelwood. Besides, extensively cultivated private lands produce large amounts of fuelwood. However professional wood thieves still operate in the forest in search of high quality timber (van den Hoek et al., 1989).

Socioeconomic conditions:

The average farm size is large at 1.16 ha per household, and the percentage of landless or small farmers is small (table 5.1). However, since the productivity of the land is low, outmigration characterizes many villages in this zone: work is often sought by young people in more promising rural areas or in the cities (Palte, 1990; DHV Consultants, 1990a; van den Hoek et al., 1990). Infrastructure in the villages is comparatively poorly developed. In this more isolated zone, which lacks lucrative cash crops such as rice or sugar cane, the agricultural extension service is often not represented. Approximately 47% of the population

have an income below the poverty line.

Soil conservation strategy of farmers:

The low profitability of eroded land discourages farmers from cultivating it, since the cost of inputs required to initiate land management measures under these circumstances would be much higher than expected value of the outputs. They leave the land fallow with some teak and coconut stands and use it for grazing and wood collection. Consequently those farmers without alternative land to cultivate will look for additional income in off-farm employment. Another reason for the extensive cultivation of these marginal lands is their relatively long distance from the farmers' homes, which restricts transport and limits security. For example, farmers are reluctant to plant fruit trees because they will be vulnerable to theft.

Because farmers do not possess security of land tenure, the government (military) land in the northern part of the zone stands testimony to mismanagement and erosion. No serious soil conservation measures are implemented, nor are any long term agricultural investments made. Moreover, since the military does not allow trees to be cut on this land, farmers have no incentive to plant them (van den Hoek et al., 1989; Carson, 1989).

5.1.4 Factors influencing land use strategies

Based on the description of land use and soil conservation strategies for each zone, and additional literature study, the following factors can be identified as influencing land use strategies on dry arable land in upland zones (Carson, 1989; World Bank, 1988; Barbier, 1989; van den Hoek et al., 1989):

Quality of land

Physical characteristics of the land, such as the availability of water, soil depth and texture, slope gradient and length, and the presence of stones, determine potentials for land management strategy in the first place. In general, upland farmers are quick to adopt new farming systems and modify their land management practices if they perceive an economic advantage in doing so. Hence, the more productive the land and the more profitable the crops, the more farmers are willing to maintain and invest in better land management and erosion control practices. Soil conservation practices are less likely to be accepted in areas where only small productivity losses arise from erosion.

Availability of cash

Conservation farming is more readily adopted by wealthier farmers with ready cash. Poor farmers, however, cannot afford to take up land use strategies requiring significant inputs of labour and capital nor are they able to sustain the temporary loss of food crops which terracing entails (Pickering, 1979). They are engaged in subsistence agriculture and are primarily concerned with steady, low-risk production.

Availability of different land parcels

Farmers with varied plots of land can better adjust their land management to the suitability of each plot. For example, by planting intensively cultivated cash crops on irrigated land, marginal lands are released for fodder and fuelwood crops. Subsistence farmers do not have this choice since they often have only one plot to be used for food production and these plots are often located on marginal land. Also, whenever a forest is in the vicinity local inhabitants will view it as an alternative source for fuelwood and fodder and will be less inclined to plant these crops on their arable fields.

Availability of labour

Lack of time on the part of farmers or shortage of labour may force them to manage land extensively. One of their major concerns is the opportunity cost of labour. Thus he will opt for other labour-demanding (off-farm) activities when these bring them a higher income.

Tenurial arrangements

Farmers lacking secure tenurial arrangements are only interested in short-term benefits. If, for example, they rent land for a short period there is no incentive to invest in soil conservation measures which would only benefit them in the long run.

Alternative sources of income

Farmers earning a large proportion of their income from off-farm employment will tend to respond to reduced profitability of their agricultural land by devoting more labour to off-farm work. Wealthy land owners who farm marginal land see quicker profits in other business and lose interest in the farm, leaving at least a portion of their land fallow.

Market situation

Adoption of new cropping patterns or planting systems is slow when marketing and transportation facilities are insufficient to fully exploit these innovations.

Access to new technology and inputs

Lack of information on available technology and inputs may be a reason for continuing traditional and often non-optimal land management practices.

Presence of livestock

The fodder requirements of highly profitable dairy cattle will reorient land use strategies towards the planting of grass on dry arable land. The availability of manure changes land management practices, since it can be used in addition to, or instead of, chemical fertilizers.

Distance between land, road and the homestead

The greater the distance between land and the homestead the less secure farmers feel about the products they grow on their land. A long distance to roads makes transportation more difficult and thus more expensive, especially when products are bulky or perishable. Another consequence of this distance is that farmers have no control over their valuable products. Consequently extensive low-input agriculture is practiced on these sites whenever there is alternative land for food production, or people stay overnight on their land during harvest time.

5.1.5 *The role of village organizations in the land use system*

In the analysis of land use zones described above, village organizations were excluded. There are two explanations for this: firstly the institutionalization and incorporation of indigenous village organizations into government organizations has made them fairly homogeneous and the same bodies are present in each village. On the other hand the functioning of these organizations differs between villages, depending on local power structures and policies, and thus they cannot be distinguished on a zonal basis. Therefore only a general picture will be drawn for all upland villages, focusing on village administration and organizations.

During the seventies the government carved out the present village administration from autonomous indigenous village organizations. Schulte Nordholt (1987a) describes how the village organization (LSD; *Lembaga Sosial Desa*, a village social institution) was gradually enveloped by the government; 'on behalf of a rural development policy in which there was no place for autonomous village institutions. By means of directives and regulations and, finally, the 1979 law regulating village administration, the LSD (albeit under the new name LKMD, meaning *Lembaga Ketahanan Masyarakat Desa*; the Village People's Resilience Unit) was assigned an executive but controllable role in meeting the norms set for 'participation in development'. As a result the government drastically changed the structure of Javanese rural society, especially the

role of the village head, who is officially elected on basis of government-approved candidacy. The following village organizations now formally exist (Schulte Nordholt, 1987a):

- The *pamong desa* is the village administration, consisting of the village head, village secretary, the village police and the members responsible for development tasks, such as general welfare affairs and agricultural or irrigation activities.
- The LMD (*Lembaga Musyawarah Desa*) is an institution for village consultation and consists of the village 'elders'. The village head is the ex-officio chairman. Besides their general task of advising the village head, they approve the annual village development plans and budgets. The LMD is based on the traditional concept that village elders or elites can speak and decide for the whole village population.
- The LKMD is an institution used to support village society. The village head chairs the LKMD (ex-officio) and appoints the five board members, each with their own section focused on activities in social welfare, education and development. The LKMD presides over the PKK (*Pembinaan Kesejahteraan Keluarga*; the women's association for welfare) (Schulte Nordholt, 1987). While the original objective of the LKMD was to assist the village head in stimulating and motivating community self-help and mutual help in development, their main task now is to advise the village head in matters concerning village development and to formulate the yearly village development plans, including determining the size of the yearly budget for village development activities. As such the government claims that the LKMD is an instrument for local participation in development planning and that it constitutes the 'bottom' rung of the planning process of rural development.
- The KPD (*Kader Pembangunan Desa*) is the village development cadre, consisting of 10 representatives of the village community. These cadres are set up to assist the LKMD to identify problems, list felt needs, disseminate information, and discuss village community problems and issues in the different hamlets.

Besides these village organizations also some administrative units exist within the village. The *dukuhs* are hamlets, which form administrative parts of the village. Each *dukuh* has a *dukuh* head, often represented in the village administration. In upland regions the distance between *dukuhs* may be large, such that either they have greater autonomy, or they are somewhat neglected by the village administration. The RT (*Rukun Tetangga*) are formal neighbourhood organizations which were set up as administrative units by the Japanese army of occupation, each representing around 25 households. Later, the head of the RT became

neighbourhood advisor and confidante to the inhabitants. He is sometimes used as a channel through which the village administration can communicate information to and gain control over the villagers (Schulte Nordholt, 1987a).

The village administration acts as an agent of government policies and administration. The careers of village heads depend on their ability to satisfy their superiors in the government administration with reports of successfully implemented village development programmes, funded by central government. Thus, village administrations concentrate on implementing land use programmes according to government rules and procedures in order to satisfy officials, rather than developing land use programmes that reflect the perceptions and wishes of local people. Moreover, village heads may reinforce their position by appointing family members to the LKMD, LMD, or *Pamong Desa*, by manipulating development projects to their economic advantage and by ignoring political opposition or exploiting their opponents' political past to render them politically suspect (Schulte Nordholt, 1987b). Since most government services to the rural community have been channeled through the village administration, the gap between the bureaucratic elite and the lower echelons in the villages has grown. This has served to estrange the village level administration from non-formal leaders, and local organizations at hamlet level (Tjondronegoro, 1984). The extent to which village officials are at liberty to adapt a government programme to local conditions depends on their relationship with the local population and their economic and political power. Much depends on personality how central policies are executed, and whether they can be ignored or transformed as they reach the lower levels (Quarles van Ufford, 1987 and 1988).

Although the most important local organizations have been incorporated in the government administration, certain informal, autonomous village organizations such as farmer associations or religious groups still exist. The stronger informal community ties stem from neighbourhood relationships that can be found at sub-village, rather than at village level (Tjondronegoro, 1984). Some of these associations may have matured into Non-Governmental Organizations (NGOs), sometimes supported by NGOs working at supra-village level. Characteristics of these NGOs are further discussed in section 5.2.

By relating this information on local organizations to the strategic model it can be concluded that autonomous village organizations are part of the land use system at local level. However, as they are enveloped by the government administration, they increasingly come under the influence of organizations. But since local people continue to play

a major role in these organizations they are still classified under the land use system.

5.2 The role of governmental and non-governmental organizations (NGOs) in land use development strategies

In the sections below, a description of the government administration, its procedures and funding sources (5.2.1) is followed by a discussion of the role of NGOs in Indonesia in general, and their potentials and limitations in contributing to development programmes (5.2.2).

5.2.1 Government organization

In 1969 the government of President Suharto (known as the 'New Order') initiated a development strategy based on the state ideology of *Pancasila* and the 1945 Constitution. Development policies are executed through five year plans, starting with *Repelita I* in 1969 up to the current *Repelita V* (1989/90- 1994/95). The objectives of these development plans are: Political Stability and Economic Growth, and since *Repelita III* the objective of Equal Distribution has been added. Political participation has clearly been put on the back burner. The state ideology declares that all parts of society fall under the governance of the state, de facto under the leadership of the president, who controls the army, the bureaucracy and important sectors of the economy. As such the development strategy pursued can be defined as that of an 'Interventionist Development State' (Schulte Nordholt, 1991, citing Robertson, 1984), in which the government has the sole authority (*Kuasa Tunggal*) in development processes.

Throughout the Republic of Indonesia, all government administration is organized and operates down to the village level according to the same rules and instructions issued by the central government. The government uses administrative units of provinces, districts (*kabupaten*), sub-districts (*kecamatan*) and villages (*desa*). The administration is set up along two 'lines'; consisting of (1) the ministries and their sectoral agencies and (2) the civil administration of the Minister of Home Affairs (figure 5.2). In between these two 'lines' are the planning boards BAPPEDA (*Badan Perencanaan Pembangunan Daerah*) at provincial and district level, which coordinate and integrate development planning. These planning boards fall under the Minister of Home Affairs. Theoretically, the planning of development programmes follows both (so-called) 'top-down' and 'bottom-up' procedures.

Top-down procedures are, however dominant in development planning at present. Central government undertakes strong centrally based sectoral planning (Development Perspectives, 1988). The five year development

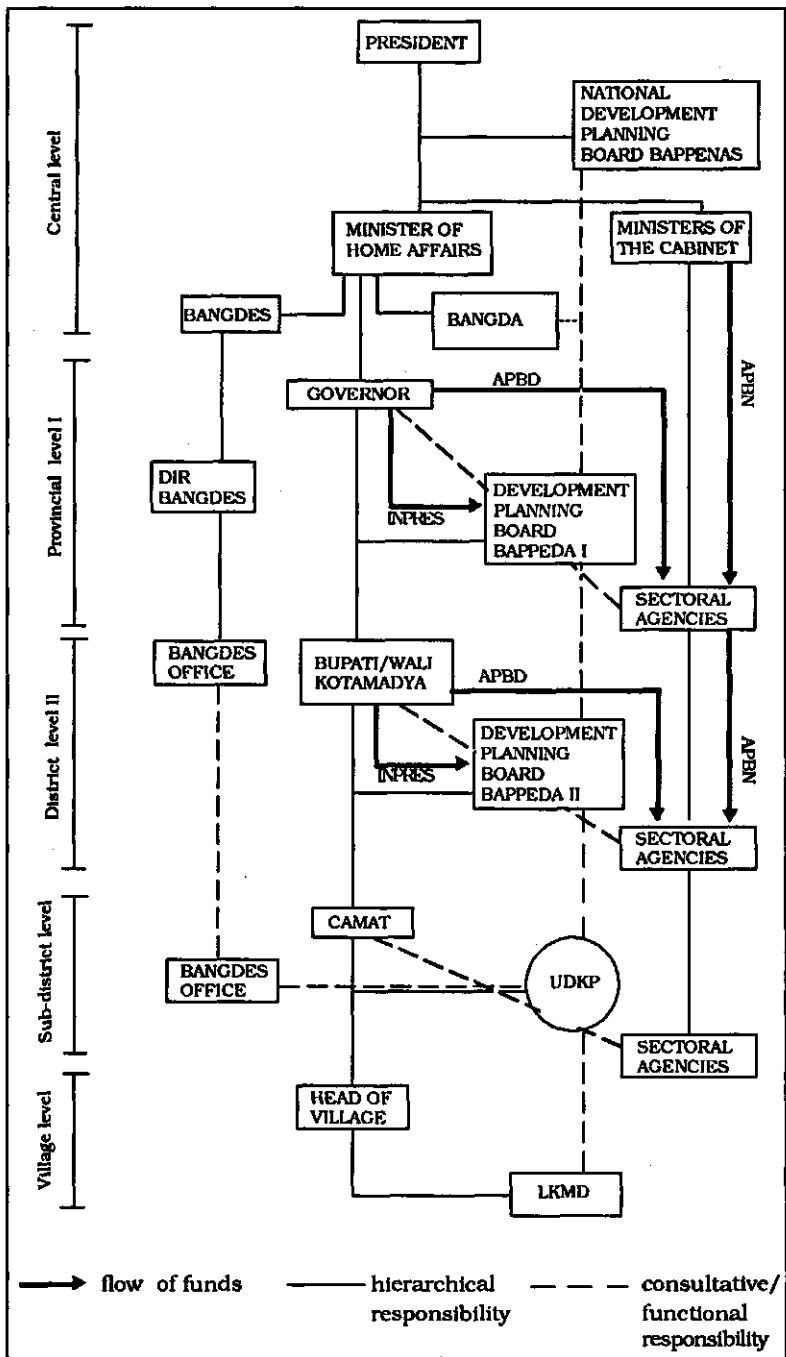


Figure 5.2 : Government administrative structure with funding sources

plans contain detailed instructions for the kind of activities needed and how and in what time span they should be implemented. In turn sectoral agencies issue strict instructions for implementing their sectoral plans and provide funds to lower administrative government levels (Schulte Nordholt, 1981).

At sub-district level the UDKP (*Unit Daerah Kerja Pembangunan*), is the working unit for area development and is responsible for the bottom-up procedures of local planning. Field staff of the sectoral agencies present at sub-district level and the local official for village development affairs (*Bangdes*) form the UDKP team, chaired by the *Camat* (head of the sub-district). The official objectives of UDKP are (Manual for Implementation of the UDKP system, 1977):

- to coordinate all development activities within the area of a *kecamatan* (sub-district), through a comprehensive and integrated area development planning, implementation and monitoring process with a bottom-up approach (each sub-district includes 15-20 villages);
- to assist the *Camat*, as area head, in managing administration and co-ordinating development activities;
- to stimulate the development of *kecamatan*s as local growth centres in order to have an impact on the surrounding villages.

Three different funding sources are available for development programmes. The first source comes under the heading of sectoral development funds, provided by central government (APBN). The activities to be funded are planned and prepared at the national level by the planning units of the sectoral departments and subsequently financially coordinated by BAPPENAS (the national planning agency).

The second source of funds are known as the INPRES (*Instruksi Presiden*) funds, which are also provided by central government. Two types of grants are distinguished; multipurpose and special earmarked grants. These are directly channeled to the district level and are used for regional development. Multipurpose grants effectively pass through local government accounts and budgets (APBD I and II); special earmarked grants are disbursed in the form of projects (DHV Consultants, 1990b). They are the responsibility of the regional authorities. However, in practice national level issues rigid instructions concerning the objectives, size, content and execution of the programmes. Lower administrative levels are thus left to determine only the geographic location of INPRES-activities and implementation of the programme. Thus, the government's assumption that the deployment of INPRES funds by the local government is a sufficient guarantee for bottom-up participation in planning is questionable (Development Perspective, 1988). One separate INPRES-

programme is the *Subsidi Desa*, in which a fixed budget is provided annually to each village. The village administration can use this budget at its discretion although certain central guidelines are still followed.

The third funding source is regional i.e. Provincial and District Development Funds (APBD), originating both from regional revenues (IPEDA taxes) and multipurpose INPRES grants (DHV Consultants, 1990b). They finance projects which are planned and implemented by the provincial and district governments and coordinated by BAPPEDA at provincial and district level.

For each project proposal a DUP (*Daftar Usulan Proyek*) form has to be prepared. This standard planning form indicates estimated requirements for material, labour, training and field allowances. Once a proposal has been approved, a detailed design known as a DIP (*Daftar Isian Project*) has to be drawn up. These DIP and DUPs are prepared by the sectoral agencies involved, by order of BAPPEDA. It is almost impossible to make changes to a DIP or DUP once it has been approved.

From this description of funding sources it becomes clear that at present top-down procedures are pre-eminent in development planning. This can be further illustrated by the national budget allocations: in 1988 over 80% of the total annual budget was spent on centrally-planned sector development projects and programmes, whereas INPRES programmes and regional development activities received a mere 15% and 5% respectively. Even though the latter are administered by regional governments, top-down policies still dominate (Development Perspectives, 1988).

Agricultural development activities are undertaken by the agencies for agriculture (DIPERTA), estate crops (DISBUN) and animal husbandry (DISNAK), all falling under the jurisdiction of the Ministry of Agriculture. They are administered by the local district head and are provided with technical guidance from the respective central government directorate via provincial offices. The extension component of agricultural development programmes is the responsibility of BIMAS (Mass Guidance Coordination Board), an agency under the supervision of the Ministry of Agriculture (DHV Consultants, 1990b). Although its organization structure was developed for the rice production programme in the lowlands, it has also been applied to agricultural development in the upland areas. Its structure is fashioned along vertical hierarchical lines from national to village level. Regional extension centres (BPP) have been set up covering up to three sub-districts depending on their size. In these centres senior extension staff (PPUP) of the services for perennial crops, food crops, livestock and fishery, are responsible for managing the

extension programmes and they are supposed to guide the field extension workers (PPL). Each PPL represents all four disciplines and covers one to five villages. He/she is supposed to serve around eight to ten farmer groups.

Other sectoral agencies are also involved in land use management; however cooperation between them is poor. The agency for Land Rehabilitation and Soil Conservation (BRLKT) of the Ministry of Forestry is responsible for watershed management but collaboration with the agricultural services is limited. They have their own programmes and their own farmer groups. But as their office is often located within the BPP building some informal cooperation is still possible. A third important agency in land use management is the State Forest Corporation which is responsible for the management of state-owned protection and production forest. It has a completely separate organization with different administrative units. Cooperation with the agency for Public Works in land use management programmes at local level is even more difficult as they are not always represented at sub-district level in upland areas.

5.2.2 Non-governmental organizations (NGOs)

Given the state ideology of 'sole authority', the government does not leave much room for the development of independent and critical NGOs in Indonesia. They have been forced to moderate their activities. They generally subscribe to conventional development policy, but criticize the way objectives are achieved and programmes implemented. Thus, the contribution of NGOs has been more one of 'development consultancy', rather than challenging the government with alternative development models. Some environmental organizations constitute an exception to this as they focus on more political issues, such as logging enterprises and migration schemes on the outer islands (White, 1989; Schulte Nordholt, 1991). Because of the large and growing sums of development funds they receive from foreign donor organizations, their influence in 'development consultancy' is increasing.

However, notwithstanding the popularity of NGOs with donor organizations, they have also come in for some criticism. Sasono (1989), Schulte Nordholt (1991) and White (1989) among others mention that NGOs often depend heavily on foreign agencies while no domestic power base is being built for long term political advocacy and therefore accountability to their local members is weak. Furthermore participation of the poorest groups in village communities is often limited. Because NGOs accept the development strategy and power structure of the government, they focus on the stronger members of the local communities expecting their programmes to have a positive impact on the poor. Another reason why

NGOs focus on more progressive beneficiaries is the external pressure on them to become financially independent for which they need evidence of successful programmes.

5.3 Relationships between government and local organizations

The government has not only enveloped local organizations, it has also incorporated the socio-cultural principles in its administration as part of its policy and self-legitimation (Schulte Nordholt, 1987). In order to understand the operations and procedures of government administration, some of the socio-cultural principles that apply to the NGOs and more specifically to the (village) administration are discussed below:

- *Kuasa Tunggal* (the sole authority), implies that the government gives the government official a free hand to use all the resources at his disposal, but expects him (and the village meetings) to ratify its 'advice';
- *Musyawah* (consultations leading to consensus), as exemplified in the LMD. However, this principle in reality means that disapproval is not accepted, or that local people are not involved nor informed, since it has already been discussed with the village elite. This becomes clear when programmes are 'approved', but not implemented;
- *Gotong Royong*, (a form of self-help, based on the principle of reciprocity) consists of community funds, labour and material and is considered to be the basic capital resource for village development implementation. This principle is often mis-used in such a way that the government in fact compels villagers to provide supplements to government subsidies, without receiving direct benefits (Schulte Nordholt, 1987b; UN/ESCAP, 1986).

Patterns of behaviour and social relationships with the government administration are also strongly influenced by culturally determined phenomena such as *bapakism*' (fatherism) and 'harmony' in relationships. The term *bapakism* is used to describe a complex system of patron-client relations (Jackson and Pye, 1978). The *bapak* is the leader of a group of followers, who are called children. The *bapak* is supposed to care for needs of his children while in turn the children are supposed to support the *bapak* by making contributions, deferring to him, and joining or leaving organizations among others. The most desirable things in life such as government jobs, scholarship, rank in the army or trips abroad can only be achieved through one's *bapak's* access to these goods and willingness to favor his child. Another example of the culturally inclined behaviour of most Javanese people is their indirectness and desire to avoid personal frictions. This may help explain why there is no feedback

information on poor performances and results of programmes to the policy makers. Jackson and Pye (1978) describe this behaviour: 'rather than being crude by acknowledging peasant resistance or that the plan is simply unworkable, local leaders promptly acquiesce'. Officials throughout the hierarchy assure their superiors that all plan targets will be reached, while the local land users have to deal with all predictable failures of poorly planned programmes.

The implications of these culturally determined phenomena are firstly that hardly any room exists for autonomous local organizations and secondly that opportunities for villagers to participate in development planning are limited. An illustration of the first point is the replacement of the term NGO by the terms of LSM and LPSM (social institutions for the people) since Non-Government organization was thought to give the negative impression of anti-government. Furthermore, the use of these LSMs allows the officials to encapsulate a number of local independent institutions and control them by regulations. This has happened with the LKMD, as described in the previous section and through the regulation that all cooperatives should be affiliated to the state-controlled cooperatives (KUDs) (White, 1989; Schulte Nordholt, 1991).

Furthermore, participation is widely preached in government policies, but in reality programmes are still carried out with top-down guidance. Proposals for village development are prepared by sectoral agencies, while management is in the hands of government officials at provincial and district level. The government's ideas on political stability, as reflected in its planning procedures, are clearly in conflict with its policy of more equal distribution, which requires participation from the villagers in planning and decision making (Development Perspectives, 1988). The unrest and turmoil of the sixties still serves both as a painful reminder and as an excuse for retaining control in the government's hands. This discrepancy between the theory and practice of government policies means that procedures exist, but they are not actually followed. This can be illustrated by the discrepancy between the objectives and the type of activities and management laid down in the Guidelines on the implementation of integrated area development programme (Instruction no 14, 1990). The objectives formulated are: to encourage decentralization; to involve the lowest level of local community in planning and implementation; to develop the capability and autonomy of government institutions and community and to encourage creative attitudes and behaviour. However, the activities proposed to achieve these objectives focus only on economic development, for example: increasing community income and welfare, provision of credit facilities for the poor; provision of training and courses in running a business.

5.4 Interventions; two examples of government programmes

Development programmes are planned and implemented by government organizations and NGOs. In this section the focus is on government interventions since they can play a major role in the development process in the uplands of East Java, given the capacity of the government administration and budgets available. Two different lines of government interventions can be distinguished: the technical interventions planned by sectoral agencies and the interventions planned by the local government administration. In order to provide an impression of the opportunities and constraints of these interventions for the planning of sustainable land use programmes, both types of programmes are discussed. The first type is described by giving an example of the 'Regreening programme', while the second one is described by outlining the government procedures for 'Rural Development Planning'.

5.4.1 *The Regreening programme*

The growing land use problems in the uplands have been of increasing interest to the Government of Indonesia (GOI) and international donors. The Government's concern was mainly induced by its wish to safeguard highly productive irrigated lands and expensive infrastructure such as the dams and irrigation canals from flooding and siltation. A causal relationship was assumed between these processes and the intensive use of steeply sloping arable land and deforestation in the uplands. Thus, programmes in the uplands have had as their major goal the establishment of land use practices characterized by improved soil and water conservation (McCauley, 1986; 1988).

Recently, two other factors have contributed to the Governments' policy to pay more attention to the uplands. The first is the development of non-oil export commodities and more diversified agricultural development outside the irrigated rice fields; the second is the intention to distribute government resources more equally. An imbalance has been caused by fifteen years of substantial government investments in the lowland irrigated fields (McCauley, 1986). The preoccupation of the Ministry of Agriculture with rice production in the lowlands and the concomitant neglect of potential upland crops meant that it was mainly forestry officials who responded to upland soil erosion problems, on agricultural as well as forest land. They started watershed management programmes and projects that included both types of land (McCauley, 1988).

At present, the largest upper watershed programme is known as the *INPRES Penghijauan* programme for afforestation and regreening. This programme is based on experiences with pilot projects in the Upper Solo

Watershed Management and Upland Development Project implemented between 1966 and 1975 (Wiersum, 1974). Implementation at national level started in 1976. In the initial stage farmers were instructed to plant dense hedges of *Calliandra* species on their fields up to 50% gradient and timber species in woodlots on the steeper slopes. However, unpopularity of species and practices among the farmers and major technical and organizational problems in the implementation of the programme resulted in tree survival rates of under 20%. Owing to these problems and the perceived opportunities for employment creation in a new approach, the government changed their programme from 1979 onwards.

In this new programme, the emphasis has been shifted to the construction of bench terraces with tall grasses and small trees on the edges and risers. Other activities have been included in the programme, such as checkdam and gully plug construction; private forest establishment; village nursery development and introduction of agroforestry techniques. A greater variety of trees was introduced, including some fruits and timber and the large scale approach was exchanged for one using demonstration plots of about 10 ha to serve as example of land management to the farmers in the surrounding area. Farmers who own land in this plot receive fruit, fuel and fodder seedlings; maize seed (or other food crop); fertilizer or manure and a subsidy per ha as working capital. Impact areas of approximately 200 ha surrounding the demonstration plots receive technical assistance and a smaller or no subsidy (Pickering, 1979; McCauley, 1985; Palte, 1990; Sutadiprajda and Hardjowitjito, 1984; World Bank, 1988).

Policies and planning of this programme have been handled almost exclusively by central government (McCauley, 1988), while implementation of the standard design has been the responsibility of the head of the district, who also decides on the selection of the sites. In the planning main emphasis is put on fulfilling physical targets and achieving short term productivity increases. Implementation funds are directly channeled to the government at district level. Programme managers are appointed by the governor and the head of the district to control implementation and disbursement of funds. In principle, seven government departments are involved in the programme viz. Agriculture, Forestry, Public Works, Home Affairs, Finance, Population and Environment and the National Development Planning Board. The Service for Land Rehabilitation and Soil Conservation (BRLKT) of the Ministry of Forestry is officially responsible for coordination and supervising efforts through a watershed management centre. However, in practice, they are also primarily responsible for the technical implementation in the field and provide the extension staff. (McCauley, 1985 and 1988; Palte, 1990).

Foreign technical assistance to watershed management projects, such as that provided by FAO to the Upper Solo Watershed Management Project; by USAID to the Citanduy Project and by the Dutch Government to the Kali Konto Project, were intended to develop new approaches and technologies. However they have often been used to implement the Regreening programme and provide the infrastructural investments, such as dams, access roads and terrace construction, deemed necessary to support Government programme goals. As such, in practice these projects are viewed largely as an alternative source of financing for activities under the Regreening programme (McCauley, 1988; DHV Consultants, 1990b).

5.4.2 Rural development planning

There are three official categories of villages of Indonesia, corresponding to their level of development: *swadaya* (traditional), *swakarya* (transitional) and *swasembada* (developed). The ultimate aim of the rural development programme conducted under the auspices of the Ministry of Home Affairs is to enable all villages reach the stage of *swasembada*.

This rural development programme is undertaken through the *Kecamatan* UDKP Planning Procedure, which has been termed a bottom-up planning process (UN/ESCAP, 1986). In this planning procedure a survey is carried out in the selected sub-district by staff members of the planning board (BAPPEDA II) and the Rural Development Directorate at district level. Subsequently, the UDKP Master Plan is drawn up with the involvement of the sectoral agencies at district level. Centrally planned policies are included in the plan. The resulting plan is submitted to the sub-district for discussion with the agency for village development and the village officials. They are offered the opportunity to comment on behalf of the village community. At this stage, the village development plans, which are formulated by the LKMD, are synchronized and integrated with the Master Plan. The final plan consists of projects to be implemented at the *Kecamatan* UDKP, including time schedules of annual programmes and projects. Implementation is carried out by the sectoral agencies and coordinated by the head of the sub-district (the *Camat*).

The budget allocation for this plan involves the district, provincial or even national level. BAPPEDA II (district level) is the first to process the plan to ensure its integration with development policy and allocates a district budget or decides on the contribution of the community itself through self-help. Those proposed projects for which no funds can be allocated at district level are submitted to the provincial government. At province level BAPPEDA I determines which programmes or projects are to be financed by the provincial budget. The rest, together with the provincial plan, are submitted to the central level through BAPPENAS, to be financed from the central budget. Figure 5.3 illustrates the planning procedure.

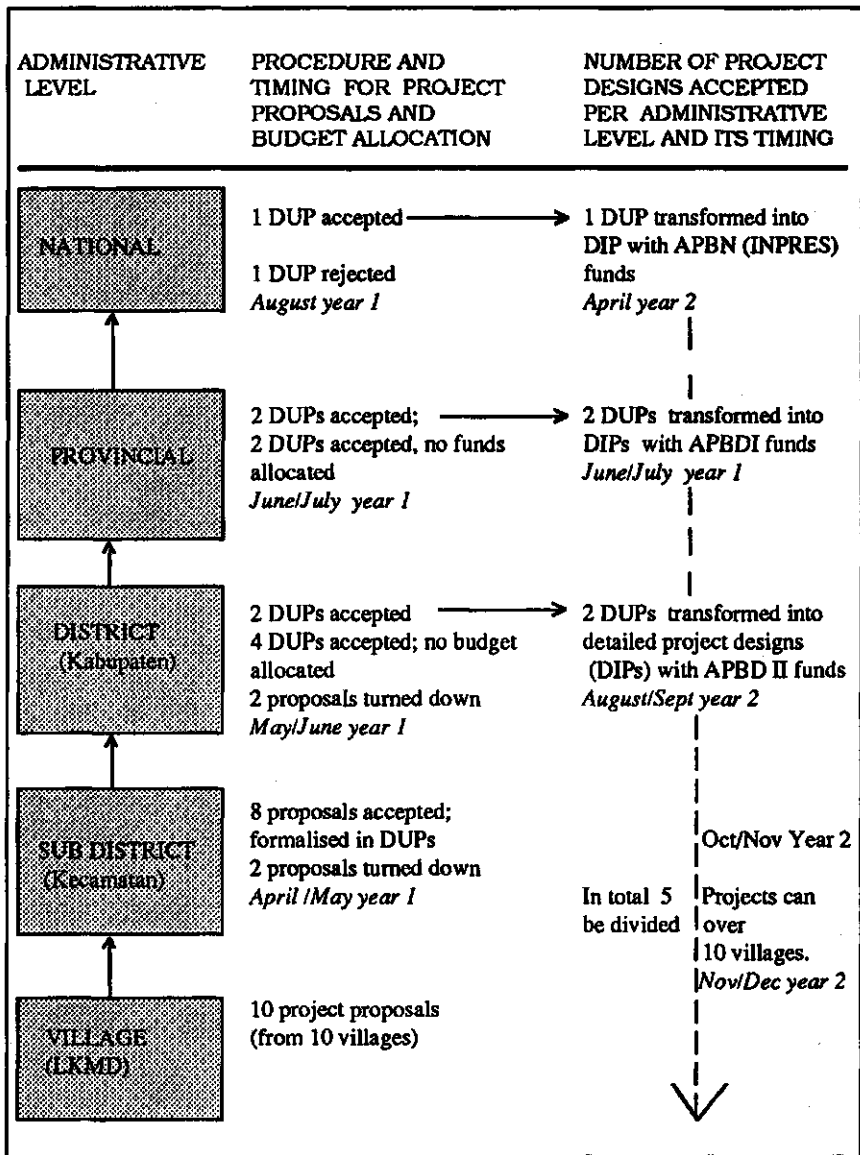


Figure 5.3: Example of bottom-up procedures for 10 village proposals in one sub-district.

The procedure begins at village level with the start of the financial year in April and ends in September/October with budget allocation at regional and national level. After implementation has started the UDKP becomes responsible for monitoring the programmes and training the people involved in implementation.

Given the wide diversity in land use systems and the need to relate these plans to the top-down planned and managed government programmes described above, it is not hard to imagine that these programmes have not always been successful.

5.5 Analysis of two government programmes

The two government programmes cited - the Regreening Programme and Rural Development Programme - can both be analysed according to the principles of the strategic model. In this analysis the following questions are raised:

- to what extent are the programme interventions adjusted to local conditions, needs, opportunities and capacities?
- what is the nature of the communication between local land users and the government staff of implementing organizations?
- to what extent are programme interventions adjusted to the competence of implementing organization?

In answering the first question a distinction is made between the two programmes. For the latter two a more general analysis is possible, from which conclusions can be drawn for government programmes in general.

5.5.1 Adjustment of interventions to land use system

Regreening programme

Various studies have been carried out evaluating the results of the regreening programmes (Pickering, 1979; Carson, 1989; McCauley, 1985; World Bank, 1988; Barrau and Djati, 1983; Daru and Tips, 1985). These evaluations contribute to the following analysis in which three main issues are discussed. Firstly, the way programmes can be adopted by the local farmers, secondly the appropriateness of technology packages and thirdly the coordination with other sectoral programmes.

From the description of the programme in section 5.4.1, it becomes clear that this standard programme is not adjusted to the large diversity in land use strategies and the technologies and practices demonstrated have not

always been adopted by farmers. Designs focus on the technical aspects of crop production and soil management, while socioeconomic conditions and land tenure status of households are often neglected. This is reflected in the site selection and planning of interventions for which only the physical conditions of the land serve as criteria, with no attention paid to the land users who cultivate the land. Thus, many of the demonstration plots are located on land which is cultivated by rich farmers who rent it out to tenants or who leave it extensively managed on purpose. Agroforestry systems could not be adopted by poorer farmers who depend on their extremely small land holdings for food production. Demonstration of bench terraces has been less beneficial to farmers whose land showed low productivity. Also the introduction of new varieties without testing for risks, required inputs and marketability by local farmers have shown greater chances of failure. If the measures of the Regreening programme are compared to the different land use strategies, as described in section 5.1.2, it is clear that these programmes often do not fit into farmers' capacity, capability or interest. In that case, farmers may participate in the programme primarily to receive subsidies and return to 'normal' practices after the project is over (Carson, 1989).

However, the problem is not simply that interventions are planned which are not adjusted to local land use strategies, but also certain shortcomings appear in technology design and implementation, as illustrated in box 5.1.

From 1989 onwards the promotion of *Paraseriathes falcata* (local name: Sengon) became highly popular after the President and the Minister of Forestry declared that this tree should be planted to boost pulp production. Sengonisasi became the fashion in the Regreening programme as well. Due to the sudden demand for seedlings production fell short and overly immature seedlings were planted, many of which did not survive. Also the tree was promoted by extension workers as good for soil conservation and as an improver of soil fertility without being tested for its suitability in different agroecological zones. In order to expand the area under cover as fast as possible the tree has even been advocated as suitable for hedgerows and fodder production, for which it is definitely not.

Box 5.1 Example of poor technology design and implementation.

Another example of poor technology design is the overestimated importance of off-site measures and neglected potential for improving on-site agricultural practices in the uplands. Regreening expenditures in the 1982-83 period were: 59% for checkdam construction, 19% for agriculture and silviculture, 10% for rehabilitation of terraces and less than 5% for maintenance (World Bank, 1988). However, World Bank (1988) estimates that of the total soil erosion costs on Java, perhaps 80% is due to declining productivity on agricultural land in upper watersheds, while only 20% is due to off-site (downstream) erosion costs. Thus, the proportion spent (two-thirds of total expenditure) on off-site measures, such as checkdams, regreening and gully plugs is not commensurate with the proportion of off-site erosion costs.

Coordination between this 'Regreening programme' and other sectoral development programmes is well-nigh absent. As a result interventions may be implemented with opposing effects and competing demands for labour. For example, demonstration plots for soil conservation might be located downhill from a reforestation area, which was clearcut just before the heavy rains started. These steep slopes are prone to erosion for at least the first year, when vegetation cover is still limited. Another example is the implementation of livestock development programmes by the Service for Animal Husbandry, which often conflicts with the efforts of the State Forest Authority to keep grazing activities outside the forest areas. Moreover, these uncoordinated activities lead to confusion among the local people. They may be expected to contribute their labour to different programmes simultaneously, and participate in different farmer groups at the same time.

To conclude: the technologies and practices demonstrated were not adjusted to local land use strategies, while shortcomings also appeared in technology design and implementation. Thus technologies were difficult to adopt by farmers

Rural Development Programme

Also the interventions proposed in the village development plans are not adjusted to the needs, opportunities and constraints of the land use system. They take the form of a 'shopping list' of projects desired by the village administration and the sectoral agencies. Often no dialogue takes place at village level between the LKMD and the village community during the planning of interventions. Most LKMDs and KPDs are passive entities lacking the capacity (training, guidelines, facilities, field allowances) to carry out their tasks. The LKMD is often represented by the village elite, who are not always aware of the needs and wishes of all strata of the village population, or have a vested interest and therefore divert development programmes to fulfil their own objectives. As a result

of the top-down influence in the planning procedures the proposed projects at UDKP level put sectoral interests over local people's interests and needs. Consequently projects appear at local level which were never proposed or expected by local government officials and less so by the local people, while only a small number of village development proposals are honoured (figure 5.3) (Schulte Nordholt, 1981; Development Perspectives, 1988). As a consequence of the dominating influence of the village administration a more equal division of resources and benefits may be difficult to achieve through this programme. It may be concluded that although the procedures for planning at local level are accepted, in practice culturally determined ideas on power and social relationships within the government organization conflict with implementing these procedures.

5.5.2 Communication between local people and organizations

In general communication between local land users and staff of implementing government organizations is poor on Java. This shortcoming can be attributed to several factors. The first is the focus of government staff towards their own administration, which implies a reliance upon targets rather than on reaching people, and an adherence to strict procedures. It also results in poor coordination of extension programmes. A second reason is the limited capacity and motivation of field staff. Thirdly poor extension techniques and inadequate information can be blamed for limited communication. These arguments are discussed in more detail below.

Orientation towards government administration

In evaluations greater importance is often attached to the functioning of the government administration than to solving the problems of the poor farmer. For example, the success of the Regreening programme is defined in terms of physical targets, set by the government, such as hectares 'regreened', and the number of check dams constructed, rather than measuring the benefits to the local people. The heads of the village and sub-district and the field staff are turned towards their superiors, further supporting the mentality that 'as long as the boss is satisfied' they have performed effectively. Thus, their attitude and motivation is largely determined by their 'survival mechanism' in a hierarchical organization. Error detection or learning from mistakes are processes alien to most extension workers. The importance of pleasing superiors also causes the reliability of data to be subordinated to the form in which they are presented. Thus, material aspects get priority over the development and participation of people (Schulte Nordholt, 1981; Development Perspectives, 1988).

Furthermore, the government has created a number of administrative obstacles for participation, such as the short time span in which programmes, once approved, have to be carried out, (the reporting systems call for quick and quantifiable results) and their prescriptions concerning size of groups and area. Uncertainty and the long period between the planning and the implementation (at least one and a half years) makes the planning exercise far from a dynamic and stimulating affair (see also figure 5.3). For example, owing to financial constraints at district level about 85% of proposals are referred to the provincial level for budget allocation. However, of these proposals only around 20% may be selected for funding (UN/ESCAP, 1986). Moreover, because money is required for 'coordination and administrative purposes' at all levels, generally only a part of the planned budgets arrive at village level.

Because of these strict procedures, a learning process is almost impossible. Whenever plans are accepted and budgets allocated they are supposed to be implemented exactly according to the plan before the end of the financial year. Since for example, budgets often arrive too late, when the rainy season has already started, little can be learned about terrace construction techniques (which should be done in the dry season) nor is there much time left for learning, since the money has to be spent in two or three months, before the start of the new budget year. Moreover, after a village has received governmental support, the chances of receiving this again in the following year are remote. Hence, a trial and error process in which programmes are reformulated or implemented in stages is almost impossible.

Limited capacity and motivation of field staff

A major obstacle to communication is the capacity and the motivation of the extension worker. Because of the government's focus on the irrigated lowlands, in financial support and agricultural education, government officials often display a negative attitude towards upland farming; in particular, the prejudice of considering all non-irrigated cultivation as inferior (KEPAS, 1988; Palte, 1990). Field staff prefer to work with the more advanced farmers since they are more cooperative and thus results may be better and visible more quickly. Consequently, two groups in the society hardly participate in development programmes: the landless and poor farmers, and women (SRDP/PPWS, 1989). They have no time; and only limited access to information, as they are rarely a member of any village organizations. They are not always invited to meetings; and their (frequently) poor education and lack of experience in voicing their needs and ideas makes them reluctant to participate. Also, the capacity of field staff is not sufficient to support all programmes intensively. They may have to cover five villages, accessible only by bad roads, without the money to pay for petrol for their motorcycles or without transport

facilities at all. Moreover, their low salaries force them to find additional sources of income. Thus, it is not surprising that many isolated villages or hamlets have never seen an extension worker.

Inadequate extension tools and information

In line with the standard technology package of the Regreening programme the extension worker functions as a messenger. McCauley (1988) describes their situation thus: 'Many conservation extension workers expect that once the farmers are properly informed,.....they will spontaneously adopt conservation techniques that the project has considered suited to sustainable agricultural production'. Farmers who cultivate a piece of land in the selected demonstration plot are obliged to form a farmers' group. However, these groups are formed more for the benefit of the extension worker, in order to get across his message during the meetings, than on initiative of the farmers involved. Another illustration of their present attitude towards extension is the excuse of '*tinggal penyuluhan saja*', literally translated as 'leaves us with just some extension', which can be taken to mean: 'with some indoctrination and promises, in the end a farmer will be convinced to implement the project as prescribed'. Thus extension tools that are part of the standard programmes do not always promote optimal communication. Some tools are designed on the basis of a number of incorrect assumptions. For example, in the Regreening programme demonstration plots for soil conservation methods were planned based on the assumption that (1) the farmer is ignorant of the new technologies, (2) the farmer must see the technology on a contiguous plot over a number of hectares in order to believe it can be adopted on his land and (3) the new technology is indeed environmentally and economically appropriate for the area. The reality is that if improved technology is physically and economically suitable for a farmer he will seek it out, even if the demonstration area is very small and even without payment (Carson, 1989). This would however call for a clearer link between farmer's knowledge, research and extension so that technologies can be developed that fit the farmer's strategy.

Repeated failure and lack of involvement has made the local people skeptical of government programmes. They do not view government aid as a mechanism giving them the right to participate in development processes for which they want to bear responsibility in planning and implementation. Instead they often see the government aid as a welcome gift, which may be to their (short-term) benefit but for which they do not bear responsibility.

5.5.3 *The competence of organizations to implement the programme interventions*

The orientation towards government administration means that interventions are adjusted more to the competence of the implementing organization than vice versa. For the government administration, interventions are ideally known and relatively manageable technologies with tried budgeting systems which can be used in all regions. This is illustrated by the case of the Regreening programme.

Government agencies do not yet possess the competence to implement interdisciplinary programmes. Cooperation between sectoral agencies is poor and management responsibilities are fragmented (see section 5.2.2). Often individual agencies are not competent to deliver their own services, let alone cooperate with other agencies. Their remote control may produce problems of logistics and synchronized timing of inputs (McCauley, 1988). Inputs are often been delivered too late and of poor quality, negatively influencing the success of the programmes and the credibility of the government in the eyes' of farmers. In BAPPEDA, primary emphasis is on budgeting activities and implementation duties, while planning and programming receive little attention (Development Perspectives, 1988). Monitoring of programmes is left to the sectoral agencies, except for the INPRES funds. The position of the Camat as coordinator as well as the function of the UDKP is further undermined by the lack of coordination of the sectoral agencies and because each agency focuses on implementing its own 'package'. (Schulte Nordholt, 1981; Development Perspectives, 1988).

The inability of the government to carry out their implementation tasks and deliver services at the right time and place is further aggravated by the inflexibility of budget procedures as illustrated earlier. The complicated, strict and extremely time-consuming procedures required to generate the DIP and DUP leave little time for government staff to support implementation and monitoring. Moreover, the making of field trips is often related to the presence of 'uang jalan', a field allowance. Since these allowances are limited and the administration is time-consuming, staff at district level tend to be immobile and unaware of the situation in the field.

The government is aware of a need for decentralization. However, the extent to which authority is delegated to lower levels is a function of the delicate balance of power between central and local level. The government fears that the granting of autonomy, the decentralization of development and the financial balance between the central and provincial government could turn the provinces into 'federal states'. An inadequate

administrative system and lack of qualifications of local officials are mentioned as other excuses not to decentralize (Jakarta Post 4/1/90).

Decentralization processes as demonstrated through the UDKP organization, are in reality deconcentration processes, which means that (restricted) decision making on village and site selection is moved to lower levels, but the responsibilities and control remain with the top. No autonomy in decision making concerning the planning of interventions nor their financial autonomy has been accomplished yet. On the one hand the strengthened role of BAPPEDA in the planning system is welcomed to limit the role of sectoral agencies and achieve better coordination between sectoral programmes, while on the other hand the strengthened role of BAPPEDA and UDKP augments the influence of central government on decision making in the region thus reinforcing the principle of deconcentration (Development Perspectives, 1988).

5.6 Summary and conclusions

The contents of this chapter can be summed up as follows. The environment for the planning of land use development programmes is diverse and complex in the uplands of East Java. Farmers react to the wide diversity in the land use system by developing a large number of different land use strategies. In contrast, government organizations use standardized programmes with uniform and mostly inflexible procedures for planning and implementation. Village development planning procedures exist, but do not yet function properly. Local organizations responsible for village development planning do not yet possess the skills and capability to develop such plans, and centrally organized sectoral agencies still dominate this 'bottom-up' planning process. The dominance of the central government can be explained by the incorporation of a number of socio-cultural features in their policy, such as the principles of 'sole authority', consensus, and harmony. The government uses these principles to encapsulate autonomous local organizations in the government administration, orienting the local leaders more to government rules and procedures than to the needs of the local population.

This orientation towards government administration has two major implications for the planning of interventions. Firstly, the interventions are adjusted to the competence of implementing organizations (rather than letting the organizations develop their competence to implement the tasks of locally planned interventions). Secondly little more than lip-service is paid to the participation of villagers in planning.

Firstly the use of standard designs is a result of adjusting interventions to the competence of organizations. Standard designs, with tried bud-

getting systems and fixed procedures for planning and implementation are used as they are easy to manage and control. However, besides the fact that these interventions may not be adoptable by local farmers, remote planning and control often present technical shortcomings and problems of logistics and timing, while complex procedures leave no time for government staff to visit the field. Moreover, cooperation between the different sectoral agencies is poor with the result that integration or coordination of land use interventions is negligible. Although the need for decentralization is acknowledged, it is still difficult for the government to digest for fear of losing control.

Secondly, the principle of 'sole authority' of the State is in contradiction with the aim of stimulating participation of villagers in the development process. Sectoral agencies still strongly influence village development plans, while villagers are hardly involved in the planning. As a consequence local people feel no responsibility for the success of programmes nor for optimal spending of government funds. Communication between field staff and villagers is poor. Field staff are focused on the procedures and achievement of targets set by the government administration, rather than on implementation of sustainable land use programmes in cooperation with the land users involved. Their limited capacity and experience with participatory planning contribute to this attitude. The extension techniques employed and information they 'communicate' to local people are a standard package from the centrally designed programmes. It is therefore not always adjusted to needs and capacities of the farmers. Also, uncertainty and a long time span between the planning and budget allocation diminishes the motivation of local field staff and villagers for participation in government induced development activities.

Notwithstanding these shortcomings in the present rural development planning process, official government policy has some room for improvement. This may allow for a more balanced planning process in which both local needs and government support measures can be integrated. In this way theories can be put into practices.

This conclusion forms the premise for the further development of village development planning through the learning process of implementing trial cases in the uplands of East Java. The general aim has been to improve the quality of village development plans within the existing government procedures. The approach and results will be discussed in the following chapter.

6 TRIAL CASES IN THE UPLANDS OF MALANG DISTRICT, EAST JAVA

6.1 Introduction

Within the scope of the Kali Konto Watershed Management Project (DHV Consultants, 1990), a new approach for integrated village development planning has been developed through the implementation of trial cases in the uplands of East Java. In this chapter the organization, planning method and results of four trial cases on integrated village development planning are described. The four case villages are located in the three agroecological zones discussed in section 5.1, in the uplands of Malang District, East Java (figure 6.1).

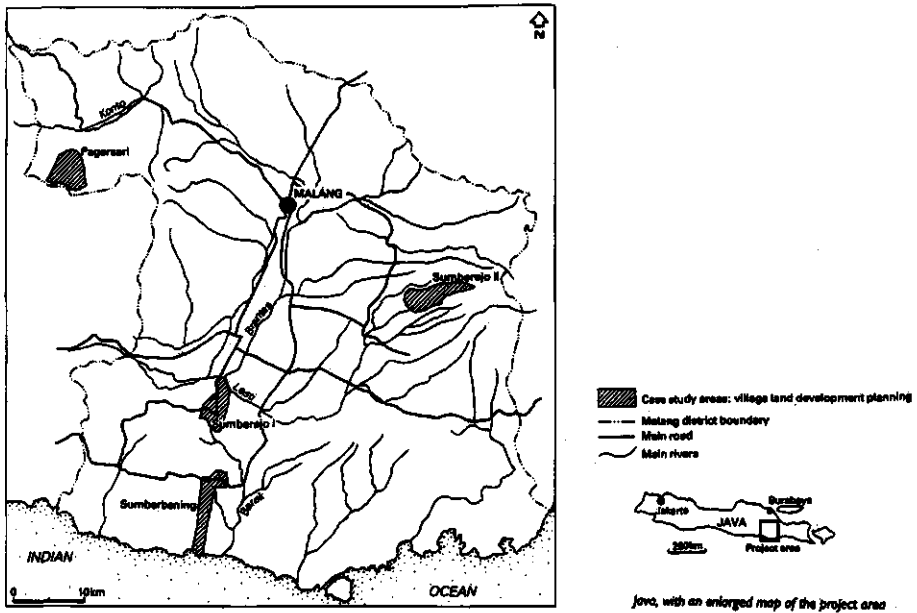


Figure 6.1: Location of the trial case villages in East Java. (Source: van den Hoek, 1991)

The first trial case was in Pagersari village (*Kecamatan Ngantang*), the second in Sumberejo (I) village (*Kecamatan Pagak*), the third in Sumberbening village (*Kecamatan Bantur*) and the last in Sumberejo (II) village (*Kecamatan Poncokusumo*).

The trial cases were carried out according to a learning process: experience gained in the execution of one trial case was subsequently incorporated in the methodology for the next trial case (figure 6.2)

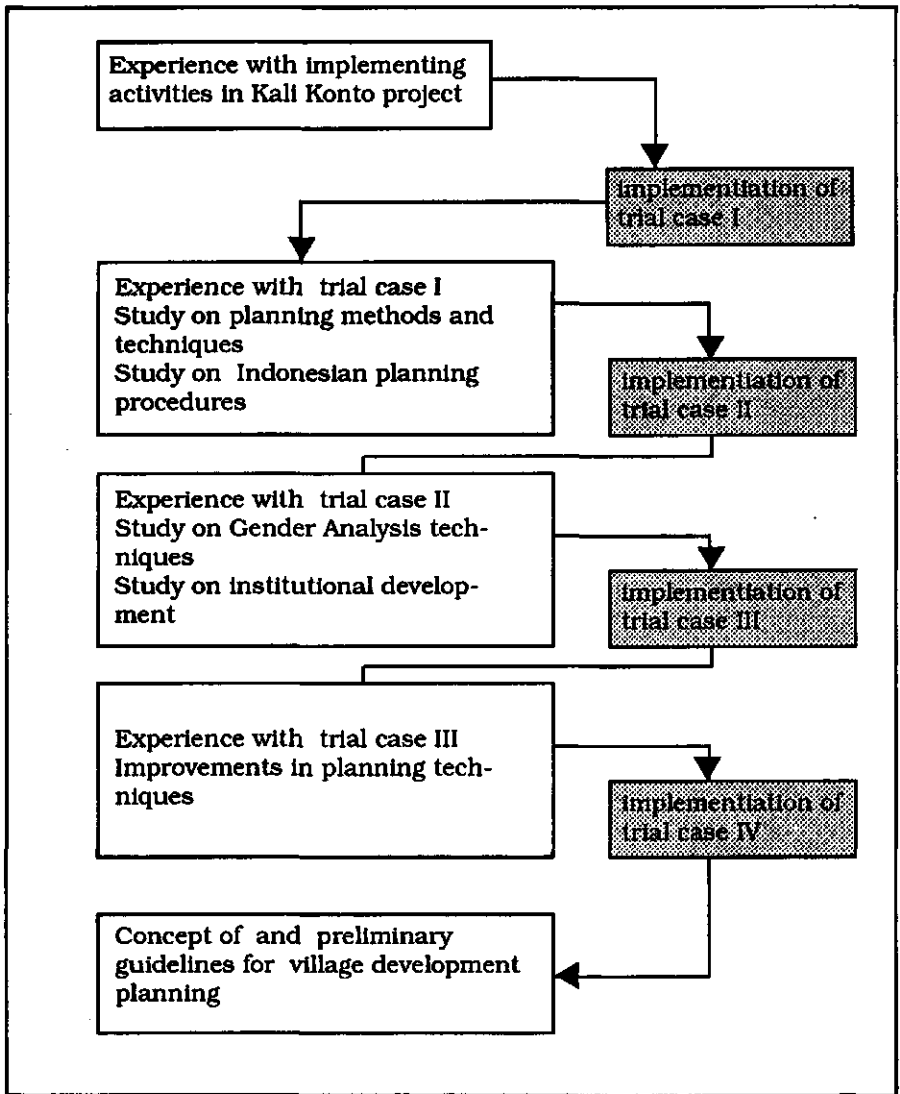


Figure 6.2: Learning process in implementing trial cases

In this way different aspects of existing planning methods could be incorporated and tested in the trial cases while the reality of current government administration and procedures, and the capacity and potentials of the planning team have also influenced the approach. Section 6.2 describes this learning process. Section 6.3 outlines the planning method which evolved out of these studies, while section 6.4 illustrates the analysis and programme proposals from one of the trial cases. Results from implementing the proposed programmes are limited: however some preliminary results of two projects located in different villages are discussed in section 6.5. Finally, conclusions are drawn (section 6.6). The results of the separate trial cases have been described in four Project Working Papers (van den Hoek et al., 1988; 1989a; 1989b; and 1990), on which the following information is based.

6.2 Learning process through four trial cases

In the period between 1988 and 1990 four trial cases were implemented within the framework of the Kali Konto Project in Malang. This Project supported the Service for Land Rehabilitation and Soil Conservation (BRLKT) in its task to develop an approach for watershed planning and to implement measures for improved watershed management. In the approach for watershed planning a gap was discerned between, on the one hand, the screening studies (1:250,000 scale) and semi-detailed planning studies (1:50,000 scale) and on the other hand the implementation of standard technical designs on a 1:1000 scale. Planning did not result in locally appropriate watershed management programmes. Therefore an additional step in watershed planning was proposed, to be implemented on a 1:10,000 or 5,000 scale, in which integrated programme design and coordination of sectoral agencies' programmes could take place (van den Hoek and Bekkering, 1988).

The Project experienced problems with its programme implementation, because there was no coordination among sectoral agencies. As a result activities by different agencies were started in the same villages sometimes with conflicting interests and causing competition in the demand for labour and for the support of village organizations. Therefore, a more integrated approach to planning development activities at the village level was proposed, known as: 'Local Land Development Planning' (LLDP) (van den Hoek and Schomaker, 1988; van den Hoek, 1988).

In the light of these project experiences the first trial case on LLDP was based on a Land Evaluation (chapter 4.2) and implemented by a team of field staff from BRLKT. The major objectives were to develop an integrated watershed plan at local level including forest and village land

and to enhance the cooperation of government programmes through integrated planning. The Land Evaluation was based on the interpretation of aerial photos on a 1:20,000 scale and an enlargement on a 1:5000 scale, while for the socioeconomic survey a small questionnaire was developed. Box 6.1 describes the advantages of working with aerial photos. Meetings with village officials and villagers in the different hamlets were organized in order to enhance their participation in the planning.

Aerial photographs with a scale of 1:20,000 which can be enlarged to a 1:5000 scale are an ideal base for rapid assessments of natural and human resources in villages or small watersheds (Carson, 1985; van den Hoek et al., 1988). Unlike existing maps in Indonesia, aerial photos cover both village and forest land and reveal agro/socio/economic influences on the natural landscape. For example, land use parcels, cattle tracks, routes for fuelwood collection or drinking water sources show their traces in the land use patterns and are visible on the photos. Photos may also be used to stimulate discussion with farmers on certain issues, as they recognize their own area, hills, their house, roads and fields (Carson, 1985). Photos provide a basis for field surveys and map-drawing.

Box 6.1 Advantages of using aerial photographs.

The results of the survey were a land evaluation map, indicating required changes in land use and adaptations of management techniques from a bio-physical point of view, and plans for income-generating activities and development of infrastructure. The planners only gave suggestions for development programmes, while the responsibility for programming was left to the local government and an interagency meeting. Each sectoral agency was supposed to make its own detailed technical designs. These proposals were sent to BAPPEDA and budgets were allocated for implementation from the Kali Konto Project funds and from the regional development funds (APBD).

Results were not satisfactory. Although a land evaluation proved feasible by trained field staff, the results obtained from a comparison of land resource data with land use types were too one-sided, time-consuming and inadequate for planning sustainable land use programmes adjusted to the capacity of the different land users. Also, it was acknowledged that insufficient attention had been paid to socioeconomic aspects and that participation of villagers in the planning was limited. The need arose for an alternative approach, which was simple and flexible and which included a participatory analysis of the strategy of land users to manage

their resources. It was also thought unrealistic to expect an integrated approach without all agencies involved. Moreover, in the meantime a number of other government projects and a non-governmental organization in Malang had become involved in local level planning (KEPAS, 1988; McCracken et al., 1988; Seymour, 1991) and it was time to share experiences and interests.

A new approach for planning at local level was developed. In June 1988 a general meeting was organized to discuss possibilities for cooperation and integration of the land use planning approaches of the different projects. Participants were the State Forest Corporation, BRLKT, KEPAS (*Kelompok Penelitian Agroekosistem*; a research group on agroecosystem analysis); the Upland Agriculture and Conservation Project, (sponsored by USAID) and the Kali Konto Project, both supporting the Service for Land Rehabilitation and Soil Conservation (BRLKT). Secondly, a technical meeting was held to discuss planning techniques and tools. The priority of these meetings was to gain political support from the different agencies for an improved planning strategy. An understanding was reached on the approach to be followed and an area was selected for the second trial case to be implemented by KEPAS and the Kali Konto Project and a KEPAS consultant with support from the others. A steering committee was formed of the heads of regional offices of all organizations involved. The objectives were: to reduce the traditional gap between planning and implementation; to provide an opportunity to break away from standard programmes and to train field workers in planning methods and techniques. The planning team consisted of seven persons; two field coordinators (PPUP), two fieldworkers (PLP and PPL), the forest guard, the Bangdes representative at sub-district level and the head of the LKMD of the village involved. The planning method was based on agroecosystem analysis for which RRA techniques as well as field and household surveys were used. In this case the planning team was also responsible for preparing a detailed programme, including the planning of budget allocations. In addition an NGO, active in the area, was invited to participate. However, due to time constraints, its contribution was limited to giving a brief introduction on activities and experiences. At this stage the planning method was still far from ideal. There was no time for detailed analysis and design of interventions and thus proposed plans were not sufficiently specific. The concept of Agroecosystem analysis appeared too complicated to be fully understood by villagers and field staff.

In the third trial case further developments were achieved in the planning method. The four properties of Agroecosystems were redefined as the three properties of sustainable land use (as described in chapter 2) and incorporated into the planning method, so that by implementing rapid

appraisals, analysis and planning, implicit attention was paid to these properties. Attention was also paid to the identification of specific land user groups through incorporating gender analysis techniques in the planning method and by enhancing the participation of villagers (especially the poor) in the planning. A female field worker and a woman from the village participated in the team ensuring that greater weight was given to the potentials and constraints for women in development activities. An NGO gave an introduction on participatory development techniques. The implementation of detailed analysis and design became part of the planning method and thus even more realistic and operational programmes could be planned. A first step was taken towards planning the monitoring and evaluation activities by devising a programme matrix, and formulating indicators for success and assumptions on the implementation of proposed projects. Agroecosystem units in the village were indicated and described as well.

At the start of this third trial case it was still assumed that the BRLKT at district level could provide technical backstopping and support in aerial photo interpretation and computerized data processing of the household survey. The BRLKT had been assigned responsibility for watershed management and was trained in both techniques and supported with equipment by the Kali Konto Project. However, during the implementation of the trial case it was acknowledged that this was unrealistic, as BRLKT did not have the capacity to carry out these tasks in a timely fashion and villagers would become too reliant on its support. Moreover, in Indonesia aerial photos are extremely difficult to obtain because of strict military rules. Therefore, the use of aerial photos was restricted to this third trial case, while data from the household survey was analysed (by hand) by the planning team.

The aim of the planning was increasingly focused on providing institutional support to village organizations for improving the quality of their village development plans. Consequently, from then on the name was changed from 'Local Land Development Planning' to 'Integrated Village Development Planning'. Decentralized sub-district funds were allocated for the financing of proposed programmes and the *Camat* became actively involved in the organization of the trial case as well as in discussions on development constraints and opportunities.

In the fourth and last trial case the changes in the planning method and

institutional aspects were less radical, indicating a consolidation of the approach. The planning team consisted of 12 people of whom five were from the UDKP and five were villagers; one representative per hamlet (KPD) plus the head of the LKMD (figure 6.3).

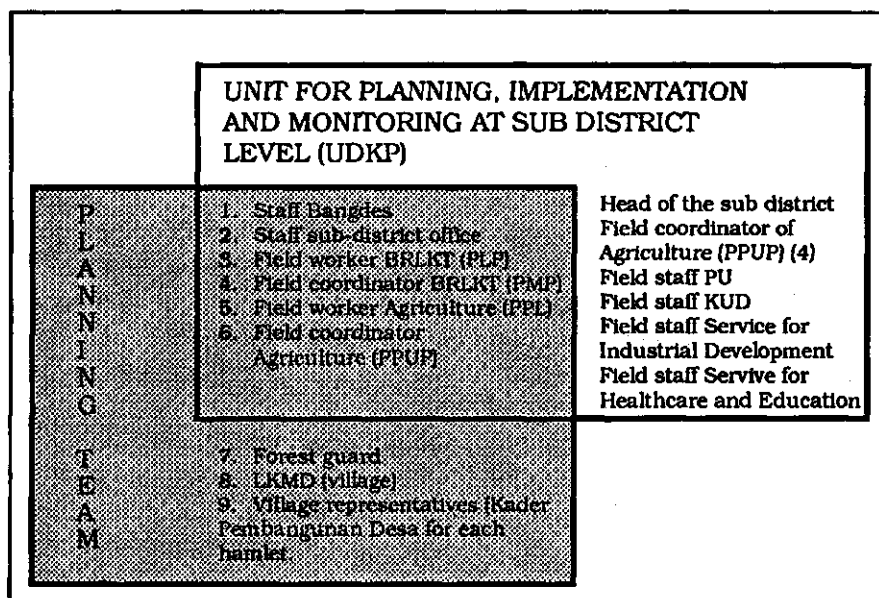


Figure 6.3: Proposed planning team

This time the forest guard could not participate. A total of three female planners participated. Experience in this trial case proved once again that sustainable village development programmes need to take an integrated approach and should include developing land management technologies, off-farm employment and supportive socioeconomic or physical infrastructure.

Some changes were made to the planning method. Greater attention was paid to the formulation of key issues to make them more specific. A problem tree indicating causes and effects was introduced for the formulation of key issues. Also, linkages were made between the village planning and regional land use plans by using the RTL (watershed plan at 1:50,000 scale) as an indicator of priority areas for planning. The RTL maps were also used as alternative to aerial photos. They were enlarged to a scale of 1:5000 and together with the village map they served as the basis for the terrain and land use survey. Slight changes were made by simplifying the questionnaire, the detailed design summaries and the form for planning monitoring activities. In programming more use was

made of local human and financial resources, as the capacity of government staff to support implementation in this remote village was limited and no sub-district funds were available.

6.3 Planning method

The planning method for integrated village development planning, which emerged from the four trial cases (figure 6.2) is flexible and can be adjusted to local conditions, capacities or available time. The method proved feasible and useful in the uplands of East Java. This planning method is described extensively in chapter 4, as it is based on planning theories. In this chapter, however the planning method is described in terms of how it was applied and tested in the field. Several illustrations of data collection techniques and results are presented (van den Hoek, 1988; van den Hoek and Bekkering, 1988; van den Hoek, 1991).

The organization of trial cases on village development planning is the responsibility of the *Camat* and the Bangdes representative, for which they may get external support (in this case by the Kali Konto Project). They select the planning team, choose the planning period, make a work-plan (Appendix 1), and organize facilities. The selection of the village is carried out by the UDKP and is based on the results of regional land use and forest plans and policies of the local government. As during the implementation of the trial cases integrated regional development plans were not available, the semi-detailed watershed plans (RTL) were used to indicate priority areas. The policies of the local government are determined by the priority they assign to developing villages who are still traditional, or according to their criteria, at the 'swadaya' level.

Secondary data are collected. A village map (on a scale of approximately 1:5000 scale) is available in almost each village and the Bangdes representative makes reproductions of this map to be used during the planning. For the field survey existing terrain and land use maps are used and blown up to the same 1:5000 scale as the village map. Roads, rivers and settlement are used as reference points. Whenever maps are unavailable sketch maps can be drawn when standing on the highest point in the area. This is also useful for checking the enlarged maps at the outset and for making new (simple) legends for the units in the planning area. Resource persons such as the head of the regional extension centre and an NGO representative are invited to give information on experiences with and results of previous (government) interventions in the area, while

the Bangdes representative himself makes an inventory of projects funded through the INPRES village subsidy or the PKK. Table 6.1

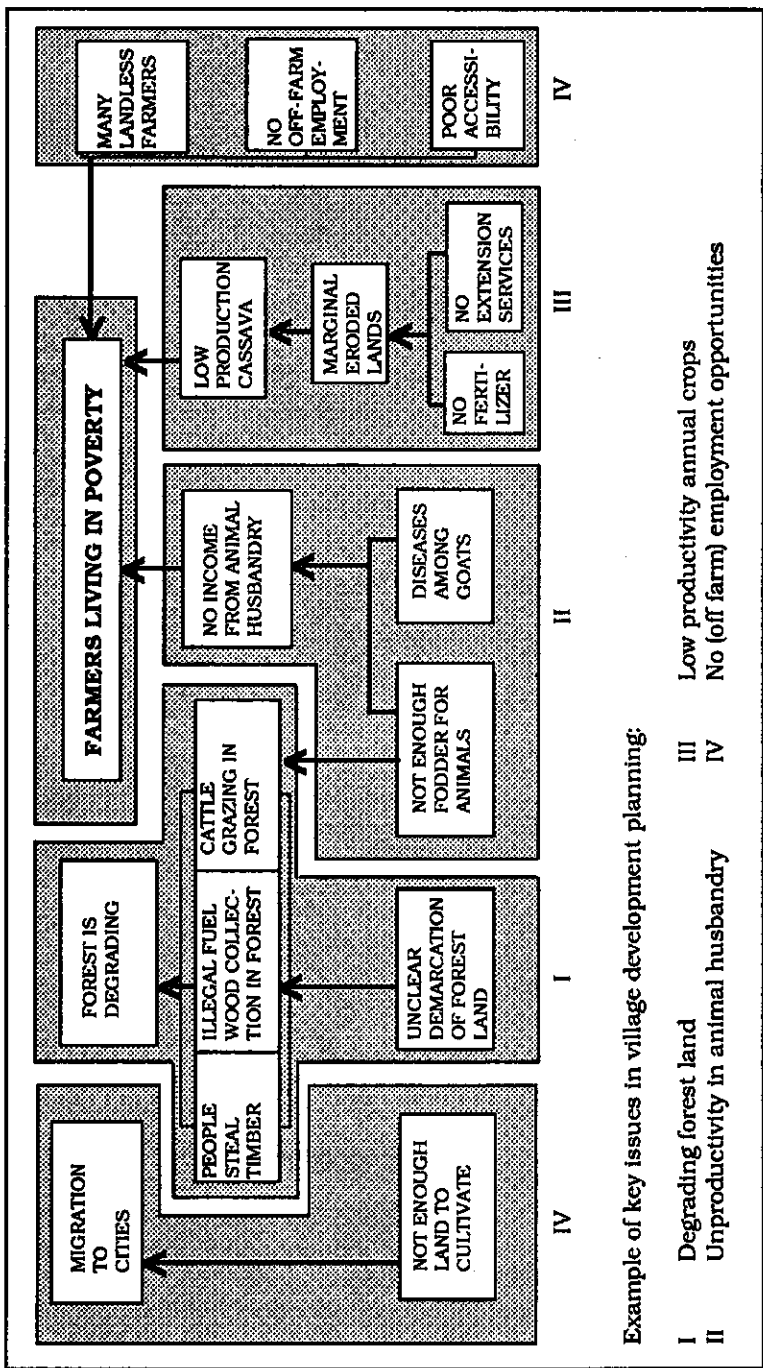
Table 6.1: Activities funded by INPRES village subsidies.
US \$ 1 = (approximately Rp. 1,800)

USE OF INPRES VILLAGE SUBSIDY FUNDS				
Year	Projects		Total Funds (Rp)	
			INPRES Funds	Self-help
80	Village office	3 x 12 m	650,000	300,000
81	Village Office	3 x 12 m	800,000	200,000
82	Village meeting place	12 x 12 m	1,000,000	300,000
83	Lining of road	150 x 1 m	1,000,000	500,000
84	Lining of road	100 x 3 m	1,000,000	500,000
85	Waterway for drinking water	200 m	1,000,000	2,000,000
86	Waterway	200 m	1,000,000	1,000,000
87	Lining road	4 x 11 m	650,000	1,470,000
88	Lining Waterway	400 m	900,000	1,000,000
89	Culvert	10 x 6 m	912,000	1,000,000

illustrates an inventory of such expenditures in Sumberejo (II) village. After organizational matters have been dealt with and secondary data inventoried the planning process in the village starts. This is described through the following steps.

Step 1: Formulation of key issues and land user groups

The planning team makes a rapid one-day appraisal, through observations and informal interviews on the major issues for development in the village. These are checked with secondary data. During a brainstorming session by the planning team approximately six major key issues are formulated with the help of a 'problem tree'. An example of a problem tree and issues identified is illustrated in figure 6.4. These issues have to be checked and if necessary reformulated during fieldwork.



Example of key issues in village development planning:

Figure 6.4: Example of part of a problem tree and the formulation of key issues

As data collection is rapid it is important to collect representative information in different areas and from different land user groups in the village. Therefore the identification of land use zones and land user groups by the planning team may help in this respect. The identification of land use zones differs for each village as it is based on bio-physical and socioeconomic criteria (figure 6.5).

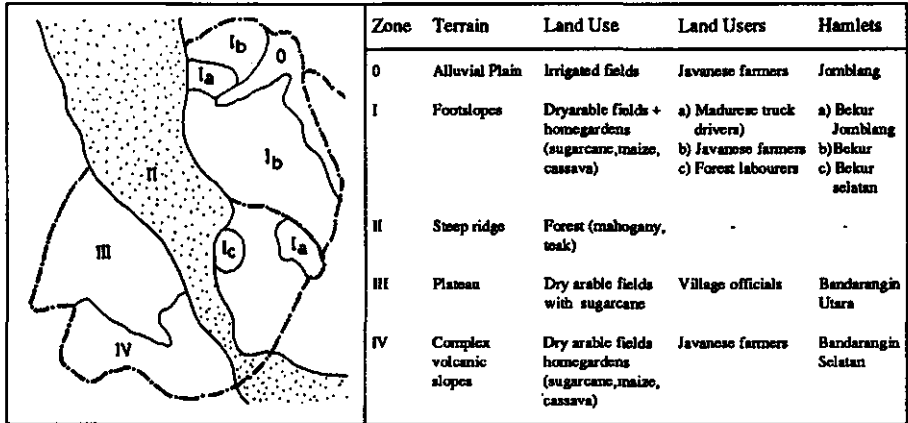


Figure 6.5: Distinction and description of land use zones in Sumberejo I village

During the implementation of the trial cases it appeared that in most cases these land use system zones coincides with the different hamlets in the village. Within each zone different land user groups can be identified, such as small/landless and rich farmers, of Javanese or Madurese origin, traders, forest labourers, all of which may be further sub-divided into male and female groups.

Step 2: Data collection

A special RRA package is developed in the form of a Rapid Village Appraisal (see also chapter 4). It includes: collection of secondary data; observations; field survey; informal and formal interviews; (group) meetings with different land user groups and a general LKMD meeting. These are discussed below. Secondary data is collected during the preparation but may need to be supplemented by discussions with village elders and officials. This may result in an inventory map of locations of government interventions in the past, while the drawing of a history profile is useful to explain changes in land use. Figure 6.6 illustrates such a profile.

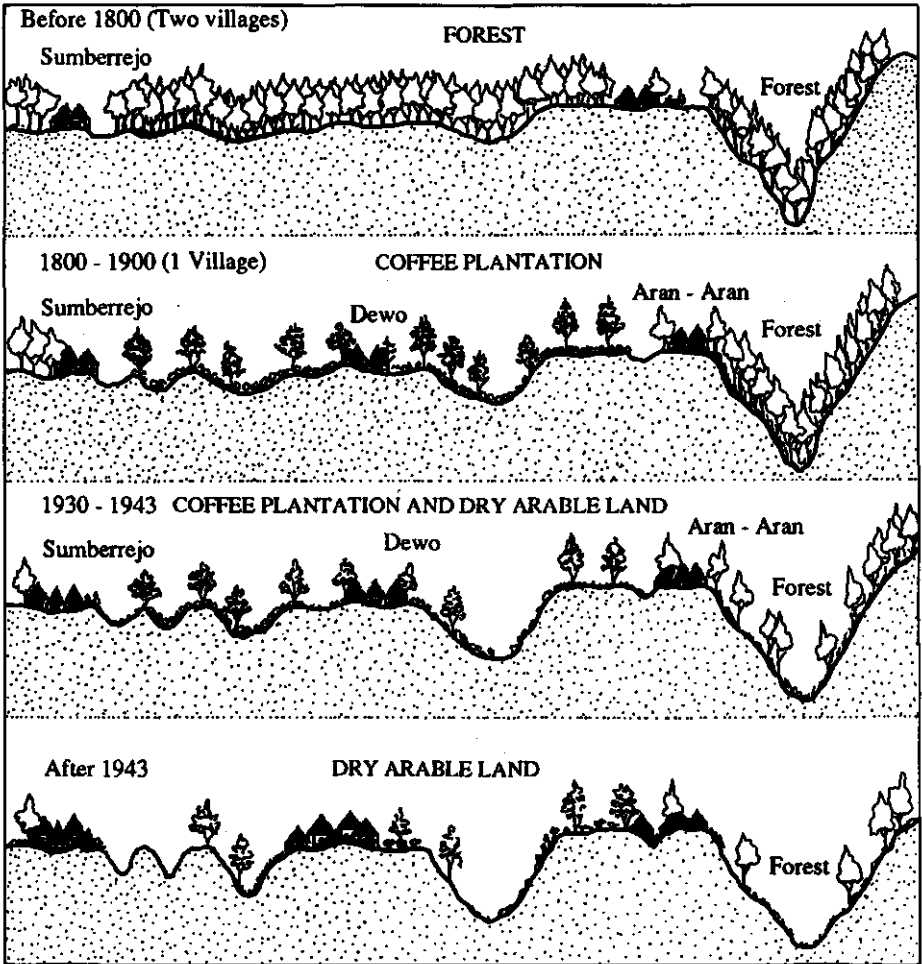


Figure 6.6 : History profile for Sumberrejo II village

Available maps are checked, specified or otherwise newly sketched in the field by walking transects through the different (land use and terrain) units in the landscape and by making observations on land use and terrain conditions. During this field survey informal interviews should be held whenever possible with farmers working in the field to obtain information on the key issues. Field survey forms are used to structure the observations on land use systems, cropping patterns, yields, erosion problems etc. (Appendix 2). Other informal interviews are carried out with randomly chosen respondents at their homes, in the street or in a shop. Also key-informants should be sought with whom to discuss the key issues, such as the village head, forest ranger, leader of farmer organization, religious leader, or schoolteacher. Group meetings are organized for each hamlet and in small homogeneous groups, of e.g. women, landless farmers, rich farmers. Their participation is stimulated with the 'problem-census' technique (chapter 4). Formal interviews with selected respondents are held in the form of a household survey. Thus, some more quantitative data can be collected on different aspects of the farming system. A small and simple questionnaire has been developed for this purpose as illustrated in Appendix 3. In the questionnaire the following aspects are covered: family pattern; education; off-farm employment; land use patterns and productivity; livestock; welfare condition and fuelwood consumption. Also, questions on gender-specific activities are included.

In order to organize this diversified data collection and to make sure that sufficient information is collected for all key issues through different data collection techniques a checklist is used (Table 6.2).

Table 6.2 Checklist for data collection

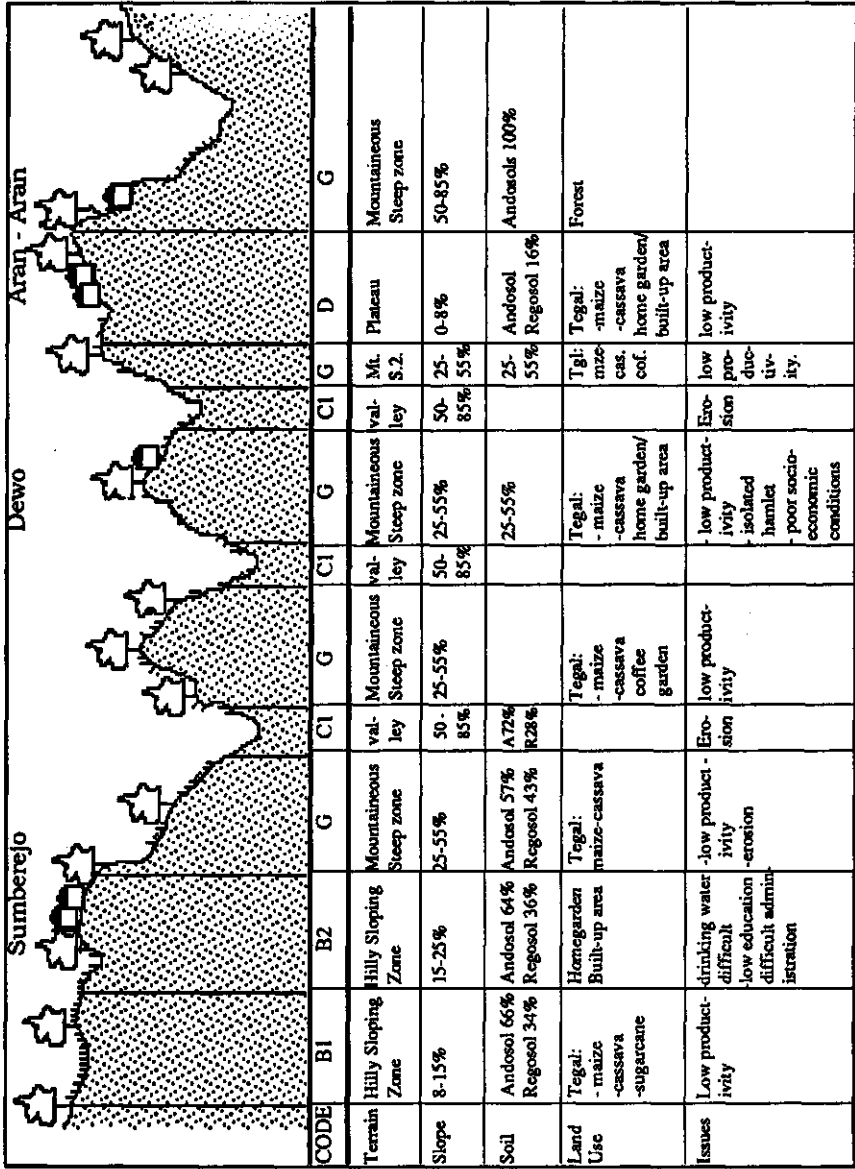
DATA COLLECTION TECHNIQUE	SECONDARY DATA	PARTICIPATORY OBSERVATIONS	GROUP INTERVIEWS	INDIVIDUAL INTERVIEWS			FIELD SURVEY	FORMAL INTERVIEWS
				RESPONDENTS:				
				SELECTED	AT RANDOM	KEY INFORMERS		
KEY ISSUE								
1. Village institutions	V	-	V	V	-	V	-	-
2. Deforestation	V	V	V	-	V	V	V	V
3. Agricultural development	V	V	V	-	V	V	V	V
4. Drinking water	V	V	V	-	-	V	-	-

Different survey tools are used in this appraisal. For the field survey measuring tools such as an auger or clinometer (to measure slope angles) are useful, but otherwise more general descriptions based on observations such as 'very steep slope' and 'clayey soils' can be used. A small pocket notebook is used during informal interviews to check the key issues and to make notes of the discussions. Questions on What, Where, When, Why, by Who and How activities are carried out or decisions taken should be posed to understand the main issues in the land use system. Each evening the notes are recorded for each key issue. The place and time of meetings is adjusted to the convenience of the local people involved to have optimal participation. Maps and sketches are valuable tools to stimulate discussion and develop ideas among the team members and with the villagers. For the household survey a stratified selection of an average of 60 households per village appears feasible. (On average, villages in the uplands of the Brantas Watershed have about 600 households). Stratified means that all land use system zones should be represented and that for each zone, the proportion of respondents from one land user group reflects the proportion of villagers belonging to this group.

Step 3: Data analysis

After this appraisal in the field all the information collected is processed into tables, maps, diagrams, sketches etc. For a good interpretation of data, different data sources are combined. For example, the cropping calendar is based on data from the land use survey, household survey, observation and informal interviews. This cross-checking of data becomes of integral importance in rapid appraisals, where qualitative and descriptive, rather than quantitative data are collected. Field observations are collected for each unit. A terrain and land use map are made and a cross-section is drawn of the landscape, in which the different units are described for terrain, slope, soil, erosion and land use conditions.

Figure 6.7 illustrates such a cross-section. Results of the household survey are presented for each aspect of the farming system in tables.



Tegal: Dry arable field

Figure 6.7: Cross section of Sumberejo II village

An activity profile is drawn for each land user group. Data from the household survey, the informal interviews and observation can be used for this profile. The access and control profile, presented in chapter 4 as part of Gender Analysis Techniques, is not used in the planning method as such, as it appears too complicated and time-consuming to make such a profile useful. The activity profile already gives information on the division of tasks/activities between members of the household and between different land user groups so instead these data are combined with for example a landownership map to get information on access and control to land. As many activities are carried out by family members together, a description of an average working day for men, women and children may clarify the division of tasks. It should be realized however, that such a picture of a working day is season-biased. An illustration of one such activity profile for the poor and landless farmers in Sumberejo II village is presented in table 6.3.

Table 6.3: Activity profile of poor farmers from Sumberejo II village

Activity Profile (Predominant responsibility)					
No.	Activity	Sumberwates	Krajan	Banjarejo	Military Land
1	Water collection	Women	Women	Women	Women
2.	Fuelwood collection	Women	Men	Women	Women
3	Land/crop management				
	- dry arable land	Men	Men	Both	Women
	- homegarden	Men	Men	Women	Women
	- irrigated fields	Men	Both	Men	Women
4	Sale of crop/yteld:	Women	Women	Both	Women
	- Buying of production inputs	Women	Women	Both	Both
5	Livestock care	Men	Both	Men	Child (Female)/
	Fodder collection	Both	Men	Men/children	Men
6	Social activities in (village organizations religious, cultural, sport activities)	Men	Men	Men	Child (Male)
7	Off-farm employment	Women	Men	Men	Child (Female)
8	Migration	Men	Men	Child (Female)	Men/Child (Male)

Thematic maps are used to collect information, analyse certain key issues and make them clear to other people. A thematic map can be drawn showing, for example, flows of fuelwood (indicating where and how much is collected, by which hamlets and where is it transported to (figure 6.8).

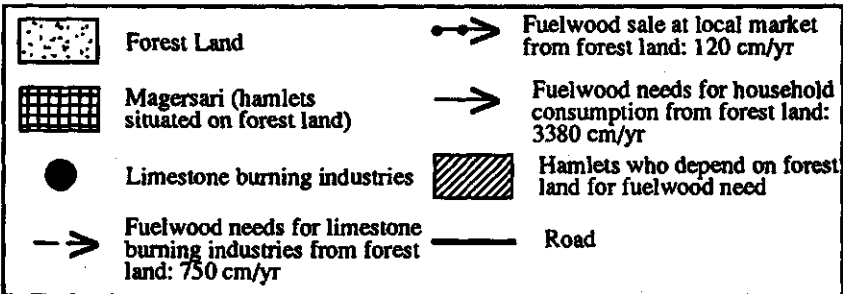
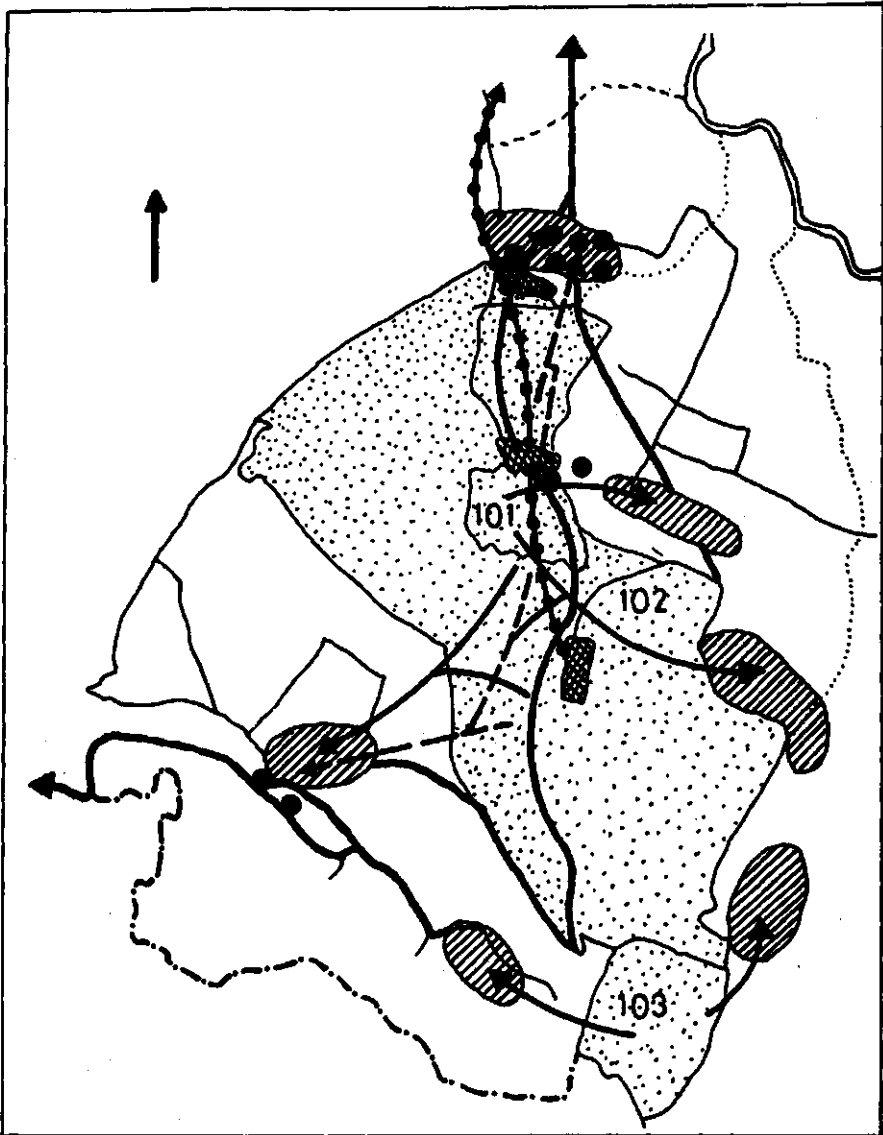


Figure 6.8: Analysis map of fuelwood flows (needs and markets) in village.

Other issues for thematic maps are: land tenure situation (a map indicating which land is owned by whom and under what tenure arrangements); accessibility (a map indicating the condition of roads, the distance to the nearest markets, public transportation means); drinking water facilities (a map indicating where water is collected, the distances to the hamlets or neighbourhood, the capacity of the sources and the bottlenecks in distribution).

The analysis of the data collected is based on Agroecosystem Analysis (AEA). Chapter 4 describes how the three properties of sustainable land use can be analysed by looking into four patterns of agroecosystem (land use) systems:

- space (geographic location)
- time (seasonal or long term changes)
- flows (of energy, products, money or information)
- decisions (choices of individuals, decision patterns of local organizations, politics of local authorities)

The analysis is carried out for each key issue, as is illustrated in section 6.4. Chapter 4 presents a list of possible results of the data inventory and analysis. However the extent to which these maps, diagrams, tables etc. are valuable for analysis in a village depends on the local conditions and thus they should be used flexibly. It should be clear, for example, that whenever crop production is not an issue of concern in the village, there is no need to make a cropping calendar or flow diagram on its production system.

Step 4: Conceptual plan

Based on the analysis for each key issue possible solutions are discussed for each issue. This is illustrated in section 6.4. Finally they are all integrated into a conceptual plan, in which the proposed activities are localized in a map. By using such a plan map relationships and possible conflicts between the proposed activities become visible.

Step 5 and 6: Detailed analysis and design

In the conceptual plan all the proposed activities are still fairly general. However, to devise operational projects that can be adopted by the local land users more detailed designs have to be drawn up. The detailed analysis and design of programme activities is the responsibility of the target groups of land users who are to become involved. The planning team supports them in the following activities:

- participatory analysis of the problems and constraints as mentioned in the problem census;
- discussion with these land users on their specific wishes, needs, constraints and capacities. The reasons behind their land use strategy should become clear;

- selection of land users to become involved for each programme activity, based on their land condition, land use strategy and enthusiasm to participate;
- detailed survey of land use conditions with involvement of land users;
- formulation of ideas for interventions and their possible input in the proposed activities;
- preparation of detailed technical designs based on terrain, land use or erosion sketch maps on a 1:1000 scale;
- planning the required material, physical measures, socioeconomic arrangements, local organization, involvement of intervening organization, extension activities, budgeting and sourcing activities, project organization and time schedule.

The planners are split up to implement the detailed analysis and design according to their professional background. For example a soil conservation project will be designed by the BRLKT field worker (PLP) as he/she has (access to) the technical knowledge and will also be responsible for its implementation.

In order to facilitate the project design a design form has been developed to guide the planner. Table 6.4 illustrates a detailed project design form. In this detailed design form, indicators and means by which indicators can be verified proved to be too complicated to be identified (chapter 4). Instead a detailed description of proposed activities, organization, material and budgets needed, time schedule and the expected results serve as indicators. However, assumptions for the implementation of the activities are formulated. An example of a detailed analysis and design in one of the case villages is given in figure 6.9 and 6.10.

A cost-benefit analysis of expected inputs and outputs of proposed projects in the short run may be part of the detailed design (figure 6.11). This proved to be very useful. The introduction of this type of simple cost-benefit calculation during the detailed project design will further improve the quality of the proposed projects as planners are forced to think about the consequences of their proposed activities. To date, field staff have not been encouraged to think about economic benefits of government programmes, as their major concern is to implement standard programmes according to the plan and procedures.

Step 7: Integrated development programme and land use plan

In this last step a programme planning matrix is devised. Table 6.5 illustrates this type of matrix in which the proposed programmes are given, sub-divided into different projects. For each project the following features are indicated: its location; the participants; their local organization;

Table 6.4 Example of a detailed project design form

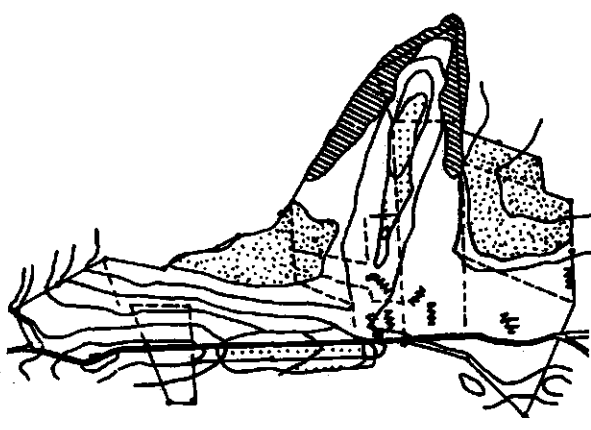
<p><u>OBJECTIVE PROJECT</u></p> <ul style="list-style-type: none"> - Reduce soil erosion - Increase productivity of land by improving land management and cropping pattern. - Increase farmers' income 	<p><u>ASSUMPTIONS</u> for project implementation:</p>
<p><u>PROJECT INPUTS</u></p> <ul style="list-style-type: none"> - Target group: Farmer group in hamlet Dewo (10 farmers) - Head of farmer group: Pak Isman - Location: hamlet Dewo 4.1 ha 	<ul style="list-style-type: none"> - All 10 farmers participate actively.
<p><u>PROPOSED PHYSICAL ACTIVITIES</u></p> <ul style="list-style-type: none"> - Improvement of terraces and drainage - Planting of : coffee seedlings cutting of Gliricidia Albizia seedlings avocado seedlings - planting of maize (Arjuno) and cavassa - Application of manure and pesticides (design planting system is added) 	<ul style="list-style-type: none"> - Aid in the form of seeds, fertilizers. Cuttings arrive in time in the hamlet - Coffee production and introduction of maize (Arjuno) increases the income of farmers - Farmers manage these new crops well
<p><u>PROPOSED SOCIO-ECONOMIC ACTIVITIES</u></p> <ul style="list-style-type: none"> - Group development by organizing a saving programme (twice a month Rp 500) - Field trips and training to demonstrate soil conservation measure, and coffee garden. - Collective buying of seedlings (with use of saved money) - Regular meetings with extension worker (PLP) (at least twice a month in the first year) to discuss maintenance, monitoring, administration. 	<ul style="list-style-type: none"> - Farmers are willing to save money on a continuous basis and to spend it collectively - The extension worker supports the group regularly in technical and socio-economic activities
<p><u>COST-SHARING ARRANGEMENTS</u></p> <ul style="list-style-type: none"> - Terrace construction and drainage improvement are carried out with self-help activities in stages, according to the capacity of each farmer. - 50% of the coffee and avocado seedlings are provided for free, 50% has to be bought in the village nursery - Maize (Arjuno) seeds and fertilizers are provided for free. 	<ul style="list-style-type: none"> - Farmers are motivated to improve their terraces through self-help. Each year they will improve their land management - Farmers are willing and able to buy seedlings in the village nursery - The village nursery produces sufficient seedlings of high quality

<p><u>MATERIAL AND BUDGET NEEDED</u></p> <ul style="list-style-type: none"> - Coffee seedlings: 5000x150 = Rp 750,000 - Avocado + Albizia seedlings: 1000x250 = Rp 250,000 - Cutting of Gliricidia: 25,000x 5= Rp 125,000 -Manure : 20,000x 5= Rp 100,000 -Fertilizers : 500x 200= Rp 100,000 -Insecticides : 20x8000=Rp 160,000 -Maize seeds (Arjuno) : 120kg= Rp 150,000 <hr/> <p>Total Rp 1,635,000</p>	<ul style="list-style-type: none"> - The planned material is available for the farmers, according to the time sched ule.
<p><u>TIME SCHEDULE</u></p> <ol style="list-style-type: none"> 1. Extension group meetings April '91 2. Land preparation May/June '91 3. Technical advice on soil conservation measures July/Nov '91 4. Preparation planting Nov '91 5. Planting of seedlings/seeds Dec '91/Jan '91 6. Maintenance and replanting Feb '92 7. Part monitoring & evaluation March 8. Maintenance March 	<ul style="list-style-type: none"> - Activities can be carried out according to time schedule - Rains start in time - Inputs are available in time
<p><u>BUDGET PLANNING</u></p> <ul style="list-style-type: none"> - Self help activities: <li style="padding-left: 20px;">Labour Rp 250,000 <li style="padding-left: 20px;">500 seedlings Rp 500,000 <li style="padding-left: 20px;">Manure Rp 100,000 <hr/> <p style="text-align: center;">Total Rp 850,000</p>	<ul style="list-style-type: none"> - Government or Project Funds are available in early Novem ber '91, in accordance to the planned funds
<p><u>EXPECTED RESULTS PROJECT</u></p> <ul style="list-style-type: none"> - 10 farmers (see list of names) participate actively in group activities - A total of 4.1 ha is planted with coffee fruit and Albizia seedlings and fodder - The farmers have increased their knowl edge and skills in land and coffee tree management - Farmers gradually improve terrace construction and drainage - The income situation improves through the saving programme 	<ul style="list-style-type: none"> - The seedlings perform well at the end of 1992 without major problems with bugs or diseases - Farmers can benefit from their saving programme.

Socioeconomic analysis

Land owner	Kf	Education (year)	Land use Per plot	Size (ha)	Number of animals owned	Number of animals shared	Wishes for crops
Kasan	2	-	a) Tegal b) Tegol*	0.39 0.61	4 goats		Melingo Banana
Dugel	2	-	a) Tegol b) Tegol*	0.25 0.33	1 cow		Melingo Banana
Jaswadi	2	4	a) Tegol* b) Tegol	2.03 0.50	2 cows		Melingo Banana Petal
Marjomo	1	6	a) Tegol* b) Tegol c) Sawah	0.35 0.40 0.50	2 cows		Scungon Banana
Marjo	1	6	a) Tegol b) Tegol* c) Sawah	0.53 0.22 0.50	2 cows	2 goats	Melingo Banana Coconut
Amok Inem	3	-	a) Tegol b) Tegol* c) Sawah	1.05 0.70 0.25	2 cows	2 cows	Scungon Melingo Avocado Mango
Wakman	3	4	a) Tegol b) Tegol	0.50 0.25	2 cows	3 goats	Scungon Melingo Banana Avocado
Dulba-kir	3	5	a) Tegol b) Tegol* c) Sawah	1.07 1.73 2.50	2 cows		Coconut Scungon Banana Petal Avocado
Kars-nem (ibu)	3	9	a) Tegol b) Tegol* c) Sawah	0.07 0.18 0.25		1 cow	Melingo Banana Mango Avocado
Wardi	21	-	a) Tegol b) Tegol* c) Sawah	0.50 1.09 0.41	1 cow	1 cow	Scungon Melingo Banana Avocado
Talam	3	3	a) Tegol* b) Tegol c) Sawah	1.50 0.50 0.25		3 cows	Mango Scungon Avocado

* Land in project area
 Petal = Parkia sp
 Melingo = Gnetum gnetum
 Scungon = Parasitanthus falcataria



LEGEND Bio-physical analysis

- ▨ Steep Land (40-60%) Mediterranean soil
- Sloping land (8-40%) Mediterranean soils
- ▤ Flat land (0-8%) Alluvial soil
- ▦ River plain (0-8%) Alluvial soil
- ▧ River plain (0-8%) Alluvial soil
- ▨ Work shed
- ⚡ Erosion

Figure 6.9: Example of detailed analysis in Sumberbening village

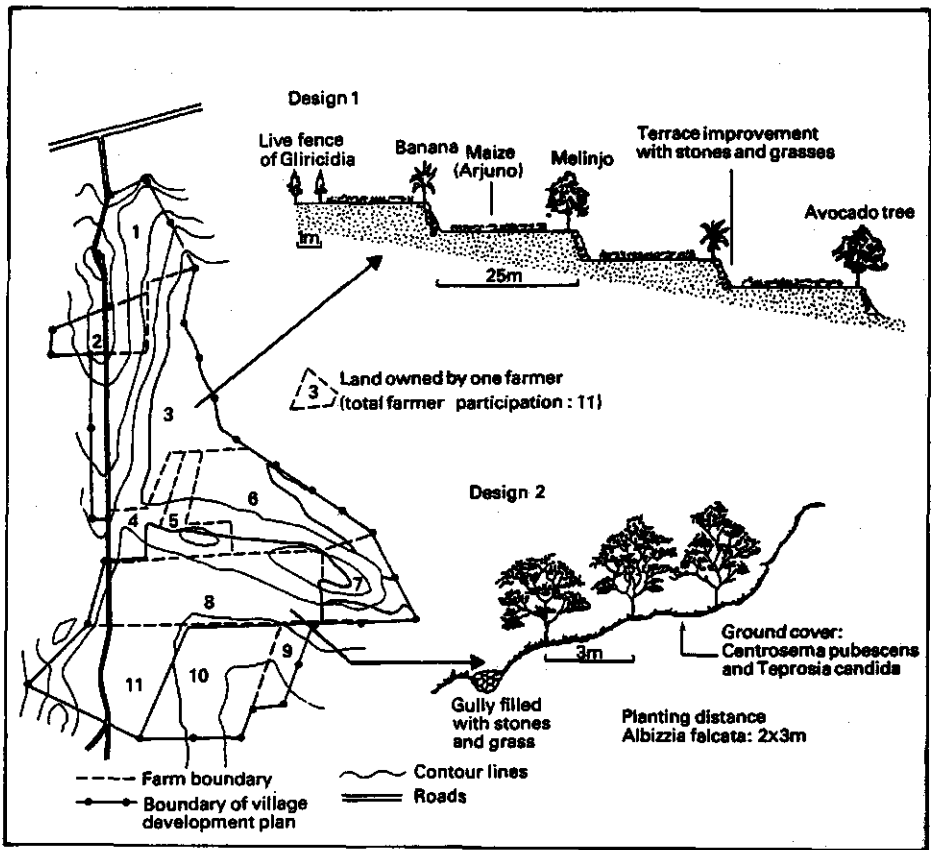


Figure 6.10: Example of detailed project design in Sumberbening village.

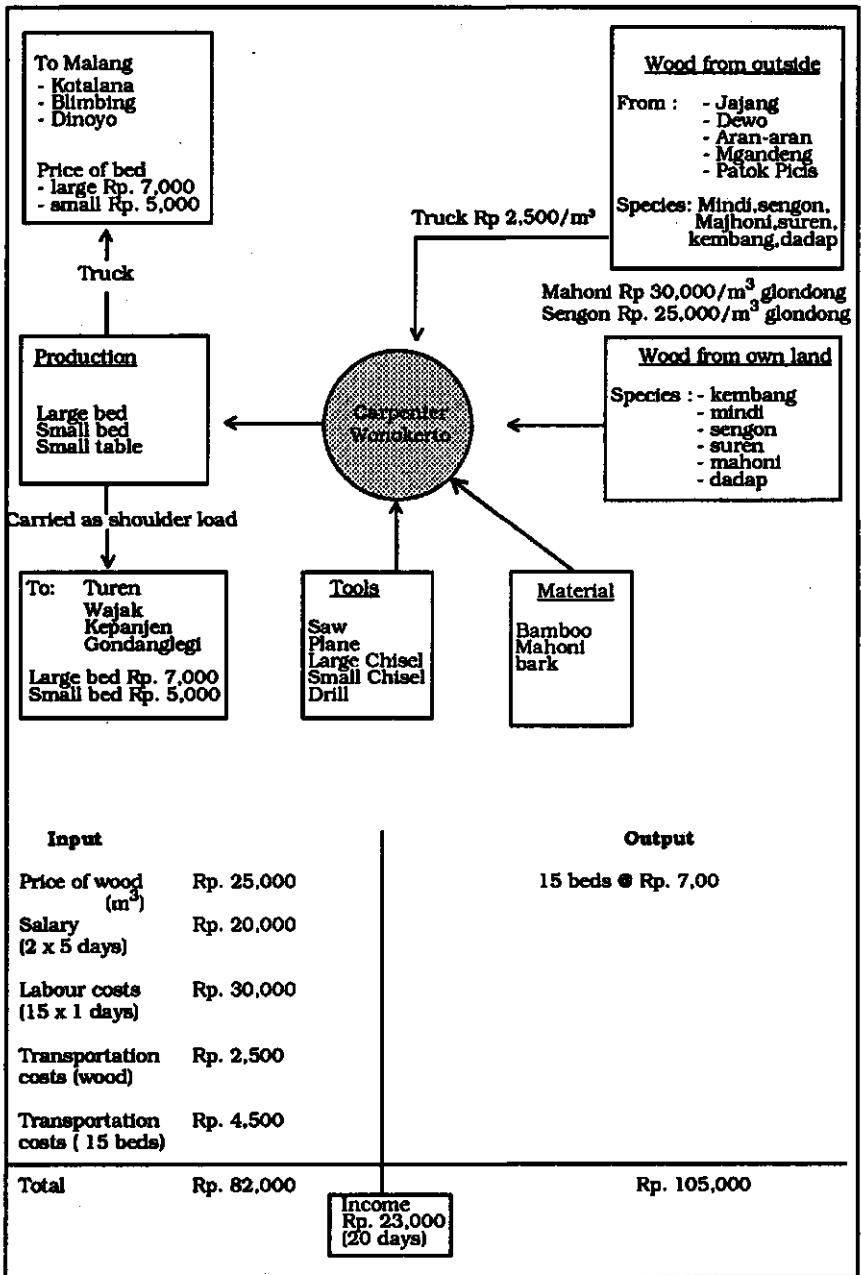


Figure 6.11: Example of a flow diagram and cost-benefit calculation for carpentry in Sumberejo II village

Table 6.5. Programme planning matrix for Sumberejo II village

Programme	Project	Target group	Health	Supporting Organizations or persons	Total funds needed (rupias)	Self help funds (rupias)	Government funds (rupias)	OTHERS (rupias)	Time schedule
Improvement of equity in socio-economic and credit services in village	1. Arrangements for land retribution	All villagers	Joint Sumberejo Womboro	Village admin. and LKMD					90/91
	2. Credit development	Landless farmers (29)	Drove	Manud Jambak (subsistence), PPL (extension), PPLP (extension) etc	17,295,000	1,394,000	APDSB I 15,900,000		91/92
	3. Increase of productivity components	Capitans (29) in Womboro	Womboro	BLKJ (training), Kemakur, v.d. (30,000 coop) (for 30k balun) (60,000 training)	1,640,000	640,000		APBN 1,000,000	91/92
	4. Increase of productivity for women and women's services	Women (29) interested in women's services (P. Jamboro) (Womboro)	Drove	BLKJ (training), Kemakur Sub-district	285,000	50,000	PKK/INPRES 75,000	PKK 80,000 (from post-graduate)	2/90
Increase of land productivity	5. Demplot (Ob-farm) Apple orchard, for local farmers	Farmers group	Joint	PPL (Extension), Balauban, (Tech. support)	2,200,000	2,000,000		APBN (Sub-banc), 200,000	Jan New (demplot), 90/91
	6. Demplot, intercropping maize-cotton	Farmers group	Sumberejo Amer-um	Farmers group PPL (Extension) Manud (Adm.)	600,000	175,000	APDSB I 425,000		91/92
	7. Village inter-activities (RBT) Great tenancy (1) (GCR)	All villagers	Joint Amer-um Womboro	Manud manager, KRD (training), Sukano, KRD Amer-um, KRD Drove, KRD Drove, PPL, PPL Manager, Manud	3,112,000	1,000,000		Leman 1,748,000	91/92 (Leman), 91/92 (GCR), 89/90 (APBD), Joint
Reduction of erosion	8. Soil conservation and coffee plantation	1. Farmers Drove, 2. In Kambidi (0) Sumberejo, 3. Village officials	Drove	RUP: consultant 8,070,000 PFL: tech. support extension farm groups Village officials	8,070,000	7,620,000		Leman 27,000	91/92
	9. Road improvement	1. Sumberejo-Joint, 2. In Joint, Womboro, 3. Womboro-Amer-um	All	PUL: Planning LKMD: Implementation Budget: guidance	455,000	150,000,000 (Gra)	INPRES: 71,523,400 (0) 76,603,000 (0) 137,122,000 (0)		90/91 self help 91/92 INPRES (0) 92/93 INPRES (0) 93/94 INPRES (0)
Improvement of social and physical infrastructure	10. Ditching water pipes laying	Joint Sumberejo Womboro	Joint	Manud, J.K.M.D Tech. support-PDAM	28,500,000	1,025,000	APDSB I 593,500 22,572,500 Womboro	128,000 APBN	91/92
	TOTAL				51,377,800	16,618,500	PKK: 15,000 INPRES: 305,695,000 APBD I: 2,432,000 PKK: 40,061,000		

the supporting organization; the required budgets and sources; and a time schedule for implementation. During this programming exercise operational programmes are formulated by calculating the available funds, available labour and financial capacities of villagers and field staff, and by coordination and good timing such that there are no competing demands for labour and that implementation of one project can support the success of the other. For example, reforestation would be useless without simultaneously solving the grazing problem in the forest by introducing grass plantation on arable fields and a cut and carry system.

Since interventions have to be adjusted to the present competence of government organizations, margins should be found within the present system of allocating decentralized funds. Although presently these are scarce on Java, some possibilities exist in the form of sub-district development funds like the *Kecamatan Rawan* (marginal sub-districts) and *Kecamatan Terpadu* (integrated sub-district) funds, which are only present in perhaps two out of ten sub-districts in a limited number of districts (box 6.2).

There are two district development programmes; the 'Kecamatan Terpadu' (integrated sub-district) and the 'Kecamatan Rawan' (marginal sub-district) are fairly similar in their objectives. The objectives of the 'Kecamatan Terpadu' programme are to achieve the implementation of the UDKP-system and to speed up the number of villages with the status of 'swasembada' (developed); increase the participation of villagers with self-help activities; reduce the differences in development among villages and increase the coordination and capacity of government agencies. Projects aim to improve the economic infrastructure in the village using revolving funds. The 'Kecamatan Rawan' programme has an identical objective. However, it focuses on direct and short term economic development of the poorest groups in rural society such as landless farmers, livestock share-managers, labourers and boatless fishermen. The major difference being that the 'Kecamatan Terpadu' programmes are managed and coordinated by Bappeda and planned per year, while the 'Kecamatan Rawan' programmes are managed by Bangdes, coordinated by Bappeda and planned per Repelita. For the 'Kecamatan Terpadu' programme for each province 150 sub-districts are selected by the governor. In each sub-district only two villages can be selected. The planning process for both programmes is similar to that of the village development planning. However, the Camats have greater authority as they can make the decisions on selecting villages and allocating funds for proposed projects, which in 95% of cases are accepted by the district and provincial government.

Box 6.2 Description of sub-district development programmes

These funds amount to Rp 10 million per sub-district per year and have to be spent on developing income-generating activities, often divided between two or three villages. Also, the recently increased INPRES village development funds (*Subsidi Desa*) of Rp 2.5 million per village per year may be used to finance proposed programmes. However, decentralized funds may not be sufficient to finance all proposed activities and regional development funds (APBD) may need to be allocated in addition. Current government procedures do not allow for a trial and error process. The planning procedure for projects on Java implies that funds can only be allocated for one year and that government money has to be spent within a period of approximately three months. This suggests that after the first year activities should become financially independent of the government which would entail all necessary investments being made in the first year, direct benefits planned and/or a savings programme started to continue activities in the coming years. NGOs, possessing their own resources, may help to implement project activities.

The limited capacity and motivation of field staff should be taken into account when designing operational programmes. An extension worker cannot be expected to provide intensive group support and technical assistance in a remote village without transportation facilities and on a low salary. In such cases local leaders like a schoolteacher, or informal leaders of a hamlet should be involved in programme implementation too. The motivation of field staff towards working with the poorest in remote areas will not change overnight by involving them in trial cases on village development planning. However, their eyes may be opened to a different approach that shows better results. Programmes that work and display direct effects are the best incentive, not only for land users but also for extension workers to participate.

Programme monitoring is also planned at this stage. Each detailed design form provides the basis for participatory monitoring and evaluation because during the design the expected results and the assumptions are formulated (table 6.4). Additional monitoring forms can be developed. Appendix 4 gives examples of monitoring forms.

The final programme is discussed with village officials who send it to the UDKP for approval and budget allocation. As decentralized sub-district funds are limited, all four village development programmes are sent to BAPPEDA to be allocated (additional) regional and national funds.

6.4 Trial case in the village of Sumberejo II: an illustration

In this section an analysis of the key issues in the trial case village of Sumberejo II is presented in which different results from data collection are used. The analysis of each issue is followed by programme proposals to illustrate the link between analysis and design.

6.4.1 Introduction to the village of Sumberejo II

The village is located on the slopes of Mount Semeru at an altitude ranging from 700 to 1100 meter a.s.l. and with an average annual rainfall of 2089 mm per year. The village consists of five hamlets; Sumberejo (740 people), Jajang (1106 people), Wonokerto (900 people), Aran Aran (1900) people and Dewo (700 people). A village map is presented in figure 6.12.

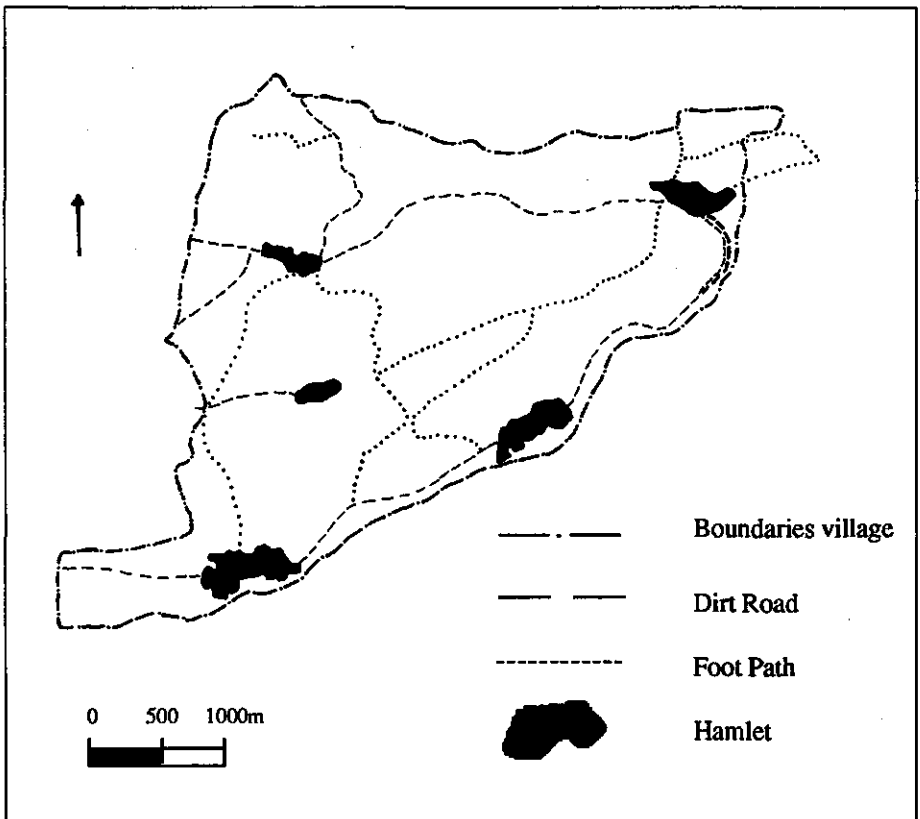


Figure 6.12 : Village map of Sumberejo II village

Aran Aran is the centre of the village administration. Transportation and communication is difficult as four of the hamlets are connected by a dirt road only, which is inaccessible in the rainy season and hamlet Dewo is only accessible by foot via a steep path or by road via the neighbouring village (van den Hoek et al., 1990).

The major terrain units and land use patterns are depicted in the cross-section of the village (Fig 6.7 presents an illustration of this cross-section). Soils are sandy to loamy and because of the high erosion rates on the steep slopes, most of the loamy top soils have been washed away. Land use is dominated by a cropping pattern of maize-cassava in the lower part of the village (Aran Aran, Dewo, Sumberejo) and sugar cane and maize-cassava cultivation in the higher parts (Jajang, Wonokerto). Both cropping patterns show low productivity. Recently apple orchards with good prospects have been planted. Most coffee gardens are located around Dewo, but owned by farmers of Aran-Aran. The eastern part of the village borders forest land, but no serious conflicts over forest management occur between the villagers and the State Forest Corporation (SFC).

Land is unequally divided. Many of the villagers are small farmers (38% of the households own less than 0.5 ha of land). The household survey reveals that despite the high percentage of small farmers an average of 1.5 ha is owned per household. Since productivity of the land is low, these small farmers have to work as land labourers or find additional income from off-farm employment activities. The activity profile indicates that men are mainly involved in farm labour, as carpenters and traders, while besides farm labour women also derive an income from mat-weaving, trade or domestic service in the cities. Income from off-farm employment is low: for men an average of Rp 30,000 per month and for women Rp 20,000 per month.

Livestock is also unequally divided among the households. Households own on average one cow and two and a half goats, although in reality a few rich farmers own large numbers, while small and landless farmers manage the livestock of the rich in the form of share management (*bagi hasil*). Half the total number of goats are managed in this way.

Fuelwood consumption is on average 3.5 shoulder-loads (*pikul*s) per week per household. Fuelwood is collected on the dry arable fields, the coffee gardens and in the forest.

Access to drinking water sources is difficult. Villagers in Sumberejo, Dewo and Wonokerto hamlets have to walk 200-300 meters into steep river valleys to wash and collect water. Consequently primary school-teachers do not want to live in those hamlets and village nurseries are

difficult to establish. Apple cultivators have had to construct water pipes to channel water from sources on the mountains to their orchards.

The level of education is low; 70% of the heads of households have not completed primary school education. There are primary schools in the hamlets, but only 12,5% of the students who finish primary school also finish the SMP (first three years of high school). Long distances to school on poor roads, lack of money for school fees and the need for labour discourage parents from sending their children to school.

The village administration is poorly organized and does not function well. Reasons for this include: poor communication within the village; old village officials who show no enthusiasm for initiating development activities; lack of trust in officials by the villagers, because of a number of bad experiences with the spending of government funds (INPRES village subsidies), and unclear administration. Officials themselves even suggested splitting up the village in two.

6.4.2 Analysis and programme proposals for each key issue

The planning team formulated the following six issues as key problems in the village:

- 1 Large differences in landownership among the households.
- 2 Low productivity of the dry arable land.
- 3 High erosion rates on dry arable land.
- 4 Difficult transportation and communication among the hamlets.
- 5 Limited availability of drinking water sources.
- 6 Poor village organization and administration.

The analysis of the first three issues and ideas for programmes are illustrated in the following paragraphs.

Key issue 1: Large differences in landownership among households

Two major land management strategies can be distinguished:

- For the apple orchards; poor farmers own the land, while the rich rent it and cultivate it as investors.
- For food crops; the rich farmers own the land, while the poor farmers cultivate it as land labourers.

Poor farmers are easily persuaded to let out their land to investors as the present productivity of their steep land is low (Rp 150,000/yr) and they are attracted by the large lump sum. This money may be used to buy land and livestock, but more often it is used for conspicuous consumption purposes like restoring the house, buying a radio or motorcycle. Estate agents cajole them to let out their land. In the hamlets Sumberejo, Jajang

and Wonokerto large areas have been rented by rich farmers and Chinese investors for a period of 10 years for Rp 1.5 million only. After this period yields will be shared between the investor and land owner. However arrangements differ for each hamlet and are unclear. Experiences from the apple area in Batu (a nearby village in a similar zone) showed that many farmers, by letting out their land or accepting several loans from investors, end up becoming land labourers on what used to be their own land.

On the other hand, the introduction of apple orchards also brings a number of advantages to farmers. Apple cultivation requires intensive management and thus creates employment opportunities. While wages for land labourers used to be a mere Rp 300-500 a day, Chinese investors pay Rp 1000-1500 per day, which has resulted in a general increase of wages for land labourers in the village. Moreover, apple cultivation is a very risky business requiring large investments: it takes 10 years to reach break-even point between inputs and outputs. Most farmers in the village are not yet ready to make such major investments. By letting out their land and working as labourer they earn a small but safe income, while their land is perfectly terraced and fertilizers and manure are applied. In the meantime the farmer, in his role as a labourer, learns the management techniques. Those farmers who feel unable to continue with apple cultivation after the contract ends plan to plant coffee on this well-terraced land.

A result of unequal landownership is the large number of people involved in off-farm employment activities (table 6.6). However, their wages are low. In hamlet Wonokerto particularly the number of men working as carpenters for a very low income (Rp 1100/day) is strikingly high. Based on an inventory of their inputs and outputs, as illustrated in the flow diagram in figure 6.11, the following conclusions can be drawn: 1) the quality and therefore the prices of the products are low, because the quality of wood is inferior and the technology crude (products consist of simple beds and tables only) and 2) inefficient modes of operation exist; each carpenter works on his own, buys his own wood and takes his own products to the market (between eight and 18 km away). The off-farm employment table also illustrates the mat-weaving activities in hamlets Aran Aran and Dewo. Average production of a weaver is low at two mats per week, bringing in an income of only Rp 4,500 per month.

Table 6.6 Off-farm employment activities in Sumberejo II village

NO	OFF-FARM EMPLOYMENT	SUMBEREJO		JAJANG KERTO		WONO		ARRAN-ARRAN		DEWO	
		M	F	M	F	M	F	M	F	M	F
1	Sugar producers	2	1	2	-	-	-	-	-	-	-
2	Land labourer	60	60	41	30	3	17	15	35	35	35
3	Healer	2	2	-	4	-	2	-	8	-	1
4	House maid	10	43	5	15	25	32	-	10	-	-
5	Brick maker	2	-	2	-	1	-	8	-	-	-
6	Repair shop	-	-	3	-	-	-	7	-	-	-
7	Carpenter	4	-	3	-	100	-	8	-	-	-
8	Small shop	-	4	-	5	4	5	6	-	-	-
9	Trader	2	-	2	-	8	-	4	-	-	-
10	Restaurant	-	7	-	4	-	-	-	5	-	3
11	Mat weaver	-	10	-	-	-	-	7	15	-	60
	Total	82	127	58	50	141	56	55	73	35	99

M: MALE
F: FEMALE

A proposal for a programme that helps to solve the first issue aims to distribute economic benefits more equitably in the village through the following activities:

- arrangements for land renting and share-cropping of apple orchards to guarantee benefits for the land owners, with help from the village administration;
- a livestock development programme for the small and landless farmers;
- increasing the productivity of carpenters in hamlet Wonokerto;

- increasing the productivity of women in mat-weaving in hamlet Dewo

The latter two activities will be realized through the development of local organizations, new skills and products and cooperative production and marketing.

Key issue 2: Low productivity of dry arable fields

The land use map illustrates the land use pattern and its legend provides among other things information on the cropping patterns, use of fertilizers, yields and land ownership status (private, village or national land). Although this area shows high potentials for fruit, coffee and vegetable cultivation, maize and cassava are still the dominant crops. Productivity is low; 1.2 ton/ha/year for maize and 6 ton/ha/year for cassava, and these crops are grown for subsistence use only. The major reason for this low productivity is the unsuitability of these crops for this altitude. The cropping calendar shows that on this elevation maize needs a growing period of four months. In addition poor sowing techniques and lack of access to fertilizers and seedlings (the market is seven km away) contribute to low productivity. Moreover, due to high demand, farmers sell their manure to cultivators of apple orchards, instead of using it on their own land. Coffee production is also far from optimal. Coffee seedlings are difficult to obtain and often species for low altitudes (*Robusta* coffee) are planted in this area of high elevation. The average productivity of sugar cane is below average (40 ton/ha). Sugar cane is grown for a period of three years, after which it needs to be replanted. Therefore land planted to sugar cane is rented for a period of three years only, during which no land management measures are taken by the tenant.

Another reason for the low productivity is the lack of extension and training because the extension worker (PPL) does not visit the village. The area is isolated, the level of education of farmers is low and farmer groups do not function. Farmers see no alternative or do not have the inputs to alter their cropping pattern. The PPL's time and therefore his capacity for extension is limited because he has to cover four villages, two of which consist predominantly of irrigated fields. As irrigated agriculture still takes priority, attention to dryland agriculture remains minimal, especially in inaccessible areas.

A programme proposal for this second issue aims to increase the productivity of poor farmers through a programme which gradually shifts production from maize-cassava to coffee. During the first three years coffee trees will be intercropped with maize. Coffee *Arabica*

seedlings will be locally produced. For rich farmers a programme is proposed that aims at a gradual change from sugar cane production to apple production intercropped with vegetables (green onions).

Key issue 3: High erosion rates

Severe erosion in the village is a result of the combination of the mountainous terrain, with loamy sand to sandy soils, and poor land management which itself is mainly caused by land tenure arrangements. Unequal landownership results in a situation where rich farmers own large areas of land, which they cannot manage by themselves. They let the land to others or hire land labourers, who have no interest in sustainable land management, since their main concern is to make as much money as possible in the shortest time possible. Consequently the construction and maintenance of terraces and other soil conservation measures are neglected. By comparing a land erosion map with the land tenure map the importance of identifying the land user and his (or her) land management strategy become clear. For example an old widow owns 30 ha of land in hamlet Wonokerto. This land is cultivated by tenants and is severely eroded with 150 meter deep gullies. Also village officials let out their part of the village land (*tanah bengkok*) for a period of five years, since their homes are far away, road conditions are poor and they do not have time to cultivate it themselves. A total of ten village officials have a share in 23,2 ha of this eroded land. Thus the situation arises where village officials themselves furnish the worst example of land management. The consequences of neglecting this land tenure situation in soil conservation programmes have been demonstrated in the failure of 'regreening programs' on this land.

The inventory map indicating the location of government interventions in the past shows the large number of soil conservation programs that have been implemented. Results have been disappointing because measures were not adopted by land users for the following reasons:

- interventions were demonstrated to farmers who did not have the money and/or time to follow the example. Consequently, farmers in the demonstration plot areas participated as long as they received subsidies, but stopped investing in land management when the subsidies ran out. The impact of the program on farmers outside this plot was non-existent;
- subsidies for terrace construction were far too low (Rp 18,000/ha): real costs were estimated at Rp 300,000/ha on average. Thus terraces were badly constructed and even increased erosion by forming gullies;
- erosion measures showed poor technical design, as no drainage ways were constructed and the limited grass cuttings that were planted were eaten by bugs;

- extension was delivered to men only, despite the evidence that women are involved in land management. For example in the poorer households of the hamlet of Wonokerto women cultivate the land, since their husbands work as carpenters (see activity profile). Hence the impact of the 'extension message' was limited.

The fact that in the area highly productive apple orchards are perfectly terraced and maize/cassava fields are not supports the premise that soil conservation programmes should always be linked to production intensification programmes. However, poor farmers may not be able to make large investments required for intensive production systems immediately and therefore subsidies for production inputs and a phased implementation may be needed. Thus farmers can implement on-site soil conservation measures according to their own capacity and the estimated value of their land.

In the third programme proposal, the following soil conservation projects are planned. Firstly, land management support to small farmers in hamlet Dewo with a supply of high quality coffee seedlings; extension and training on intercropping of maize; and coffee and soil conservation measures. Implementation of soil conservation measures will be carried out in stages through self-help activities. Secondly, extension and technical advice to the widow in Sumberejo hamlet and her foremen on coffee planting and management and soil conservation activities. Thirdly, arrangements for the management of 'tanah bengkok'. The planning team suggested that a general rule is needed stating that only half the land can be let out for a maximum of two years, while the other half has to be managed by the village officials themselves, to set a good example of land management to villagers. After these general programme proposals, which are localized in the conceptual plan, detailed analysis and designs are made for each proposed project. The final results of the Sumberejo village development programme are illustrated in table 6.5. For this programme no sub-district development funds were available and funds had to be allocated from the regional and national development funds. This means that if these proposed projects are accepted, it will be at least one and a half years before implementation can start. Other projects proposed are to be financed by INPRES village subsidies and by an anticipated new Dutch-sponsored project (known as Lesmas).

6.5 Preliminary results from the planned programmes

Experience with actual implementation of the proposed village development programmes has been limited. The last two trial cases took place in the final year of the Kali Konto Project and outside the Project Area, so time and budgets to support implementation were very limited. However, Indonesian government agencies wanted to spend some of their (already available) budgets on the implementation of proposed activities. In the following section two examples are given of preliminary results and problems that arose when the existing government organizations started implementing locally planned interventions.

6.5.1 Social Forestry Project in Sumberejo I village

Sumberejo I village is divided by forest land into two parts (figure 6.8). Reforestation efforts by the SFC to establish teak and mahogany plantations have failed repeatedly because of the intensive exploitation of the forest land by the villagers in collecting their daily fuelwood and grazing their cattle. Therefore, a social forestry project was proposed to involve the villagers in sustainable forest management. In this project local people were to be organized as farmer groups, mainly involving the landless farmers living on forest land (*Magersari*). At the request of the people, coffee trees were proposed to be interplanted with *Paraserianthes falcataria*, a good shade and timber tree. Contracts were proposed for a period of 8-10 years and a division of revenues planned, in which timber and 50% of the coffee yields would accrue to the SFC, while the other 50% of the coffee yields were to go to the farmer groups involved. The introduction of a cut and carry system was part of the plan to keep the cattle in stables and produce fodder in the forest and homeyards. Also a stable construction and extension programme on animal husbandry was proposed to support this new system.

However, implementation of the project was confronted with some serious problems, due to the planning and implementation procedures of SFC as well as to some technical constraints. As, in the SFC's ten year plan, the concerned site had been planned for reforestation with timber species during the next year, the possibility was discussed with the regional head of the SFC (ADM) to change the original plans into this new proposal. Therefore a special project statement was made by the ADM, which was accepted by the regional planning office of the SFC. However, the original plan was not rejected and a confused situation arose in which both plans were officially valid. Two factors made implementation of the plan even more complicated. Firstly, a government statement made clear that expansion of the coffee area on forest land was no longer allowed. Secondly, the (Madurese) participants of this proposed social forestry project already started preparing the forest land on their own initiative. As a result steep bare slopes were visible from the main road embarrassing the SFC.

Also the technical design, which differed from standard reforestation plans, was difficult to accept. The regional office of the SFC had trouble with the wide planting distance of the timber species, making it more like a coffee garden than a forest. However, the planners (including the forest guard) were convinced that given the location of the reforestation site (squeezed in between the two parts of the village) and the poor socioeconomic condition of the villagers, especially those living in the *Magersari* hamlets, a pure production forest would be unrealistic. In the end a compromise was accepted in the form of a different planting system, with more timber and less coffee.

Despite these problems, implementation started almost a year after the planning exercise. Those who had already occupied a plot on their own initiative had to resubmit these plots, to be redistributed according to a lottery system. Shortage of planting material for hedgerows was the reason for another change in the planting system, while the poor quality of timber seedlings resulted in low survival rates. Also the SFC was reluctant to incur any expenditures on the purchase of coffee seedlings from the local village nursery and postponed the decision on the purchase of seedlings from coffee plantations.

From this preliminary experience it became apparent that, although the forest guard had participated in the planning team, the social forestry plan was not acceptable to the SFC. Strict planning procedures and a new design, not in line with an earlier planned standard programme, made this Social Forestry plan difficult to digest. Consequently, compromises in design and implementation had to be made. Hence, the design of interventions had to be adjusted to the competence of the implementing government organization.

6.5.2 *Soil conservation and production intensification project in Sumberbening village*

One of the results of the village development programme for Sumberbening village was the design of a soil conservation and production intensification project. The site had in fact been selected by the BRLKT beforehand on which to establish a soil conservation demonstration plot. The planning team elected to take care of the detailed participatory design of such a soil conservation project. Together with the land users, the planning team attempted to plan interventions that would be adjusted to local needs, constraints and opportunities. The basic idea was to increase the value of the land through increased productivity and hence motivate farmers to invest in their land management. Below the project design is described, followed by a description of some preliminary results of implementation.

Design

The design has been based on a detailed terrain survey, an inventory of the socioeconomic status of the participants and discussions of their needs, capacities and possible technical interventions. Sketches of alternative solutions were used during these discussions. The result were two alternative designs; one for those farmers interested in extensive cultivation and one for subsistence farmers who depend on their land for food production. The first design included the planting of *Paraserianthes falcataria* and the sowing of ground covers (*Tephrosia* and *Centrosema*), whereas the second was an agroforestry design, intercropping the high yielding maize variety *Arjuno* with fruit trees, while the risers of terraces would be planted with grasses and legumes (*Flemingia* sp.). Fodder hedges were designed to surround the plots and some small soil conservation measures were planned. An illustration of the design is presented in figure 6.10. It was furthermore decided that the government would supply the production inputs (seeds, fertilizers, cuttings, seedlings), while the farmers were responsible for improving their terraces and other soil conservation measures. In addition the farmers planned to organize themselves into a farmers' group and decided to start some saving activities. The extension worker from the BRLKT was assigned to provide intensive support in land use management to the farmers' organization and on-site training and field excursions were planned.

Results

At the end of the first year of support, the plot exhibited the spectacular result of a 127% increase in maize yields, while the plantation of (fruit) trees showed an average survival rate of 80%. Also the hedges and the *Paraserianthes* trees were doing well. Ground covers and *Flemingia* however largely failed due to technical problems. Farmers had started levelling terraces in phases according to their own capacity. The drop-structures were already filled with sediment at the end of the year.

A total budget of Rp 13 million was spent during the first year for an area of approximately 11 ha. The amount was allocated according to standard procedures which meant that a relatively high sum was spent on constructing a workshed, on field allowances for government staff from district offices and on organizing a training course for a total of 60 people from three different villages. Rather than the local extension worker taking responsibility, staff of government agencies at district level delivered standard training packages on soil conservation, agroforestry, bee keeping, fodder production, fruit tree production and village development, whilst an NGO gave training in 'group dynamics'. Besides being quite costly in terms of allowances, the usefulness of such training is doubtful.

In line with standard procedures, the total budget had to be disbursed in the first year of implementation and consequently during the second year all external support stopped. Also the extension worker no longer visited the farmers. Monitoring data gathered by the government organization involved (BRLKT, 1991) show that although the trees and hedges are performing well, all the farmers had planted the local maize variety again. Only conjectures were made as to the reasons for this however. According to the implementing government organization the farmers need greater guidance and prolonged financial support (for a minimum of three years) in order to help them change their land use strategies. On these marginal soils the risks are still too high to invest in high inputs, without supporting fertilizing activities.

Conclusions

Even more time needs to be spent on the identification of the land use strategies of farmers. Was their interest in the Arjuno maize variety purely motivated by ideas of grabbing what they could while the subsidies lasted and doing as they liked afterwards? Participation of poor Javanese farmers in planning is extremely difficult, as they are not used to speaking out and raising ideas in front of government officials.

The relationship between extension and a government project has once again become clear in this case. Extension workers see their role as implementors of the physical measures as part of the standard project. When the project stops they stop, as they will gain no more credit from their superiors for the work.

This experience shows the importance of a trial and error process. Field workers and farmers should experiment with on-farm practices in order to find the most optimal land use strategy for the farmers involved. This requires the long-term commitment of the extension worker. It also requires some additional funds for experiments and replanting activities.

The unit chosen for planning purposes should be a selection of land users who have similar constraints and capacities, rather than a physical area (plot) of land. This will ensure that the farmers' group functions better and will guarantee that government support reaches the poorest in the village society.

6.6 Lessons learned from implementing trial cases

The following lessons can be learned on the implementation and results of village development planning (van den Hoek, 1991):

- 1** It proved possible to implement a Rapid Village Appraisal, Planning and Programming method, using a team of villagers and field staff. By planning at local level interventions can be devised, which are more easily adopted, as local planners are better able to adjust the design to the land use strategies of the different land user groups.
- 2** Involvement of villagers in the planning team appeared valuable in the data collection, analysis and planning stage as: resource persons; organizers of meetings; discussion partners; and in field surveys as they know the area, the people and the social system. Their limited education and experience forced them to take a back-seat during the data processing.
- 3** It was not only the villagers who proved to be an important source of indigenous knowledge. Field workers also have a wealth of experience gained from implementing government development programmes. This was true not only for technical issues but also for socio-political aspects such as local power structures and tenurial arrangements. The enthusiasm displayed by the field workers to be involved as professional and experienced partners in development planning was substantial. This can partly be attributed to their suppressed frustrations after trying for years to implement government programmes which did not fit local conditions and needs.
- 4** The scope of integrated village development programmes can be restricted to land management technologies; off-farm employment and supportive socioeconomic and physical infrastructure.
- 5** The inclusion of a programming step in the planning approach made the plan more practical and concrete and easier for the local government to accept.
- 6** Because villagers and field staff form the planning team, with limited experience and access to new technologies, only simple innovations can be expected. Also, research needs may be identified and should be reported via BAPPEDA to the research stations.

- 7 Cooperation among sectoral agencies is promoted when their field staff are involved in a local level interdisciplinary planning team which then proposes integrated development plans.
- 8 BAPPEDA and the local government felt that one major disadvantage of the planning approach was that government funds were too concentrated in one village and that health care and education were not included. However, the complexity of land use management problems and limited capacity of the planning team justify the focus on the issues mentioned above. Equal division of resources and benefits among the villages should occur over the years, with integrated and well planned development programmes, rather than dividing funds among all villages in a region by implementing ad-hoc and incidental projects which are not sustainable.
- 9 New technologies may be introduced through this village development planning when research stations or sectoral agencies establish better information channels to the regional extension centres (BPP) and to the UDKPs at sub-district level.
- 10 Using existing planning procedures and involving government staff in the planning helps to make the planning strategy acceptable at the local level and accelerates the process of institutionalization.
- 11 Although the quality of the plans may be improved, its implementation and results are still strongly influenced by the use of strict government procedures for implementation. The planned interventions had to be adjusted to the competence of the implementing organization.
- 12 Since only small scale trial programmes are planned, a learning by doing process is of great importance to make adjustments to the programme, based on experience and new insights. However, the use of present budget procedures and the task perception of the extension workers prohibits such a process.

7 EXPERIENCES WITH OTHER LAND USE PLANNING STRATEGIES ON JAVA; THE JAVA SOCIAL FORESTRY PROGRAMME

One programme that provides some extremely valuable lessons for the development of this planning strategy is the Java Social Forestry Programme, a collaboration between the State Forest Corporation (SFC) and the Ford Foundation in Indonesia. Recently much literature concerning this programme has been published, of which the book 'Keepers of the Forest' by Mark Poffenberger (ed., 1990) and an article by Frances Seymour; 'Social Forestry on Public Lands in Indonesia: A blurring of Ends and Means' (1991) form the basic sources for the following discussion. In this section, constraints in implementing this Social Forestry programme are described. These constraints will serve as lessons learned for implementing the planning strategy on Java, as described in chapter 8.

7.1 The Java Social Forestry Programme

The programme started in 1984, in response to growing conflicts between villagers and foresters over forest management, resulting in the rapid degradation of forest resources. Stoney and Bratamihardja (1990) estimate that 30% of forest land on Java is degraded or marginally productive. Pressure on forest resources is a combination of on the one hand the policy of the SFC, focused on profitable management of the forest land, in order to produce foreign exchange and provide for its own operational budget, and on the other hand a growing number of rural people seeking access to forest products and land for subsistence. According to Peluso et al. (1990) the conflicts between villagers and foresters over the management and access to forest resources can be attributed to three factors:

- long-standing disputes between forest villagers and state foresters over forest lands and tree tenure;

- a history of bureaucratic misbehaviour among many field foresters, including corruption, exploitation and involvement in teak theft;
- the failure of the highly centralized SFC to adapt its forest management policies to diverse ecological and socioeconomic circumstances.

The Java Social Forestry Programme realized that such deeply rooted conflicts could only be solved through structural changes in the attitude and organization of the forest administration. While social forestry projects developed in the past were still considered trial cases without influencing traditional state forest management, this Social Forestry Programme acknowledged that the SFC would have to relinquish some of the control they have traditionally claimed over Java's forest resources (Peluso, 1990). It aims at solving conflicts by improving communication between the forest users and administrators through the development of a more 'social' approach to forest administration. 'Social' in this context means involving local people in management decisions and allocating benefits by transferring local management responsibilities to community groups. It requires decentralization processes in combination with a transformation in attitude of SFC staff to their role 'from being resource managers to helping communities develop resource management capabilities' (Poffenberger 1990).

The content of the programme can be summarized in the following points:

- SFC personnel cooperate with forest villagers to manage the forest;
- degraded forest lands are given priority in site selection;
- structural changes in access controls are made to give people longer rights of tenure on reforestation lands and greater involvement in selecting alternative crop species, to which they would have firmer rights;
- at community level, forest farmer organizations are to be formed to give farmers a greater sense of collective power and responsibility and a common direction;
- forest rangers have to exchange their police roles for those of community organizers and assistants;
- community organizers (COs) outside the SFC (from a NGO) are enlisted in addition to some forest rangers for training in community organization;
- coordination of these COs is realized by externally recruited provincial social forestry coordinators;
- forest management plans are to be developed by Forest Farmer Groups, with the aid of semi-structured interviews, aerial-photos and sketch maps.

The programme was carefully planned using what Korten and Uphoff (1981) recommend as a 'centrally guided bottom-up process'. With political commitments from highly placed officials, funding and research were planned from the top to sustain 'bottom-up' activities in the field. A working group has been formed at top level, as a political coalition able to lobby effectively for decentralization. This working group is linked to field level action research programmes and thus can channel information from the 'bottom' into the heart of conservative centralized agencies (Poffenberger, 1990). Thus, working groups are supposed to bring sensitive issues into the open and remove organizational taboos on their discussion.

The programme has been implemented in the form of a learning process of three phases (Poffenberger, 1990). In the first phase diagnostic research was carried out on the issues behind the main conflicts between forest user and the SFC. In the second phase pilot projects were implemented, in which the new methods for project planning and implementation were tried out. In this phase attempts were made to integrate and adjust new procedures to the present structure, operations and resources of the SFC. Expansion of the programme to implementation at a national scale level has taken place in the third and current phase.

7.2 Some constraints in the Java Social Forestry Programme; an evaluation

Despite the fact that this programme was carefully planned by a professional and experienced group of people and implemented by well-managed organizations of both the SFC and Ford Foundation, some major constraints appeared during the expansion phase. These constraints were related to:

- incongruence in objectives;
- limited impact on development of the poorest;
- no involvement of women;
- strong top-down structured organization;
- too rapid expansion;
- limited involvement from NGOs.

These are discussed below.

Incongruence in objectives

The programme objectives as perceived by the Foundation and the SFC appear to diverge. For the SFC the primary objective of social forestry is to reforest degraded lands. Production is their main objective, while increasing community welfare and participation are seen as techniques to be used to achieve these objectives. Given its mandate to produce

foreign exchange and to provide for its own budgets, it proved unrealistic to expect anything other than these objectives. As a consequence of their focus on successful planting of forest species, the SFC paid no attention to participatory management systems. As long as production-related indicators remained favorable, SFC officials were not alarmed by reports of poor performance with regard to farmers' involvement, poor performance of the horticultural species of the agroforestry systems and lack of progress towards greater equity and participation. For the Foundation the emphasis was reversed: 'increasing the productivity of forest lands, while desirable as an end in itself, was viewed instrumentally as a strategy to raise incomes of the rural poor' (Seymour, 1991). This latter objective was strongly reflected in the programme design.

As a result of these different objectives, the programme has not been implemented according to its design. Neither farmer groups nor joint-management contracts have functioned as envisaged by programme designers. Instead the role of contracts has been to reassure the SFC that expanding and extending farmer's access rights would not lead to unwelcome claims to ownership of the land or the trees. This may be explained by the view of most forest managers who according to Nibbering (1988): 'fear they might lose control over the management of forest resources, because once local people are involved for longer periods, the latter having become too reliant on forest land may eventually lay claim to it'. They believe that no matter how much the forest authority cedes to the population, the latter are going to demand more, as their numbers grow, their livestock continue to multiply and their needs increase (Nibbering, 1988)

Besides focusing on the objective of production the SFC used the social forestry programme to serve other agency goals, such as consolidation of territorial control, in which Social Forestry is used to 'resolve' land disputes involving conflicting ownership claims. On the other hand the SFC has been reluctant to open social forestry sites in the immediate vicinity of resettlement areas surrounding a controversial multipurpose reservoir in Central Java, for fear of losing jurisdiction over those areas as well (Seymour, 1991).

Limited impact on development of the poorest

The Social Forestry Programme's potential impact on poverty alleviation has been compromised by the poor performance of horticultural species, the switch to short-rotation species that shade out the crops after the first year, the concentration of expansion in better-off wetland areas and the failure to give the poorest households priority in participation. Because access to the forest was becoming a more valuable commodity (with longer contracts and more valuable crops), rich farmers also

became interested in participating and used their power or relations with the forest guard to get access to the better plots. Moreover, many landless families lacked the resources to invest in tree crops that would generate income only after four to seven years and they had to sell tree tenure and rights of programme participation to richer farmers (Peluso and Poffenberger, 1989). These practices have been accepted by the forest guards, as they prefer to work with the more advanced farmers, who are likely to show better production results.

No involvement of women

The SFC is an extremely male oriented organization and in the programme, women were systematically excluded from participation. However, women often spend more time in the forest than men and are more dependent on its products. Their exclusion from the programme jeopardizes the attainment of sustainable forest use.

Strong, top-down structured organization

Although in the first instance a well organized SFC with its own budgets and a good communication network seemed a tremendous asset, it also appears that such a strong hierarchical organization imposes some serious constraints on the implementation of the programme. Incorporating the programme into the SFC has resulted in formalized social forestry policies and practices with limited flexibility. Once these new 'social forestry rules' were made, adjustments to local situations and ideas, for instance on the applicability of new agroforestry technology, were almost impossible to make. In the Social Forestry Programme, the top-down oriented approach prevailed as no serious decentralization processes had been carried out. The main structural change accomplished was in the form of people's longer right of tenure in reforestation and greater involvement in selecting species.

This traditional top-down oriented government machine also ensured that new trends in the government policies at national level immediately influenced the character of the programmes at local level, for example:

- in response to a Ministerial mandate to regreen coastal areas of Java, since 1988 the SFC has concentrated programme expansion in the wetland areas of Central Java and in the mangrove forests of West Java;
- when the popularity of *Gmelina arborea* as fast growing species became known to the policymakers, rapid expansion in its use was unavoidable. However, the tree shades out farmers crops as early as the end of the first year and as such the objective of improving the welfare of the poor is neglected;
- forced planting of maize took place on reforestation sites, reflecting the maize hybrid thrust within the new agricultural programme.

Too rapid expansion

In pursuit of the short term success of the programme, it expanded (too) rapidly, to which the SFC has sacrificed intensity of management and training in order to focus on short-term production results. As a consequence:

- the addition of new sites has outpaced the training of personnel to staff them;
- the development of farmer groups has been arrested, and the ability of staff to provide sufficient support for the farmer groups is inadequate;
- the training backlog has been reduced by drastically cutting back on the length and intensity of special courses, causing loss of quality;
- no guidelines were developed on site selection, the planning method, extension techniques or participatory monitoring activities;
- expansion has overburdened an already weak planning and monitoring capability, (a too rapid expansion occurred just as SFC officials attempted to incorporate community appraisal and sketch-mapping exercises in the standard operating procedures);
- the collection of reliable, consistent data on the programme fell behind;
- qualitative data such as farmer group activities tended to be left blank;
- many inappropriate sites were selected.

Limited involvement from NGOs

The fast expansion and the limited importance the SFC attributed to community development and participation contributed to a reduced role of the NGOs in training and support.

In the trial phase NGOs functioned as consultants on the initiative of the Ford Foundation. They did not have countervailing power and did not push the objectives of participation and equity. Like SFC officials, the NGO staff and the university research team involved have implicitly accepted the political choice to sacrifice community land claims for reforested land in the name of community welfare.

On the basis of the analysis of the present planning environment in Java (chapter 5), experiences with trial cases in the field, and literature study on experiences with the Java Social Forestry Programme, the applicability of the strategic model described in chapter 3 can be tested for planning sustainable land use programmes on Java. This is described in the next chapter.

8 THE STRATEGIC MODEL IN THE JAVANESE CONTEXT

8.1 Introduction

This chapter considers whether the strategic model can realistically be applied to Java. Section 8.2 outlines the specific action that implementation of the 'development phase' (phase II) and the 'expansion phase' (phase III) entails in the Javanese context. Expected constraints to implementing these actions are discussed in section 8.3. This serves to clarify the feasibility of the strategic planning model for addressing the problems of programme planning and management on Java previously discussed in chapters 5, 6 and 7.

At this stage it should be noted that the research approach applied started with field research through trial cases (chapter 6). Only after elaborate literature study was the strategic model developed and the phased approach of trial, development and expansion outlined. Experiments with trial cases in the field all come under the 'trial phase' (phase I), with as yet no relevant field experience in implementing the development and expansion phases. Therefore, possibilities for the application of the development and expansion phases are formulated as a set of expectations. These expectations are based on the analysis of the planning environment on Java (chapter 5), some preliminary results from trial cases (chapter 6) and lessons learned from the Java Social Forestry Programme (chapter 7). Because the experience with the application of the three phases of the strategic model differ, the analysis of the constraints to implementing each of the three phases is not based on the same criteria. Nevertheless the analysis provides an insight into the feasibility of the application of a three phased learning process.

8.2 Possibilities for the application of the strategic model on Java.

8.2.1 *The trial phase (phase I)*

For the implementation of the planning strategy at local level on Java current government procedures for rural development planning (see chapter 5) are taken as the starting point. Within this framework putting the strategy into practice means improving the quality of village development plans and existing bottom-up planning procedures. Chapter 6 illustrates how such village development planning can be carried out in the form of trial cases by a team of villagers and field staff from sectoral agencies. It describes the planning method developed as well as the results of trial cases. During the trial phase the following outcomes can be achieved: improved quality of village development plans (adjusted to local needs, constraints and opportunities of different user groups); enhanced participation of villagers in planning; improved motivation and capability for participatory planning on the part of field staff; enhanced cooperation and coordination of sectoral agencies; and a more optimal use of existing decentralized funds.

8.2.2 *The development phase (phase II)*

Chapter 5 reveals that the major problems in programme planning on Java are caused by poor communication, and rigid and time-consuming administrative procedures. However, changes or adjustments to these organizations are difficult to bring about overnight, as their procedures and structure are strongly influenced by socio-cultural-political phenomena, such as the state ideology of 'sole authority', *bapakism* and hierarchical relationships. Therefore, a phased approach of development and expansion seems warranted to introduce the strategy of local level programme planning on Java.

The development phase on Java will focus on institutionalizing communication processes and will include the following programme activities:

Implementation of village development planning

Village development planning will be implemented on a larger scale, covering one district. The resulting village development programmes will be processed through the planning procedures of BAPPEDA. In this way field and planning staff will become acquainted with an alternative approach to participatory programme planning at village level.

Training

Training programmes will be organized for four different target groups:

field staff of sectoral agencies and planning staff of BAPPEDA; students at schools and universities; local organizations; and future moderators of or advisors to the planning process at district level. Combined training programmes, for example both for field staff and local organizations may also be possible.

For field staff (UDKP) and government planning staff (Bangdes/BAPPEDA) training will be organized to orient their attitudes and skills towards community development and participatory planning. Although BAPPEDA is not directly involved in planning at local level, training is also important for its staff in order to increase their understanding of the objectives and significance of integrated village development planning. Their role in village development planning is to coordinate village development plans with other development programmes as well as with the allocation of additional funds at district and provincial level.

A second training programme on participatory planning will focus on supporting schools and universities in their training and education programmes. This may also include the implementation of research on monitoring activities by undertaking trial case research or special studies on constraints to village level planning and results of village development planning.

A third training programme will support local organizations to develop their autonomy (in finances and decision making) and their capacity to respond to government services. NGOs who have experience in this field could function as intermediaries and may help to stimulate communication between the two parties. In a fourth training programme future moderators and advisors, who will support the planning process at district level, will be trained for their new positions.

Guidance and consultancy

Besides training direct supervision or consultancy will also be required to safeguard the quality of the planning process. For each district this will include one or two advisors who operate outside the regular bureaucratic structure. They will provide back-stopping to BAPPEDA staff and field staff. They may also support them with training programmes. Community organizers (male and female) will support the extension workers in the field, and in order to reach more female land users female extension staff will be involved. Guidelines on the planning method will be drafted during this phase to support extension staff and community organizers in performing their new tasks.

Participatory monitoring

A participatory monitoring system will be introduced which focuses on

the implementation process and participation of users, rather than on the achievement of physical targets only. Chapter 5 illustrates the difficulties of monitoring activities in a cultural environment where error detection and analysis are alien concepts. Therefore extra attention will be paid to this aspect by setting up a participatory monitoring programme with BAPPEDA, supported by outside advisors who can break through these cultural barriers. This will involve new procedures, training and the development of guidelines. In this way more objective feedback information and qualitative data on the participation and motivation of the people involved may be obtained.

NGOs will play an important role in supporting government agencies to perform their new tasks. Their major responsibility, as an intermediary between local organizations and government staff, will be to develop the capacity of local organizations and initiate changes in the attitude of field staff towards community development and a more participatory approach. Their contribution lies in organizing training programmes for government staff and local organizations as well as giving guidance to field workers in their new extension role. Thus in the development phase a process of consolidation and acceptance of the new planning strategy may take place among government staff.

8.2.3 The expansion phase (phase III)

In the expansion phase the planning strategy will be accepted at national level and village development planning may be implemented in districts throughout Java, accompanied by extensive training and guidance programmes. Those government staff and/or NGOs who have gained experience in previous phases will become consultants to guide the planning process in the different districts.

Implementation of the strategy at national level requires a number of structural changes in the government organization. Thus, the activities in the expansion phase take the form of conditions for the realization of local level planning activities and communication processes at national level.

Decentralization

This expansion will involve decentralization processes. However, on Java decentralization has been mainly interpreted as deconcentration out of fear that decentralization will grant too much autonomy to the regions, causing the political unity in the country to weaken (chapter 5). For example, the sub-districts are a form of deconcentrated administration of the district, so decentralized services or decision making processes cannot take place at the sub-district level. Therefore, it may be more

realistic to hope for a substantial increase of existing deconcentrated development funds. For example, greater allocations of *Kecamatan Terpadu* and *Kecamatan Rawan* funds to every sub-district would serve this purpose. Also the 'Development of Integrated Zone' programme, explained in box 8.1, may be a possible source for decentralized funding. Another option is to use the multipurpose grants of the INPRES funds, since they are officially the responsibility of the regional authorities. This has been the case in the Dutch sponsored regional development project in Sukabumi (West Java) (Haskoning, 1988).

'... we are increasing substantially the amount of assistance to the Village, District and Province... assistance to the village will be raised from Rp 1,500,000 to Rp 2,500,000 per village... As a whole, INPRES assistance to Level I, Level II, Region and village has increased tremendously, namely from Rp 706 billion in the current fiscal year to more than Rp 1 trillion for the next fiscal year. I ask the Governors to supervise closely the management of these funds, so that its utilization will really reach the objectives... One of the important programmes in this Regional, Rural and Urban development sector is the Development of Integrated Zone. This programme is dealing especially with the group of the community which is still unable to participate fully in development such as those who live in coastal areas, isolated places and rural areas.'

Although the tendency to increase decentralized funds is visible; the total amount remains small in comparison to national development funds.

Box 8.1 Government policies for the 1990/1991 year (Jakarta Post 5.1.90)

The expansion phase will also involve aspects of personnel management, procedures and organizational structure. Each is briefly outlined below:

Personnel management

A changing role for the extension worker, as a facilitator who helps farmers to form opinions, experience and make decisions will have the following implications for personnel management:

- This planning process requires long term commitment from extension workers. Only then can they share knowledge and experience based on a trial and error process. Thus field staff

transfers should be reduced to a minimum.

- The assignment of planning and community development tasks to field workers should be formalized through new job descriptions and the provision of career prospects for professional planners.
- The development of a cadre of experienced field staff and planning staff of BAPPEDA will be needed. Advisors will be recruited to provide supervision of the participatory planning process.
- The intensive and time-consuming nature of participatory planning and community development requires optimal performance of field staff. Financial incentives and morale-boosting which encourage good performance and long term commitment in poor areas could include: field allowances; better transportation facilities; evaluation of field staff performance; rewards for those who pioneer and support farmers' innovations, stimulate independent farmer organization and/or achieve long-term results. Upland agriculture and education should be awarded enhanced status in government policies.
- Technical and social support for the PKK and other local women's organizations will be realized through the recruitment of more female extension staff and through the integration of women's activities in the agricultural extension programme. Also specific training on the development of local women organizations is envisaged.

Procedures.

In order to improve communication between local people and government staff, obstacles to participation, such as long and inflexible planning procedures, should be addressed. For example, when the proposals for development funds (DUPs) are written in the same detail as the village development plans, the next stage of proposals (DIPs) can be submitted by BAPPEDA staff themselves, instead of sending the proposals to the sectoral agencies for scrutiny and endorsement. In this way the planning procedure will be much quicker, the influence of sectoral agencies may be reduced and BAPPEDA may be better able to coordinate the programmes.

Changes in the method of disbursement of funds will increase the possibilities for a learning process. For example, certain project funds should not be disbursed in a single financial year, but allocated flexibly over several years. Only then can a learning process of continuous adaptation be adopted.

Not only should budgets be decentralized but so should any decision making which concerns rules and regulations that govern access to and control over resources. Rules imposed by central government concerning land and tree tenure, harvesting rights or instructions on species to be planted, may not fit the local situation. They will thus create problems of uncontrolled exploitation, less than optimal production or unsustainable use. Box 8.2 gives an example of the effects of strict regulations set by the State Forest Corporation. Decentralized regulations and control can lead to improved service delivery through better timing and local production of inputs (i.e. seedlings) appropriate to the area.

The State Forest Corporation (SFC) issued strict regulations on the planting of certain fruit trees in reforestation sites. However, these fruit trees were not suitable in, for example, the upper volcanic zone. Although both farmers and local staff acknowledged this, no changes could be made. Farmers in this zone repeatedly suggested the planting of coffee trees because of expected high yields. Local staff of SFC realized the advantage of planting coffee because of its shade tolerance and good marketing prospects. However, strict regulations from the top made the planting of coffee unacceptable.

Box 8.2 Example of the impact of strict regulations on sustainable land use

Organizational structure

Decentralization requires strengthening the competence and capacity of local government officials. This should not imply that the role of the local government is strengthened to the extent that it has sole authority at the local level and no longer needs to cooperate with local organizations. Instead it means that the local government should learn to become more responsive to the needs and opportunities in the village communities. This requires different qualities in local government officials. In practice it means that the UDKP, headed by the *Camat*, should be given more autonomy to make decisions about village development plans and their budget allocations.

This form of autonomy is relative, as the sub-district is a deconcentrated administrative unit with all major decisions made at district level. The functioning and decision making of the *Camat* will be controlled. This should be done from below by the village administration, local organizations and NGOs in the sub-district; and from the top by the head of the

district (*Bupati*) and Bangdes. As control over government officials from below represents a system alien to present society, it requires institutional support, such as a formal edict from the government. For example the *Camat* could be elected by people in the sub-district, rather than appointed. However this proposal carries the risk that the *Camat* will try to buy his votes in return for giving away development activities. In addition the lack of democratic traditions and the principle of 'sole authority' may limit the effect of such edicts.

Certain structural changes in the village administration are needed to enhance the role of villagers in the development process. The present village administration does not cater for a really meaningful contribution from the local people in planning and decision making. Village officials should be more oriented and responsible towards the villagers in order to govern well and responsively. This may be stimulated by the following changes, which have become official government policies, but in practice are not yet always implemented:

- no appointments for life of the village headman, but elections every eight year with the possibility for one re-election (law on village administration, 1979);
- the capacity for villages to raise funds to remunerate village officials through the introduction of tax in 1987 (*Pajak Bumi dan Bangunan*);
- increased participation of more ordinary villagers and non-formal leaders with representatives of at least the most influential local leaders of hamlets as members of the LKMD and KPD.

Another suggestion for change is the phasing out of the allocation of *tanah bengkok* to village administrators, being remnants of a feudal system. Instead they should be eligible for certain benefits at the end of their fixed term (*tanah bengkok* is land allocated by village officials to compensate for their administrative duties) (Tjondronogoro, 1984);

In addition some administrative reorganization which has been under way since the start of the last Repelita (1989/90-1994/95) should be completed. For example, the centres for Land Rehabilitation and Soil Conservation (BRLKT) will become part of the provincial administration under the governor. Another example is the reorganization of the regional extension centres (BPP), which are presently under the authority of BIMAS, but which are planned to come under the authority of the head of the sub-district. If these plans materialize, local government will assume greater authority and more flexible procedures can be expected in which local adjustments of programme design can be made.

In order to develop extension processes which link extension workers, researchers and farmers, a reorganization of the agricultural extension service is needed. KEPAS (1988) and McCauley (1988) suggest a change in the extension service, presently organized on a regional and commodity crop basis, towards an agroecological zone basis. A 'menu' approach is proposed for each zone, in which farmers are presented with a range of land use practices suitable to their physical and socioeconomic conditions. The extension worker will assist them in making their choice of those crop varieties or practices which best serve their needs and capacities. Hence, they will fulfil the role as facilitator between the government authorities and the local people and help farmers to form opinions and express their needs. Whenever a need for more complicated technology arises, linkages to research institutes or specialist of sectoral agencies can be established.

8.2.4 *Managing the phased strategy*

The Java Social Forestry Programme (JSFP) has taught that in order to be successful, organizational change strategies require continued commitment from highly placed officials (Poffenberger, 1990). Therefore, the establishment of working groups is envisaged, composed of the major programme leaders, at district and national level. At district level this will involve Bangdes, the heads of sectoral agencies, BAPPEDA and if relevant a donor organization who will review results and respond to problems encountered in the field. At national level BANGDA, as central coordinating body; BAPPENAS, responsible for formulating development programme; and the central sectoral departments will be involved. This political coalition may be able to lobby effectively for decentralization (Poffenberger et al., 1990) and will be sensitive to political and socioeconomic changes. The specific strength of such working groups may be to channel information from monitoring of village development programmes to the central leaders.

The organizational structure in the development phase will take the form of a matrix in which the field staff is supervised by two managers; the head of the sub-district (the *Camat*) and the respective heads of sectoral agencies. A matrix structure gives a single organization, in this case the Department of Village Development (Bangdes) of the Ministry of Home Affairs, full authority over the organization of village development planning (figure 8.1). The working group at district level will support Bangdes in their management task. In the expansion phase a network structure will be formed at national level, in which the national working group support BANGDA in the coordination (but not control) of the groups at district level.

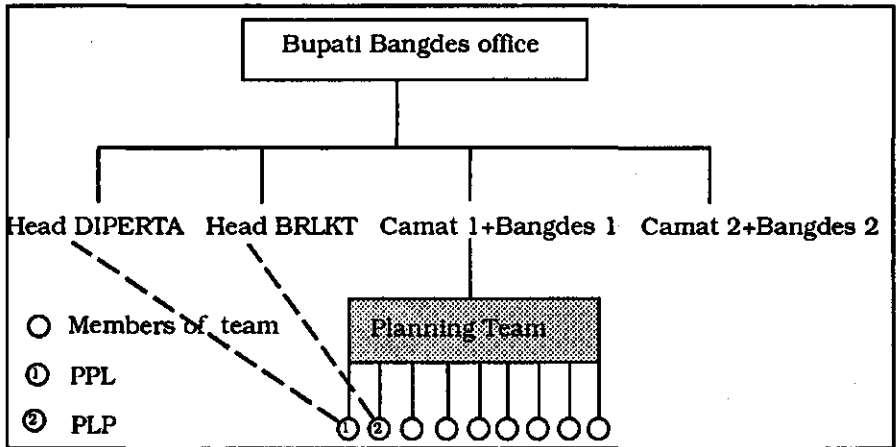


Figure 8.1: Matrix structure as organization structure in the development phase .

The management of the strategy will be supported by an external (donor) organization during all phases to take the 'risk' of experimenting with this new approach, to finance (part of) the programme, and to analyse constraints in present government procedures. The support will however vary according to phase as discussed below.

In the first phase these external organizations give intensive support in organizing and preparing the trial cases; they will guide the planning process and introduce new ways of working with the villagers. The trial phase may be implemented within the framework of a donor project, which operates at local level, but has the prestige to gain support from national policymakers.

In the second phase external support is expected to play a major role in the development of guidelines and training programmes on the planning strategy. Besides, some support may be welcomed in developing new extension programmes. The donor organization will participate in the working groups at district level. In this capacity they will help with the timing for entering the third phase of the strategy at national level and subsequently participate in the national working group. The timing for entering the expansion phase will depend on whether sufficient experience is gained with implementing local level planning at district level. Only when a cadre of experienced planners is in place, and a change in the role and attitude of government staff has been initiated, can the strategy be presented at national level.

In the expansion phase, involvement of external (donor) organizations will be limited to providing support in the management of the strategy.

It will support Bangdes in this respect by strengthening its competence to organize and coordinate integrated village development planning, so that it becomes more responsive to local needs and opportunities. The participation of a donor organization in the working groups may prevent policymakers at national level from losing interest and withdrawing support for the strategy which would then be in danger of losing momentum and might fail to emerge from its trial phase. It may also need to sensitize political leaders to the risks of too rapid an expansion (Paul, 1983). Such working groups will perform well only by jointly planning activities and political support. Successful functioning of the working group will be based on the motivation and vision of the participants, as well as on clear goals and objectives for the group (Seymour and Fisher, 1990).

During implementation of the strategic model, the distinction between phase II and phase III will not be as sharp as presented in the model. Some changes in procedures and organization will be necessary in phase II in order to improve communication between villagers and field staff. The same holds true for the improvement of government's competence to implement sustainable land use programmes. Changing this competence should not be postponed to the third phase; instead some flexibility of rules and budget procedures should be introduced in phase II.

8.3 Constraints to implementing the strategic model on Java

8.3.1 Constraints in the trial phase

One of the three objectives of this study has been formulated as: 'to test the feasibility of the strategy for the uplands of East Java Indonesia'. In this section the feasibility of the trial phase of the strategy will be evaluated based on experiences with implementing the trial cases on Java. In this evaluation the question is raised as to what extent the results of local level planning on Java can respond to the other two research objectives (section 1.3):

- to develop a strategic model for people-centered planning of sustainable land use programmes;
- to develop a flexible planning method that can serve as a land use management tool at a local level.

These two research objectives can be translated into the following four questions:

- 1 Is the strategic model people-centered in a sense that planning creates opportunities for local people to make their own choices about which land use strategy to follow?

- 2 Can the strategic model lead to sustainable land use programmes in a sense that production potential is maintained; farmers can adapt to new practices and a more equal distribution is realized?
- 3 Is the planning method suitable as a land use management tool at a local level?
- 4 Is the planning method flexible in use?

Some observations on the above mentioned questions are presented in the following.

1 Can the strategic model result in people-centered planning?

The village administration is at present still strongly oriented to following government rules and procedures: meeting the needs of local people is subordinate to carrying out the government's programme and satisfying official requirements. Thus, government programmes may dominate the outcome of the planning process. The involvement of field staff from sectoral agencies in the planning team heightens this danger. Under pressure to reach targets and select sites for sectoral programme activities they may exploit village level planning as a tool for site and participant selection for their centrally designed standard programmes.

At the start of this study planning is proposed as a land use management tool 'to identify the local land use system; its different users, their interests, power structures, local constraints and opportunities for development'. Planning at the start of the development process has the major advantage that interventions are based on local perceptions and priorities. Many development projects may not however have the flexibility to follow-up the outcome of such initial planning since they often have been formulated to be sector oriented and reflect a focused approach to the management of natural resources (Wiersum, 1991). The latter implies that a project offers a package (or a 'menu') of interventions from which the local people have to choose, even though they may have different interests or priorities for development. Although some degree of participation in planning of implementation of such packages can be attained, it may be concluded that the dominance of government programmes currently curtails the possibilities to use planning to meet the needs of local people.

To conclude, planning in the trial phase is only to a limited extent people-centered. Although it identifies interventions based on local perceptions and priorities, government programmes still dominate the outcome of the planning process.

2 Can the strategic model lead to sustainable land use programmes?

One of the objectives of the strategic model is achieving sustainable land

use management through paying attention to maintenance of production potential, adaptability of farmers and equity in distribution of resources and benefits. In practice however the focus is more on the 'adaptability' and 'equity' issues rather than the maintenance of production potential. Wiersum (1991) observes that often the technical soundness of the interventions and ecological sustainability are not sufficiently assessed. Therefore the strategic model advocates a learning process at local level whereby interventions can be adapted continuously. The degree of adoption of an intervention by a farmer serves as a criterion for its sustainability and economic profitability. Moreover stronger linkages with research stations are proposed through field staff of sectoral agencies in order to support development of technically sound interventions.

The strength of the strategic model is its focus on identifying the strategy of land users to manage their land. By planning at the local level, in cooperation with local field staff and villagers, needs and capacities of different land user groups can be identified. Hence, the ability of farmers to resist or overcome changes in bio-physical and socioeconomic conditions and to respond to new opportunities (adaptability) can be taken into account when planning interventions.

Moreover the aim of more equal distribution of resources and benefits is difficult to attain because the village elite and sectoral agencies may dominate the programming of activities. The identification of different land user groups creates a basis for a more equal division of resources and benefits. However, involving the *pamong desa* (village administration), in village development planning means that the elite is involved, which is in a powerful position to influence the final programming of activities and to involve its families as major target groups. Hence, the most powerful groups in the local society may try to gain maximum benefits from external support. Experience of trial cases (chapter 6) has proved the 'willingness' of the local participants in the planning exercise to offer their own land for new innovations and their preference for working with family members, or established groups of advanced farmers. Thus only a limited impact on the poorest groups, as experienced in the JSFP, can be expected when implementing the planning strategy. Moreover, the focus of the government on direct effects and targets through increasing production implies a preference for working with the more progressive and better educated farmers. Many field staff do not subscribe to the view that involving the poor is necessary for the sustainable management of natural resources. It should be realized however, that although the programme does not reach the poorest farmers within a village community, most villages in the uplands of Java are poor by absolute standards. In particular those with marginal lands and areas of extreme poverty should be chosen.

Also the lack of capable and well-functioning women's organizations and minimal support from female field staff are handicaps to the realization of a more equal distribution between men and women. In the strategy for village development planning women participate in the planning team, and gender-specific analysis and planning is part of the planning method. However, at present the government automatically assigns responsibility for all development activities for women to the PKK. This is the family welfare organization made up of wives of government officials which exists in every village (see chapters 5 and 6). Since not all these women necessarily possess the motivation, skills and experience to formulate and implement development activities, these programmes often display poor results. Thus, without technical and social support to the PKK sustainable Women In Development (WID) activities are difficult to realize. A solution might lie in increasing the involvement of NGOs in implementing development activities for and with women. On Java some have proved to be successful in such activities.

To sum up, the strategic model contributes to achieving sustainable land use programmes as it identifies the adaptability of farmers and creates a basis for a more equal division of resources and benefits. However, the dominance of the village elite and the sectoral agencies makes the impact on the poorest groups in village societies limited. The maintenance of production potential can only be achieved through a learning process of continuous adaptation of interventions and the establishment of linkages with research stations.

3. *Is the planning method suitable as land use management tool at local level?*

The feasibility of the planning method by villagers and field staff of sectoral agencies has been demonstrated in the trial cases. However whether this planning method results in improved land use management has not been proven yet. Only some preliminary results from planned programmes are available. These taught that changes in the socioeconomic services of government agencies are difficult to attain in the trial phase. For example one outcome of the village development plans is the identification of local organizations' needs for developing the capacity of individuals or groups to manage resources. Another is the need for arrangements in social infrastructure (land tenure, marketing, rules and legislation). Preliminary results of implementing village development plans show that such issues were not sufficiently addressed and that socioeconomic services did not go beyond standard activities such as: formation of farmer groups, initiating saving activities, and running a training course in agricultural development by district government staff. But given that the implementation of these plans has been the responsibility of government staff without any external support they cannot be expected to change their own role as community organizers without

changes in their organization and without having undertaken training. External support is needed during the trial phase not only to draw up plans but also, during the process of implementation and monitoring, to achieve these changes in socioeconomic services. Arrangements in social infrastructure cannot be accomplished at the local dimension, as this requires political support from regional and central levels.

Experience with implementing the plans as proposed in the trial cases teaches that more time needs to be spent on the identification of land use strategies and needs of farmers (see chapter 6). The participation of poor Javanese farmers in planning is beset by difficulties since they are unaccustomed to speaking out and raising ideas in front of government officials. It may be better to divide up the planning process into two or three parts with a few days or weeks in between each, to give farmers and field workers more possibilities for participation, time to reflect, develop ideas and form an opinion. Also more time is needed for group meetings and participatory design.

Thus, the planning method is suitable provided that external support in planning and implementing socioeconomic services is given and sufficient time is allocated for the participation of Javanese farmers in the planning of interventions.

4. Is the planning method flexible in use?

Present budget procedures make a flexible learning process of planning, implementation and monitoring by farmers and field workers impossible. Budgets are only disbursed for a single year, and in general field workers withdraw their support when the government involvement stops. Moreover, uncertainty over allocation of funds and a long time lapse between budget planning and disbursement makes villagers extremely skeptical. It reduces the motivation of local field staff and villagers to commit themselves in the long-term to government-induced development activities. Besides these procedures, the motivation of the extension worker also determines the flexibility of the planning method. At present he sees his role as an implementer of physical measures prescribed in the plans (chapter 6). When a government project stops, his involvement is also ended. With such temporary and uncertain government support it is very difficult to bring about a flexible learning process that aims at sustainable changes in land use strategies.

The use of standard rules and procedures for implementing the planned programmes makes the final outcome of village level planning inflexible in use. Although programmes may be developed based on local needs and capacities of the different user groups, standard forms and rules determine the implementation. This can result in a serious loss of quality

to the plans, as they become less flexible and less well-adjusted to local situations and needs.

Summarizing, in the trial phase temporary and uncertain government support and the use of standard rules and procedures for implementing the planned programmes make the final outcome of the planning method inflexible in use.

8.3.2 *Expected constraints to implementing a phased learning process on Java*

No experience has been gained as yet with implementing the development and expansion phase. However the Java Social Forestry Programme (JSFP) (chapter 7) has followed a comparable phasing strategy and has already reached the expansions phase. Given the similarities between this programme and the strategy for village development planning, the experience of the JSFP provides some valuable lessons for the feasibility of the phased learning process of the strategic model.

Incongruence of objectives in the phased strategy

During the implementation of the phased planning strategy objectives of the government may appear to be different from the objectives set in the strategic model. For example, in Indonesian agencies short-term results dominate long-term benefits and physical, tangible results get higher priority than social changes or the increased participation and development of the poor. Thus the communication processes suggested in the strategic model will be difficult to complete. This is illustrated by the JSFP, where the objectives of community participation and equity have been sacrificed in order to pursue production objectives. By comparing the phases of the JSFP with the strategy for village development planning, it can be concluded that the JSFP has leap-frogged the development phase (phase II) (figure 8.2). Too great an emphasis on the rapid expansion of physical targets resulted in the neglect of changes in attitudes, of local organization development, of training programmes and of guidelines for the planning method and procedures. This rapid expansion might also threaten the village development planning strategy. Halfway through the implementation of the four trial cases, requests have already been made to implement the village development planning at district level.

For the planning strategy a difference in objectives may also be anticipated because sectoral agencies might want to use village development planning for site and participant selection, and promotion of their (standard) sectoral programmes. This is particularly likely to happen when no changes in communication processes and competence of government organizations have been achieved.

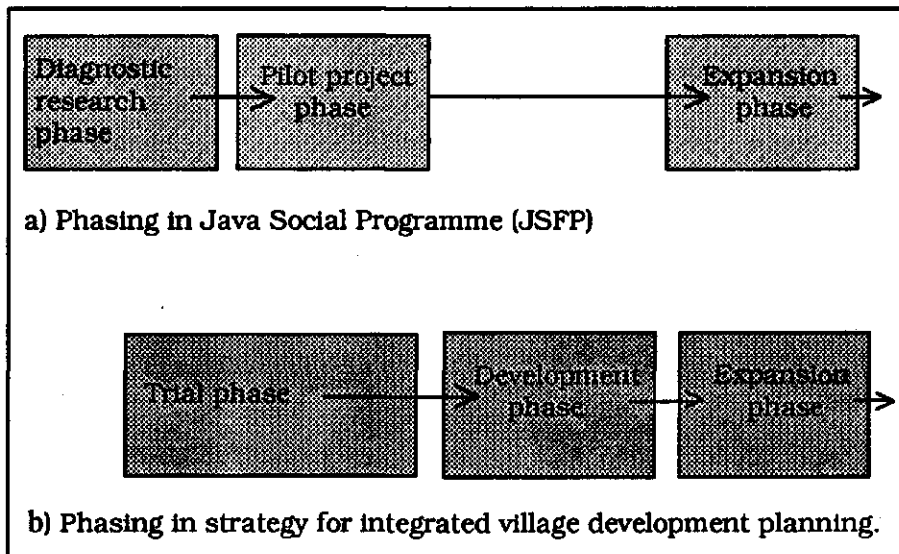


Figure 8.2: Comparison of phases in the SFP and the strategy for village development planning .

Another incongruence in objectives, which might be expected in this strategy, relates to the expansion of the scope of village development planning. During the implementation of the trial cases, the government has asked why the plans should be focused on sustainable land use and why health care, credit or trade development should not be included. Such loss of focus is indeed likely to occur since the government's interpretation of regional development is one of industrial and trade activities (see: 'Guidelines on the implementation of integrated area development programme in the framework of regional development', Instruction 14, 1990). When the government accepts this village development planning as a manageable tool for formulating and implementing development projects, it will try to use it with as wide a scope as possible.

Different interpretation of phases

The comparison of the phasing strategy of JSFP and the planning strategy, illustrated in figure 8.2, also leads to some interesting conclusions concerning the interpretation of phases. Both have based their phasing strategy on the learning process approach of Korten (1980). However they have been applied differently. The JSFP follows a centrally-guided bottom-up process, in which a diagnostic research phase is followed by a pilot project phase and a subsequent expansion phase. The village development planning strategy, however, is based on implementing trial cases at local level, followed by a development and expansion phase. In the first approach the central government is involved from the start and provides political support through its working group, consisting of the programme leaders of SFC, the NGO 'Bina Swadaya', the university and

the Ford Foundation. Thus, the strategy has been well-embedded in an institutional framework.

A negative impact on the JSFP of the involvement of national policymakers from the start may have been the too rapid expansion and focus on reaching physical targets, while changes in extension processes have been neglected. On the other hand, the fact that the planning strategy for village development starts on an experimental basis makes it liable to remain dependent on external support and thus lose momentum in the trial phase (box 8.3). However, in this way the likelihood of overly rapid expansion is reduced and external influences may guarantee the transition to the second and third phase.

In the Kali Konto Project four trial cases on integrated village development planning have been implemented and a planning method has been developed. Thus, the end of phase I of the strategy has been reached without national support. However, government agencies at district and sub-district level were involved and the allocation of budgets for these plans went through BAPPEDA I and II. Also, the status of the Project and its capacity to organize workshops and produce papers on the subject appeared to interest policymakers at national level. However, the Project ended in April 1990 and since then no final agreement has been made regarding the start of a new Project. Because of this delay there will be a long gap in the phasing of the strategy. During this period the enthusiasm and commitment of the government at district and sub-district level to further develop the strategy may disappear and staff involved in the trial phase may be transferred. This will result in setbacks for the continuation of phase I through new trial cases. To conclude, external support by donor agencies may help to implement the strategy at local level but only under the condition of continuity in their support.

Box 8.3 Example of project support to implement the strategy

Although the JSFP has enjoyed support from the higher echelons of national government, decentralization of management authority to mid-level government staff has not taken place. Therefore these staff have barely been exposed to the conceptual and procedural innovations of Social Forestry (Seymour, 1991). However, in implementing the planning strategy for village development such constraints are not expected, as mid-level staff of BAPPEDA and the UDKP have been involved from the beginning; deconcentration trends have already started within the margins of the government administration and further expansion of these processes is planned.

Competence to manage the phased strategy

If a well-organized State Forest Corporation is unable to effectively implement the various stages of such a phased programme, what can be expected from a rather loose confederation of sectoral agencies, within the framework of the UDKP at sub-district and BAPPEDA at district/provincial level? The agencies involved are often badly managed, with limited operational budgets and poorly motivated staff. Although managing the strategy may present greater difficulties, conversely there may be certain advantages in comparison with the management of the JSFP, such as:

- no strong mandate of reaching production targets;
- no tradition of conflict over the use of natural resources;
- less rigidly commodity oriented;
- weaker organizations which are more susceptible to change (less organizational strength and fewer financial resources).

However, these relative advantages can only be utilized to the full if combined with external support in managing the implementation of the strategy. Equally crucial is the development of the competence and motivation of staff through extensive training and guidance of programmes.

Experiences with the JSFP reveal that NGO involvement in training, back-stopping, monitoring and evaluation activities was outstripped by the SFC's agenda. By setting the rapid expansion of reforestation targets as its main objective, staffing and funding for the social approach lagged. Thus the involvement of NGOs was relatively reduced. This may also happen to the village development planning strategy. The policy of the Indonesian state as 'sole authority' in development will sustain the government's reluctance to involve NGOs in development planning. External financial support and lack of in-house capacity may merit a change in attitude towards NGOs. However, involving NGOs is also not without problems. They have, for instance, a limited capacity, as those NGOs who possess national credibility are already over-claimed by donor organizations. Also, the capability of their staff to provide social services and focus on the rural poor may be limited. Members of the bigger NGOs often come from the urban middle classes and have difficulties in identifying with the poor (Schulte Nordholt, 1991).

Functioning of the working group

The performance of a working group will depend on clear objectives for the group, the joint planning of activities and political support. With a history of non-cooperation between the government agencies, these tasks will not be easy. In the JSFP it took a relatively long time to reach the stage, where working groups members became familiar with each

other and with their roles (Seymour and Fisher, 1990). In the national working group BANGDA and BANGDES are supposed to work together, with BANGDA as central coordinating body. BAPPEDA's fall under BANGDA, while the LKMD and UDKP's fall under BANGDES. In practice, this confusing organizational set up and rivalry between these directorates will jeopardize their functioning in the working group.

This evaluation of the application of the strategic model results in a number of general conclusions and recommendations for implementing the strategy which are presented in the next chapter.

9 CONCLUSIONS AND POLICY RECOMMENDATIONS

In the previous chapter the feasibility of the strategic model on Java has been evaluated. It is concluded that the planning strategy cannot address all objectives of this study and some expected constraints in managing the phased strategy are described. This results in a number of general conclusions on conditions to be fulfilled for successful implementation of the strategy that are described in this chapter (section 9.1). Subsequently these conclusions are translated into policy recommendations for government and non-government organizations (section 9.2).

9.1 Conclusions

Structural changes

Strict budget and implementation procedures and limited communication between field staff and the local people make a learning process of planning, implementation and monitoring by farmers and field workers impossible. It means that realization of structural changes in the organizational competence of the government are a prerequisite for implementing village level planning.

Such structural changes in communication processes and the organizational competence are difficult to bring about overnight as government procedures and structure are strongly influenced by socio-cultural-political phenomena. It requires political support of external (donor) organizations in managing the strategy. This includes taking financial and political risks, to initiate social changes and to stimulate cooperation between different agencies. External support is therefore necessary in all three phases and cannot be limited to phase I and part of phase II as anticipated in the strategic model.

These observations underscore that although the strategy is aimed at the local level, it cannot be realized at local level only as it requires involvement of regional and national government organizations to deal with changing communication processes and organization structures.

Clear and realistic objectives

During implementation an incongruence may arise between objectives formulated as premises for the strategic model and objectives of the implementing agencies. This may result in:

- a preference of the agencies for short term tangible production targets at the expense of community participation. Hence, the second phase may be skipped;
- village development planning being used on a much larger scale than initially intended for all kinds of rural development activities.

Furthermore the planning method has the intention of being people-centered, emphasizing the identification of needs, constraints and opportunities of user groups at hamlet level, in order to fulfil the adaptability and equity mandate. However, the formulation of a programme and the setting of priorities for implementation may still be dominated by the village elite or the sectoral agencies. This means that the say of local people in planning their own development activities remains limited, while only a limited impact on the poorest groups of the village society can be attained. This suggests that objectives in village development planning should be set realistically in the knowledge that short term results will always dominate long term benefits, tangible results will get higher priority than social changes, while top-down influences from sectoral agencies will prevail.

Decentralization processes

In addressing the organizational dimension, a choice should be made between following an approach of 'decentralized trial cases' versus a 'centrally guided bottom-up process'. With the former a learning process is possible in which the motivation and capacity of local and regional governments is slowly built up. Through the involvement of mid-level government staff a deconcentration process in planning can already start in the trial phase. However in the first two phases, the strategy is not embedded enough in the institutional framework at national level and lacks the political power to lobby for changes in organizational competence. A 'centrally guided bottom-up process' has more possibilities of bringing about changes in organizational competence in the earlier stages. On the other hand this approach involves the risk that national policymakers will push for rapid expansion and focus on reaching targets. Whichever approach is chosen, it needs careful management to avoid the pitfalls mentioned above.

Although decentralization processes are advocated in the strategic model, reality shows that a government may prefer deconcentration processes out of fear of losing control and/or because of lack of democratic traditions. The principle of "sole authority" of the Government of Indonesia is in contradiction with the aims of stimulating the participation of villagers in the development process. Consequently the planning

strategy can only attain the objectives of people-centered development to a certain extent. It is therefore necessary that the government is shown better results in terms of sustainable land use development programmes at local level implemented by highly motivated villagers. Only then may they be motivated to accept such a participatory approach at the cost of losing some power or consensus.

Slow-paced development process

To implement a participatory planning process as advocated through this planning strategy is a slow process. The skills, capacities and motivation of local organizations and government staff need to be built up for village development planning. At the beginning the process is time-consuming and has limited reach. However, this slow pace at the start (phase I and II) will pay dividends when the local capacities for planning sustainable programmes at village level have increased to a level where local organizations are able to plan their own programmes. Then the development process may take place at a much faster pace. This does however require a commitment to an initially slow process. This is often not to the liking of government agencies and international donors as they want to see directly measurable results of their programme activities which justify their expenditure.

9.2 Policy recommendations for government and donor organizations

The previous conclusions indicate that if this strategy of a phased learning process is to be implemented successfully the following commitments are required from both donors and governments together as well as from each of them separately.

Structural changes

Donors and governments should:

- make a long-term commitment to implement all phases;
- ensure continuity of support during the whole process;
- support working groups at district and national level to jointly plan activities and set up a system in which they keep in touch with activities at the local level;
- manage the learning process and take care that the competence and motivation of the participants in the local level planning process is such that the expansion phase can be attained.

Governments should:

- improve employment conditions for most field staff and rural people to motivate them to promote a more equal division of resources and benefits;

- attribute more value to locally developed plans rather than trust blindly to centrally designed blue-prints;
- increase the flexibility of procedures concerning the implementation of activities and the disbursement of budgets;
- recruit more female extension workers and support women's organizations and Women In Development programmes of sectoral agencies.

Donors should:

- provide substantial and continuous external political support, training and guidance.

Clear and realistic objectives

Donors and governments should:

- possess the flexibility to adjust the process to new circumstances, policies and needs;

Governments should:

- become aware of the need to improve the management capacity of local people in order to reach sustainable and productive land use management.

Donors should:

- make every effort to understand and interpret the given objectives of the government organization before the design of a programme;

Decentralization processes

Donors and governments should:

- strengthen the competence of a government organization for responsive governance and management of the strategy and support them in their tasks

Slow-paced development process

Donors should:

- make a long-term commitment of at least ten years (e.g. three years trial phase; three years development phase; four years expansion phase);

Donors and governments should:

- show strong commitment to a slow-paced development process, especially in phase I and II;

10 EPILOGUE

The previous chapter illustrates how the new process requires tremendous changes in the competence of government organization. These changes demand large investments of both a political and financial nature. The question is whether the government is willing to make these investments and whether the benefits of the planning strategy match these costs. To answer this question an economic assessment would be needed, comparing the present costs of government programmes to their very meager successes. Such an analysis is beyond the scope of this study. However, repeated failure of expensive government programmes and the high costs of the present extension approach (chapter 5) may for example have been the reason for the Indonesian Government to start a procedure for village development planning in the first place. The major gains from this are the enhanced participation of villagers and field staff, their improved motivation and capabilities and enhanced cooperation and coordination of sectoral agencies in the planning process. Enthusiastic responses during the trial phase indicate that at least major parts of the strategy are feasible.

Experiences on Java have illustrated the importance of congruence between the design of land use interventions; the development of communication processes and the development of organizational competence. If communication processes lag behind, the interventions will fail too; if a good organization structure is lacking to implement these interventions no sustainable land use can be attained. The complexity of managing this congruence demands a phased strategy in which each phase focuses on achieving a different fit between (i) interventions and land use system; (ii) land use system and organizations and (iii) interventions and organizations. The whole range of actors involved who strive for sustainable land use - from programme managers to villagers - will have to contribute to achieving this fit. They will only be able to do so when they view **PLANNING AS A LEARNING PROCESS**.

This planning strategy of trial, development and expansion phases does not have an end. Society is dynamic and subject to continuous change. This requires that the strategy adjusts to meet changing circumstances and demands. This may imply that in the expansion phase the need for new trial projects is identified. Hence there is no end to this planned development process, which seems an appropriate observation with which to finish.

REFERENCES

- Ackoff, R.L. 1984. 'On the nature of development and planning.' In: *People centered development, contributions toward theory and planning frameworks*. D.C. Korten and R. Klaus (ed.). Kumarian press, West Hartford, Connecticut.
- Alfonso, F.B., 1983. 'Assisting farmer controlled development of communal irrigation systems.' In: *Bureaucracy and the poor, closing the gap*. D.C. Korten and F.B. Alfonso (ed.), Asian Institute of Management, Manila.
- Altona, T., 1914. 'Rapport noopens het voorloopig hydrologisch onderzoek van het Brantasgebied.' *Tectona*, no. 7 (NI).
- Anon., 1985. 'Graap's method. Experiences in Burkina Faso.' *Ileia Newsletter*, no. 4, pp. 12-13.
- Ashby, J.A., 1985. 'Methodology for the participation of small farmers in the design of on-farm trials.' *Agricultural Administration*, no. 22, pp. 1-19
- Axinn, G.H., 1988. *Guide on alternative extension approaches*. Agricultural Education and Extension Service (ESHE) Human Resources Institutions and Agrarian Reform Division, FAO, Rome.
- Bajracharya, P., R. Morse and A. Pongsapich, 1987. *Village voices in rural development and energy planning: participatory action research in Nepal, Bangladesh and Bhutan*. East-West Centre, Honolulu, Hawaii.
- Ban, A.W. van den and H.S. Hawkins, 1988. *Agricultural Extension*. Longman, London.
- Barbier, E.B., 1988. *Sustainable agriculture and the resource poor: policy issues and options*. (LEEC paper; 88-02) IIED/UCL Environmental Economics Centre, London.
- Barbier, E.B., 1989. 'Cash crops, food crops and sustainability: The case of Indonesia.' *World Development*, vol 17, no. 6, pp. 879-895.
- Barbier, E.B., 1989. *Economics, Natural Resources, Scarcity and Development*. Uitgever, London.
- Barreau, E.M. and K. Djati, 1983. 'The Citanduy project in Java: Toward

- a new approach to watershed stabilization and development.' In: *Soil erosion and conservation*. S.A. El-Swaify, W.C. Moldenhauer and A. Lo (ed.), Iowa.
- Bekkering, T.D. and K.P. Kucera, 1990. *The Lebakharjo forest area. Natural resources and human interference*. Konto River Project, Working Paper no. 32, Malang.
- Berkes, F., 1989. *Common property resources. Ecology and community-based sustainable development*. Belhaven Press, London.
- Bijlmer, J., 1987. *Ambulante straatgroepen in Surabaya: een studie naar kleinschalige economische activiteiten*. Vrije Universiteit Amsterdam.
- Blaikie, P., 1985. *The political economy of soil erosion in developing countries*. Longman, London.
- Blaikie, P. and H. Brookfield, 1987. *Land degradation and society*. Methuen, London.
- Blair, H.W. and P.D. Olpadwala, 1987. 'Planning for appropriate forestry enterprises: lessons from rural development experience in third world countries.' *New Forests*, no. 2, pp. 41-64.
- Bryant, C. and L.G. White, 1982. *Managing Development in the Third World*. Westview Press, Boulder, Colorado
- Budd, W.W., I. Duchhart and L.H. Hardesty, 1990. (ed.) *Planning for agroforestry*. Isomul series no. 6c Elsevier, Amsterdam.
- Bunch, R., 1982. *Two ears of corn; a guide to people-centered agricultural improvement*. World Neighbours. Oklahoma city.
- Bunting, A.H., 1986. 'Extension and technical change in agriculture'. In: *Investing in rural extension; strategies and goals*. Gwyn Jones (ed.). Elsevier, London.
- Carruthers, I. and R. Chambers, 1981. 'Rapid appraisal for rural development.' *Agricultural Administration*, no. 8, pp. 407-422.
- Carson, B.R., 1985. *Assessment of a small watershed using aerial photography: an example from a remote hill region in Nepal*. Paper presented to the international workshop on watershed manage

- ment in the Hindukush-Himalaya Region, 14-19, October 1985. Chengdu, China.
- Carson, B.R., 1987a. *Agroecosystems; a comparative study of agroecosystems in East Java and Nusa Tenggara Timur*. KEPAS, Malang.
- Carson, B.R., 1987b. *A comparison of soil conservation strategies in four agroecological zones in the upland of East Java*. KEPAS, Malang.
- Carson, B.R. 1989. *Soil conservation strategies for upland areas of Indonesia*. Occasional Paper No. 9 East-West Environment and Policy Institute, Hawaii.
- Cernea, M.M., 1985. *Putting people first, social variables in rural development*. World Bank Publication, Oxford University Press, New York.
- Cernea, M.M., 1988. *Nongovernmental organizations and local development*. World Bank Discussion Paper no. 40, Washington DC.
- Cernea, M.M., J.K. Coulter and J.F.A. Russell, 1985. *Research, extension, farmer. A two-way continuum for agricultural development*. A World Bank and UNDP symposium, Washington DC.
- Chambers, R., 1983. *Rural development: Putting the last first*. Longmann, London.
- Chambers, R., 1985. 'Shortcut methods of gathering social information for rural development projects.' In: *Putting people first*. M. Cernea (ed.), Oxford University Press, New York.
- Chambers, R., A. Pacey and L.A. Thrupp, 1989. *Farmer first: Farmer innovation and agricultural research*. Intermediate Technology Publications, London.
- Chambers R., 1987. 'Shortcut methods in Social Information Gathering for Rural Development Projects.' In: *Rapid Rural Appraisal*. Proceedings of the 1985 international conference Khon Kaen University, Khon Kaen.
- Cochrane, G., 1983. *Policies for strengthening local government in developing countries*. World Bank Staff Working Paper no. 582, Washington DC.
- Conway, G.R., 1985. 'Agroecosystem analysis.' *Agricultural adminis-*

tration, no. 20, pp. 31-55.

- Conway, G.R., 1987a. The properties of agroecosystems. *Agricultural Systems*, no. 24, pp. 95-118.
- Conway, G. R., 1987b. *Farmers and agricultural research: complementary methods*. IDS workshop. Institute of Development Studies at the University of Sussex, London.
- Conway, G.R., 1987c. 'Rapid rural appraisal and agroecosystem analysis: A case study from northern Pakistan.' In: *Rapid rural appraisal. Proceedings of the 1985 international conference*. Khon Kaen University, Khon Kaen.
- Conway, G.R., J.M MacCracken and J.N. Pretty, 1989. *Training notes for agroecosystem analysis and rapid rural appraisal*. IIED, London.
- Crouch, B.R., 1984. 'The problem census: farmer centered problem identification.' In: *Training for agriculture and rural development*. FAO, Rome.
- Daru, R.D. and W.E.J. Tips, 1985. 'Farmers participation and socio-economic effects of a watershed management programme in Central Java (Solo river basin, Wiroko watershed).' *Agroforestry Systems*, no. 3, pp. 159-180.
- Dent, D., 1988. *Guidelines for land use planning*. Fifth draft. FAO, Rome.
- Development Perspectives, 1988. *Research coordination and planning development programme BAPPEDA I, West Java, Indonesia (1985-1988)*. Final Report, Arnhem.
- DGIS, 1991. *Een wereld van verschil, Nieuwe kaders voor ontwikkelingssamenwerking in de jaren negentig*. Den Haag.
- DHV Consultants, 1990a. *Lesti Watershed and South Malang area, basic inventory*. Konto River Project, Malang.
- DHV Consultants, 1990b. *Konto River Project phase 3 and phase 3 extension. Final report, volume 1, experiences with watershed management*. Konto River Project, Malang.
- Donner, W., 1987. *Land use and environment in Indonesia*. C. Hurst & Company, London.

- Duchhart, I., 1988a. 'Towards an integrated planning method for agroforestry development.' In: *Viewpoints on agroforestry, second renewed version*. K.F. Wiersum (ed.), Wageningen Agricultural University, Wageningen.
- Duchhart, I., 1989. Landscape Planning: 'An Approach to Local-Level planning?' In: *Local level planning for sustainable land use*. R.P.F. van Haeringen and K.F. Wiersum (ed). BOS-Document no. 9, Wageningen.
- Duchhart, I., F. Steiner and J.H. Bassman, 1989. 'Planning methods for agroforestry.' *Agroforestry Systems*, no. 7, pp. 227-258.
- Douglas, M.G., 1989. *Integrating conservation into the farming system. Land use planning for small holder farmers. Concepts and procedures*. Commonwealth Secretariate, London.
- Easter, K.W. and M.N. Hufschmidt, 1985. *Integrated watershed management research for developing countries*. Workshop report. Environment and Policy Institute, East-West Centre/USAID, Honolulu/Washington DC.
- Eckholm, E. 1979. *Planting for the future: forestry for human needs*. World Watch Paper no 26. Washington DC.
- Edwards, M., 1989. 'The irrelevance of development studies.' *Third World Quarterly*, no. 11 (1).
- FAO, 1976. *A framework for land evaluation*. ILRI Publication no. 22, ILRI Wageningen.
- FAO, 1984. *Land evaluation for forestry*. FAO Forestry Paper no. 48. FAO, Rome.
- FAO, 1985. *Tree growing by rural people*. Forestry Paper no. 64. FAO, Rome.
- FAO, 1988. *Participatory monitoring and evaluation, handbook for training field workers*. FAO Regional Office for Asia and the Pacific, Bangkok.
- FAO, 1989. *Community forestry, participatory assessment, monitoring and evaluation*. Community Forestry Note no. 2. FAO, Rome.
- FAO, 1990. *Social Forestry in Indonesia*. Workshop report. Field Document no. 25. FAO/RWEDP, Bangkok.

- Ffolliott, P.F. and J.L. Thames, 1983. *Environmentally sound small-scale forestry projects. Guidelines for planning*. VITA Publications, Arlington.
- Fisher, R.J., 1989. *Indigenous systems of common property forest management in Nepal*. Environment and Policy Institute, East-West Centre, Honolulu, Hawaii.
- Fox, J., 1987. 'Why Land evaluations for agriculture go awry.' In: *Quantified Land Evaluation*. K.J. Beek, P.A. Burrough and D.E. McCormack (ed.). ITC, Enschede.
- Fox, J., M. Bratamihardja, Poedjorahardjo, 1990. 'Social forestry planning: Searching for a middle way.' *ODI Social Forestry Network Paper* no. 10d London.
- Fox, J. and R.J. Fisher, 1990. *Community organization and government bureaucracies in social forestry*. Working Paper no. 22, East-West Centre, Honolulu, Hawaii.
- Frerks, G.E., 1991. *Participation in development activities at the local level: Case studies from a Sri Lankan village*. PhD. Thesis Wageningen Agricultural University, Wageningen.
- Fresco, L., H. Huizing, H. van Keulen, H. Luning and R. Schipper, 1990. *Land evaluation and farming system analysis for land use planning*. FAO Guidelines; Working Document. Rome.
- Friedmann, J., 1984. 'Planning as social learning.' In: *People centered development, contributions toward theory and planning frameworks*. D.C. Korten and R. Klauss (ed.). Kumarian Press, West Hartford, Connecticut
- Gibbs, C.J.N. and D.W. Bromley, 1986. *Institutional arrangements for sustainable management of rural resources: common property regimes and conservation*. Paper prepared for the Conference on Conservation and Development: Implementing the World Conservation Strategy. Ottawa.
- Gittinger, J.P., 1982. *Economic analysis of agricultural projects*. John Hopkins University Press, Baltimore/London.
- Graaff, J. de and K. Dwiwarsito, 1990. *Economic monitoring and evaluation of Konto River Project implementation activities. (cost benefit analysis of watershed development activities)*. Konto River Project Communication no. 15, Malang.

- Graaff, J. de and R. Schipper, 1991. 'An economists' view of environmental management.' In: *Making haste slowly. Strengthening local environmental management in agricultural development*. H. Savenye and A. Huysman (ed), Royal Tropical Institute, Amsterdam.
- Grandin, B.E., 1986. *Adding community level variables to FSR: A research priority*. Paper presented at the IMMI-Rockefeller Foundation Workshop on Social Science Perspectives on Managing Agricultural Technology, Lahore.
- Hamilton, S.M. and P.N. King, 1984. *Watersheds and rural development planning*. East-West Center, Honolulu, Hawaii.
- Hardcastle, P.D., 1987. *Micro planning for social forestry. A description of the system designed for Karnataka Social Forestry Project*. ODI Social Forestry Network paper 4c, London.
- Hartono Wirjodarmodjo and Mulyadi Bratamihardja, 1984. 'Policies, strategies and design of forest development on the island of Java.' In: *Strategies and designs for afforestation, reforestation and tree planting*. Proceedings of an international symposium, 19-23 September 1983, Wageningen. K.F. Wiersum (ed.) Pudoc, Wageningen.
- Haskoning, 1988. *Medium term regional development plan 1989/90-1993/94, development region Sukabumi*. West Java regional development planning project LTA-47.
- Heaver, R., 1982. *Bureaucratic politics and incentives in the management of rural development*. World Bank Staff Working Paper no. 537, Washington DC.
- Heringa, P.K., 1939. 'The state of reforestation in view of the industrialization of East Java. *Tectona*, no. 32, pp. 256-264.
- Hildebrand, P.E., 1980. 'Combining disciplines in rapid appraisal; The sondeo approach.' *Agricultural Administration*, no. 8, pp. 423-432.
- Hoek, A.I. van den, 1984. *Landscape planning and design of watersheds in the Kathama Agroforestry Project, Kenya*. MSc. Thesis Wageningen Agricultural University, Wageningen.

- Hoek, A.I. van den, 1989. 'Land use planning for social forestry; A planning methodology at local level for social forestry programmes on Java, Indonesia.' In: *Local level planning for sustainable land use*. R.P.F. van Haeringen and K.F. Wiersum (ed). BOS-Document no. 9, Wageningen.
- Hoek, A.I. van den and M.S. Schomaker, 1988. *Local land development planning: guidelines for a training course*. Konto River Project, Working Paper no. 23, Malang.
- Hoek, A.I. van den, M.S. Schomaker, and J.M. Zonneveld, 1988. *Local land development planning: a methodology for integrated village development planning*. Konto River Project, Working Paper no. 22, Malang.
- Hoek, A.I. van den and T.D. Bekkering, 1988. 'Planning of agroforestry in Java.' In: *Planning for Agroforestry*. W.W. Budd, I. Duchhart, L.H. Hardesty and F. Steiner (ed.). Isomul Series no. 6c Elsevier, Amsterdam
- Hoek, A.I. van den, D.D. Widjajanto and F. Wasisto, 1989a. *Local land development planning. A case study in Sumberejo village, Sub-district Pagak*. Konto River Project, Working Paper no. 30, Malang.
- Hoek, A.I. van den, D.D. Widjajanto and F. Wasisto, 1989b. *Integrated village development planning. A case study in Sumberbening village, sub-district Bantur*. Konto River Project, Working Paper no. 31, Malang.
- Hoek, A.I. van den, D.D. Widjajanto and F. Wasisto, 1990. *Integrated village development planning. A case study in Sumberejo village, Sub-district Poncokusumo*. Konto River Project, Working Paper no. 33, Malang.
- Hoek, A.I. van den, 1991. 'Local level planning in the uplands of East Java, Indonesia.' In: *Making haste slowly. Strengthening local environmental management in agricultural development*. H. Savenye and A. Huysman (ed), Royal Tropical Institute, Amsterdam.
- Hofstede, G., 1981. 'Management control of public and not-for-profit activities.' *Accounting, Organizations and Society*, 6 (3), pp. 193-211.

- Hufschmidt, M.M., 1986. 'A conceptual framework for watershed management.' In: *Watershed resources management*. K.W. Easter, J.A. Dixen and M.M. Hufschmidt (ed.), Studies in Water Policy and Management no. 10, Westview Press, Boulder, Colorado.
- Ickis, J.C., 1983. 'Structural responses to new rural development strategies.' In: *Bureaucracy and the poor, closing the gap*. D.C. Korten F.B. Alfonso (ed.). Asian Institute of Management, Manila.
- ICRAF, 1984. *Draft report of the joint ICAR/ICRAF diagnostic and design exercise at the Bhaintan watershed in the outer Himalaya of Uttar Pradesh*. ICRAF, Nairobi.
- ICRAF, 1987. *D&D user's manual. An Introduction to Agroforestry Diagnosis and Design*. ICRAF, Nairobi.
- Israel, A., 1987. *Institutional development-incentives to performance*. John Hopkins University Press, Baltimore.
- Jackson, K.D. and L.W. Pye, 1978. *Political power and communications in Indonesia*. University of California Press, Berkeley, Los Angeles.
- Kamp, J. van der and P. Schuthof, 1988. *Methods of participative technology development, theoretical and practical implications*. MSc Thesis Wageningen Agricultural University/Ileia, Wageningen/Leusden.
- KEPAS, 1985. *The critical uplands of Eastern Java: an agroecosystems analysis*. Brawijaya University, Malang.
- KEPAS, 1988. *Pendekatan Agro-ekosistem pada pola pertanian lahan kering: hasil penelitian di empat zone agro-ekosistem Jawa Timur*. Kelompok Penelitian Agro-ekosistem, Malang.
- Khon Kaen University, 1987. *Rapid Rural Appraisal*. Proceedings of the 1985 international conference, Khon Kaen.
- Kleefmann, F., 1985. *Handelen, handelingscontext en planning, een theoretisch-sociologische verkenning*. Wageningen Agricultural University, Wageningen.
- Korten, D.C., 1980. 'Community organization and rural development: a learning process approach.' *Public Administration Review*, no. Sept/Oct, pp. 480-511.

- Korten, D.C., 1983, 'Social development: putting people first.' In: *Bureaucracy and the poor, closing the gap*. D.C. Korten and F.B. Alfonso (ed.) Asian Institute of Management, Manila.
- Korten, D.C., 1984. 'People-centered development: toward a framework.' In: *People centered development, contributions toward theory and planning frameworks*. D.C. Korten and R. Klauss (ed.). Kumarian Press, West Hartford, Connecticut.
- Korten, D.C. (ed), 1987. *Community Management. Asian experiences and Perspectives*. Kumarian Press, West Hartford, Connecticut.
- Korten, F.F., 1983. 'Community participation: a management perspective on obstacles and options.' In: *Bureaucracy and the poor, closing the gap*. D.C. Korten and F.B. Alfonso (ed.), Asian Institute of Management, Manila.
- Korten, D.C. and F.B. Alfonso, 1983. *Bureaucracy and the poor, closing the gap*. Asian Institute of Management, Manila.
- Korten, D.C. and R. Klauss, 1984. *People centered development. Contributions toward theory and planning frameworks*. Kumarian Press. West Hartford, Connecticut.
- Kucera, K.P., 1990. *Framework for semi-detailed planning in integrated watershed management and development studies (with examples of upper-Lesti and Barek)*. Konto River Project, Discussion Paper no. 31, Malang.
- Long, N., 1977. *An introduction to the sociology of rural development*. Tavistock Publications, London.
- Long, N. and J.D. van der Ploeg, 1989. 'Demythologizing planned intervention: an actor perspective.' In *Sociologia Ruralis*, Vol. XXIX-3/4.
- Machfud, D.S., 1990. 'Social forestry in disputed upland areas in Java.' *ODI Social Forestry Network Paper*, no. 10b, London.
- Maxwell, S., 1984. *Farming system research: Hitting a moving target*. Discussion paper. IDS, Brighton.
- McCauley, D.S., 1985. *Upland cultivation systems in densely populated watersheds of the humid tropics-opportunities and constraints relating to soil conservation: a case from Java, Indonesia*. Working paper. East-West Centre. Honolulu, Hawaii.

- McCauley, D.S., 1986. 'Watershed management in Indonesia: the case of Java's densely populated upper watersheds.' In: *Watershed Resources Management: An integrated framework with studies from Asia and the Pacific*. K. W. Easter, J.A. Dixon and M.M. Hufschmidt (ed.). Studies in Water Policy and Management no. 10, Westview Press, Boulder, Colorado.
- McCauley, D.S., 1988. *Overcoming institutional and organizational constraints to watershed management for the densely populated island of Java*. Paper presented at the 5th international soil conservation conference: land conservation for future generations, Bangkok.
- McCracken, J., K. Suryanata, D.D. Widjanto, M.H. Sawit and H. Yusron, 1988. *Latihan dan lokakarya analisis agroekosistem, kasus Jawa Tengah dan Timur*. Kelompok Penelitian Agroekosistem, Malang.
- Mol, P.W. and K.F. Wiersum, 1990. *Communal management of forests in South and Southeast Asia*. Department of Forestry, Wageningen Agricultural University, Wageningen.
- Molnar, A., 1989. *A review of rapid rural appraisal tools for use in natural resource management planning and project design and execution*. Draft Paper, FAO/Asia Environment Division World Bank, Rome/Washington DC.
- Nibbering, J.W., 1988. 'Forest degradation and reforestation in a highland area in Java.' In: *Changing tropical forests. Historical perspectives on today's challenges in Asia, Australia and Oceania*. J. Dargavel, K. Dixon and N. Semple (ed.). Australia National University, Canberra.
- Nibbering, J.W., 1989. *Transitions in land use in upland central Java. A case study in the Gunung Kidul*. Paper presented at the conference on Indonesia's New Order: Past, present, future, Australia National University, Canberra.
- Overholt, C., M.P. Anderson, K. Cloud, J.E. Austin (ed.), 1984. *Gender roles in development projects: A case book*. Kumerian Press, West Hartford, Connecticut.
- Ozgediz, S. 1983. *Managing public service in developing countries*. World Bank Staff Working Paper no. 583, Washington DC.

- Palte, J.G.L., 1990. *Upland farming on Java, Indonesia: a socio-economic study of upland agriculture and subsistence under population pressure*. Rijksuniversiteit Utrecht.
- Paul, S., 1982, *Managing development programs; the lessons of success*. Westview special studies in Social, Political and Economic Development, Westview Press, Boulder, Colorado.
- Paul, S., 1983. *Strategic management of development programmes. Guidelines for action*. Management development series no. 19. ILO, Geneva.
- Paul, S., 1987. *Community participation in development projects. The world bank experience*. World Bank Discussion Papers no. 6, Washington DC.
- Peluso, N.L., 1986. *Report on social forestry field research in West and Central Java, October 1984 - October 1985*. Perum Perhutani and Ford Foundation, Jakarta.
- Peluso, N.L. and M. Poffenberger, 1989. 'Social forestry in Java: Reorienting management systems.' *Human Organizations*, vol. 48, no. 4, pp. 333-344.
- Peluso, N.L., M. Poffenberger and F.J. Seymour, 1990. 'Reorienting forest management on Java.' In: *Keepers of the forest, land management alternatives in Southeast Asia*. M. Poffenberger (ed.), Kumarian press, West Hartford, Connecticut.
- Perum Perhutani, 1985. *Studi kasus social forestry beberapa keluarga di Jawa Tengah dan Jawa Barat (II)*. Jakarta.
- Pickering, K., 1979. 'Soil conservation and rural institutions in Java.' *IDS Bulletin* 10 (4) pp. 60-66.
- Poats, S.V. and H. Sims Feldstein (ed.), 1990. *Working Together: Gender Analysis in Agriculture. Volume 1: Case studies Volume 2: Teaching notes*. Kumarian Press, West Hartford, Connecticut.
- Poffenberger, M., 1990. *Keepers of the forest, land management alternatives in Southeast Asia*. Kumarian Press, West Hartford, Connecticut.
- Putte R.A. van de, 1989. 'Land Evaluation and project planning.' *ITC Journal*, no. 2, pp. 139-143.

- Quarles van Ufford, Ph. (ed), 1987. *Local leadership and programme implementation in Indonesia*. Free University Press, Amsterdam
- Quarles van Ufford Ph., D. Kruyt and T. Downing, 1988. *The hidden crisis in development: development bureaucracies*. Free University Press, Amsterdam.
- Raintree, J.B., 1987. 'The State of the art of agroforestry diagnosis and design.' *Agroforestry Systems*, no.5, pp. 219-250.
- Raffles, T. S., 1965. *The History of Java*. (s.n.), 1830, London.
- Rappard, F.W., 1951. 'Ontbossing en herbebossing van het bovenstroomgebied van de Brantas-rivier.' *Tectona*, no. 41, pp. 286-287.
- Rocheleau, D.E. and A.I. van den Hoek, 1984. *The application of ecosystems and landscape analysis in agroforestry diagnosis and design: A case study from Kathama sub-location, Machakos District, Kenya*. ICRAF working paper no. 11, Nairobi.
- Rocheleau, D.E., 1987. 'The user perspective and the agroforestry research and action agenda.' In: *Agroforestry: realities, possibilities and potentials*. H.L. Gholz (ed). ICRAF/Martinus Nyhoff Publishers, The Hague.
- Röling, N.G., 1988. *Extension science. Information systems in agricultural development*. Cambridge University Press, Cambridge.
- Rondinelli, D.A., 1983. *Development projects as policy experiments. An adaptive approach to development administration*. Methuen & Co, London/New York.
- Rondinelli, D.A., J.R. Nellis, G.S. Cheema, 1984. *Decentralization in developing countries; a review of recent experience*. World Bank Staff Working Paper no. 581, Washington DC.
- Rutten, R., 1987. *Notitie over onderzoek naar overlevings strategieën van huishoudens*. Unpublished paper, Amsterdam.
- Savenye, H. and A. Huysman (ed), 1991. *Making haste Slowly. Strengthening local environmental management in agricultural development*. Royal Tropical Institute, Amsterdam.

- Sasono, A., 1989. 'NGO's and People's movements in the development process.' In: *Non governmental participation in development in Indonesia*. Report of an expert consultation, Royal Netherlands Embassy, Jakarta.
- SBRLKT Brantas, 1990. *Laporan local land development plan (pengembangan rencana tingkat desa), volume 1*. Malang.
- SBRLKT Brantas, 1991. *Laporan pengembangan rencana tingkat desa (pemantauan th 1)*. Malang, Indonesia.
- Schulte Nordholt, N.G., 1981. *Opbouw in opdracht of ontwikkeling in overleg?* Academisch Proefschrift. Sneldruk Boulevard, Enschede.
- Schulte Nordholt, N.G., 1987. 'From LSD to LKMD: participation at the village level.' In: *Local Leadership and Programme Implementation in Indonesia*. Ph. Quarles van Ufford (ed). Free University Press, Amsterdam.
- Schulte Nordholt, N.H., 1987. *State-citizen relations in Suharto's Indonesia: Kawula-Gusti*. CASP Erasmus University, Rotterdam
- Schulte Nordholt, N.H., 1991. *Toegestaan, binnen smalle marges: de positie en rol van NGO's in de Nieuwe Orde van Indonesie*. Universiteit Twente, Enschede.
- Schulte Nordholt, N.H., 1990. *Institutionele ontwikkeling: een poging to een creatieve oplossing*. Themadag ontwikkelingssamenwerking en institutionele ontwikkeling. Clingendael.
- Seymour, F. and L. Fisher, 1988. 'Emerging lessons from social forestry programmes in southeast asia (with special references to Indonesia).' In: *Social forestry in Indonesia, workshop report*. Field Document no. 25. FAO/RWEDP, Bangkok
- Seymour, F.J., 1991. 'Social forestry on public lands in Indonesia: A blurring of ends and means.' In: *Social forestry, communal and private management strategies compared*. D. Challinor and M. Hardt Frontdorf (ed.). The Paul H. Nitze School of Advanced International Studies. The John Hopkins University, Baltimore.
- Simmonds, N.W., 1986. 'A short review of farming system research in the tropics.' *Experimental Agriculture*, no. 22, pp. 1-13.

- Staveren, J.M. and D.B.W.M. van Dusseldorp, 1980. *Framework for regional planning in developing countries: methodology for an interdisciplinary approach to the planned development of predominantly rural areas*. International Institute for Land Reclamation and Improvement, Wageningen.
- Sterkenburg, J.J., 1987. *Rural Development and rural development policies: cases from Africa and Asia*. Rijksuniversiteit Utrecht.
- Stoney, C. and M. Bratamihardja, 1990. 'Appropriate agroforestry technologies in Java.' In: *Keepers of the forest, land management alternatives in Southeast Asia*. M. Poffenberger (ed.), Kumarian press, West Hartford, Connecticut.
- Sutadipradja, E. and H. Hardjowitjito, 1984. *Watershed rehabilitation program related to the management of river and reservoir sedimentation in Indonesia*. Paper presented at the symposium on management of river and reservoir sedimentation, East-West Centre, Honolulu, Hawaii.
- Sunderlin, W. (ed), 1990. 'Social equity and social forestry in Java: Preliminary findings from four case studies.' *ODI Social forestry Network Paper* no. 10a, London.
- Tjondronegoro, S.M.P., 1984. *Social organization and planned development in rural Java*. Oxford University Press, Singapore.
- UN/ESCAP, 1986. *Operationalizing local-level planning*. United Nations, Economic and Social Commission for Asia and the Pacific, Bangkok.
- Uphoff, N.T., 1985, 'Fitting projects to people.' In: *Putting people first; sociological variables in rural development*. M.M. Cernea (ed.) World Bank Publication, Washington DC.
- Uphoff, N.T. and M.J. Esman, 1974. *Local organization for rural development: analysis of asian experience*. Special Series on Rural Local Government. Rural Development Committee, Cornell University, Ithaca, New York.
- Uphoff, N.T., 1986. *Local institutional development; an analytical sourcebook with cases*. Kumarian Press, West Hartford, Connecticut.
- Waterston, A, 1965. *Development planning*. John Hopkins University Press, Baltimore, Colorado.

- Werter, F.J., 1992. *Organization for forestry extension in the Malakand Social Forestry Project*. Paper presented at Extension Coordination Meeting 24/2-26/2/1992 in Gilgit.
- White, B., 1989. 'International experiences with NGO's active in developing countries.' In: *Non governmental participation in development in Indonesia*. Report of an expert consultation, Royal Netherlands Embassy, Jakarta.
- Wiersum, K.F., 1974. *The Indonesian greening movement and related projects to control erosion in the upper Solo watershed*. Working Paper no. 13. Upper Solo Watershed Management and Upland Development Project, Solo.
- Wiersum, K.F., 1980. 'Erosie, plattelandsontwikkeling en bos op Java.' *Lanbouwkundig tijdschrift*, no. 92, pp. 338-345.
- Wiersum, K.F., 1988. Surface erosion in agroforestry systems. In: *Viewpoints on agroforestry, second renewed version*. K.F. Wiersum (ed.), Wageningen Agricultural University, Wageningen.
- Wiersum, K.F. 1990. 'Planning agroforestry for sustainable land use.' In: *Planning for Agroforestry*. W.W. Budd, I. Duchhart, L.H. Hardesty and F. Steiner (ed.). Isomul Series no. 6c Elsevier, Amsterdam
- Wiersum, K.F., 1991. 'A comparison of project approaches.' In: *Making haste slowly. Strengthening local environmental management in agricultural development*. H. Savenye and A. Huysman (ed). Royal Tropical Institute, Amsterdam.
- World Bank, 1988. *Indonesia: forest, land and water. Issues in sustainable development*. Unpublished.
- York, E.T., 1988. 'Improving sustainability with agricultural research.' *Environment*, 30(9) pp. 19-41, 37-40.
- Young, A., 1986. 'Land evaluation and agroforestry diagnosis and design: Towards a reconciliation of procedures.' *Soil Survey and Land Evaluation*, no. 5, pp. 61-76.

APPENDIX 1

PROGRAMME FOR VILLAGE DEVELOPMENT PLANNING IN SUMBEREJO II VILLAGE

NOVEMBER 27 - DECEMBER 23

WEEK I

day 1:

- introduction programme
- introduction approach for village development planning
- introduction Rapid Rural Appraisal techniques
- training in the use of these techniques

day 2:

- information from resource persons (head of the sub-district and the regional extension centre)
- brainstorming on key-issues for development of the village
- formulation of major key-issues and research questions

day 3:

- training in informal interviews
- training in the use of field form and questionnaire

day 4:

- first orientation in the village
- collection of secondary data
- informal interviews

day 5:

- collection and study of secondary data
- reformulation key-issues

WEEK II

day 1:

- field preparations
- field survey on terrain and land use conditions and informal interviews
- village meetings (in evening)

day 2:

- continuation field survey
- formal interviews
- noting down of observations and information per issue
- discussion and checking of data collection per issue and formulation of needs for additional data collection

day 3:

- informal interviews with key-respondents
- additional data collection
- village meetings

day 4:

- preparation of activity profile
- discussion on key-issues

day 5:

- discussion on key-issues

WEEK III

day 1:

- data processing; production of maps, tables, diagrams

day 2:

- data processing

day 3:

- analysis of key-issues

day 4:

- formulation of ideas for programme activities (conceptual plan)

WEEK IV

day 1:

- detailed analysis with potential target group in the field

day 2:

- detailed analysis through informal interviews
- data processing

day 3:

- participatory planning of project activities with target group

day 4:

- discussion on results participatory planning in team
- formulation of an integrated village development programme (in programme matrix)

day 5:

- finalizing of the programme

WEEK V

day 1:

- preparation of presentation
- presentation of the programme to villagers and local government officials

APPENDIX 2

STANDARD FORM FOR RAPID FIELD SURVEY ON TERRAIN AND LAND USE CONDITIONS

Name:

Observation site:

Terrain

Map unit:

Terrain unit: Dominant slope
percentage:

waterlogging/gullies/salinity

Terraced: Yes/No

Outward sloping
level
Inward sloping:

Bunded: Yes/No

%age Terraced
0 %
0-50 %
50-85 %
85-100 %

Soil Depth:

Soil Texture:

Soil Drainage:

0-20 cm

fine: till ...

poor

20-50 cm

medium: ... till ...

moderately well

50-100 cm

coarse: till ...

well or better

> 100 cm

Any other remarks on terrain:

Land Use

Map Unit:

If mixed form of land use in the area, indicate percentage: (e.g. tegal 40% kebun 60% or tegal 50% kebun 30% homegarden 20%)

Annual crops in the field:	Cropping Pattern:	Perennial Crops:	Planting System:	Diseases Occur:	Yields t/ha:
.....	on bunds	.....	.....
.....	in fields	.....	.....
.....	along path	.....	.....

Irrigation practices: non/semi-technical/local (supplementary)

Water shortages: Yes/No, remarks on water availability.

Forest Type:

Species:

Nat. Forest:

Plantation Forest:

Plantation System: . - tumpang Sari
- cemplongan
- other

Shrub/Belukar

Grass Land:

Any other remarks on land use:

APPENDIX 3: QUESTIONNAIRE
Adapted from Kali Konto Project , 1989

I. Identification

Date :
Enumerator:

Name (head of household):
Education (duration):
Farm size: . . . , ha;.....
Hamlet/RT:...../.....
Village:.....

II. Members of household

Number : -1=HH/- 2 -/ 3 -/ 4 -/ 5 -/ 6 -/ 7 -/ 8 -
Sex (M/F) :
Age (yrs old):

Employment outside own farm by h.h. members

Type (1) :
No. of days (in a month) :
Income :
(per month; Rp 1000)

Type (2) :
No. of days (in a month) :
Income :
(per month; Rp 1000)

III. Social-economical conditions

Type and condition of house?

brick (3); 'klenengan' (2); bamboo/wood (1)
good (3); medium (2); bad (1)
Floor: tile (3); cement (2); soil (1)

Any electricity? Yes (1); No (0)
Any radio? Yes (1); No (0)
Any TV set? Yes (1); No (0)
Any motor cycle? Yes (1); No (0)

IV. Information on land and cropping patterns

Plot number /- 1 -/ 2 -/ 3 -/ 4 -/ 5 -/ 6 -/ 7 -/ 8 -/
Land type
(irrigated land = 1; dry land with annual crops = 2; perennial crops = 3; home garden = 4;
intercropping on forest land= 5; brackish pond, etc. = 6; other = 7)

Plot area (0,01 ha)
Tenure (owner=1, other=0)

Cropping pattern (within last year)

(a = main crops; b = intercrops; / = relay)

First crop(s)	1	a ..	..	..	..	..	..	..	..	..
		b ..	..	..	..	..	..	..	..	..
Second crop(s)	2	a ..	..	..	..	..	..	..	..	..
		b ..	..	..	..	..	..	..	..	..
Third crop(s)	3	a ..	..	..	..	..	..	..	..	..
		b ..	..	..	..	..	..	..	..	..

No. of trees

Perennial crops :

(estate, fruits)

Wood :

(fuelwood/timber)

Production Rice Maize (dried) Cassava

First crop (dried) (sawah)(tegal)

kg/ha kg/ha kg/ha ton/ha

V. Animal husbandry

Type

/ - 1 - / - 2 - / - 3 - / - 4 - / - 5 - / - 6 - /
dairy drought buffalo sheep/ chicken
cattle cattle goat

No. of animals	..	..	..	..	..	..
No. reproductive	..	..	..	..	..	..
No. of adult male	..	..	..	..	..	..
No. of animals owned	..	..	..	..	..	..

Condition of the stable

(1=good; 2=medium; 3=poor)

Fodder

Grass & leaves (maize leaves, etc) (pikul per week)

- collected by the h.h.	..	..	..	..	..	..
- collected by labourer	..	..	..	..	..	..
- being bought (Rp./..)	..	..	..	..	..	..

VI. Consumption and availability of energy

Last week Usually per week

- How many pikul of fuelwood consumed?	.. pikul	.. pikul
- How many litre of kerosine consumed?	.. litre	.. litre

Last month Usually per month

- From where is fuelwood collected and about how many pikul?		
from own land (sawah, tegal)	..	..
bought from trader	..	..
bought from State Forest Authority	..	..
collected from forest area	..	..

APPENDIX 4: Examples of monitoring forms

1. Monthly planning and monitoring of activities

January	February	March	April	May	June
Application of manure	Maintenance of coffee seedlings	Maize sowing	Application of fertilizers		
Planting of coffee seedlings	Replanting coffee seedlings	Monitoring of survival rates	Fieldtrip		
Technical meeting on coffee planting techniques	Harvesting maize	Maintenance	Attention on coffee tree management		
Meeting farmers group saving programme	Meeting farmers group saving programme	Meeting farmers group saving programme	Meeting farmers group saving programme		

2. Monitoring form of physical results per month

Farmer	Land (ha)	Percentage of improved terraces	Number of coffee trees	Number of gliricidia cuttings	Yields of maize
1.					
2.					
3.					
4.					
5.					

3. Monitoring form for financial administration of farmer group

Savings/expenditure	January	February	March
Savings per farmer			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total per month:			
Total in cash:			
Expenditures:			

ABOUT THE AUTHOR

The author was born in 1960 in Oosterbeek, the Netherlands. In 1978 she completed her secondary education and started her study at the Agricultural University of Wageningen, the Netherlands. In 1985 she graduated in landscape planning with agroforestry, remote sensing and business administration as secondary subjects. As part of her study she worked for eight months at the International Council for Agroforestry (ICRAF) in Nairobi, Kenya, where she introduced a Diagnosis and Design (D&D) approach at supra-household level.

After her study she worked briefly at the Department of Landscape Planning at the Agricultural University Wageningen until she was offered a job in Indonesia. Here she stayed from 1986 till 1990 as associate expert for the Netherlands Government (DGIS) in the Kali Konto Watershed Management Project, East Java. Her work on village development planning formed the basis for this thesis. Back in Holland she carried out a literature study and started writing-up this book. The book was finalized in Northern Pakistan, where she has been living with her family since 1991. Currently she is involved in consultancy on village land use planning with the Malakand Social Forestry Project. The author has written several publication on village level planning.

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SAMENVATTING

Inleiding

Landgebruiksbeheer in de negentiger jaren staat voor de uitdaging om de lokale bevolking centraal te stellen in het ontwikkelingsproces door ze te steunen in het ontwikkelingsproces. bij hun keuze voor een eigen ontwikkelingsstrategie. Deze uitdaging geldt vooral voor de bovenstroomse gebieden waar de blauwdruk programma's voor het beheer van landgebruik van de centrale overheid een geringe kans van slagen hebben. De belangrijkste reden hiervoor is dat deze programma's vaak niet zijn aangepast aan de complexiteit en diversiteit van landgebruik in de bovenstroomse gebieden. Het beheer van landgebruik zowel een korte - als een lange termijnperspectief en is onderhevig aan snelle veranderingen. De verschillende rollen van privé-, staats - en gemeenschappelijke gronden, in combinatie met een complex systeem van gebruik en rechten, maken het beheer van landgebruik moeilijk te doorgronden.

Deze studie is een antwoord op deze uitdaging doordat het een nieuwe strategie behandelt voor het plannen van duurzame landgebruikprogramma's op lokaal niveau met de volgende doelstellingen:

- het ontwikkelen van een strategisch model voor duurzame landgebruikprogramma's waarin de lokale bevolking centraal staat;
- het ontwikkelen van een flexibele planningsmethode, die gebruikt kan worden als managementinstrument voor het beheer van landgebruik op lokaal niveau;
- het testen van de uitvoerbaarheid van deze strategie voor de bovenstroomse gebieden in Oost-Java, Indonesie.

Het strategische model

De twee belangrijkste uitgangspunten van dit model zijn:

- programma's worden gepland en uitgevoerd d.m.v een leerproces met zowel een lokale als organisatorische dimensie. De lokale dimensie bestaat uit een leerproces van planning, uitvoering en 'monitoring' van kleinschalige projecten. Het planningsproces is kort, maar geplande interventies worden regelmatig aangepast, gebaseerd op nieuwe inzichten en veranderende omstandigheden. In de organisatorische dimensie verloopt het leerproces in drie fasen te weten: de 'experimentele' fase, de 'ontwikkelings' fase en de 'expansie' fase. In deze dimensie kan de overheid leren hoe ze deze strategie voor het uitvoeren van planning op lokaal niveau moet managen en welke eisen dit stelt aan het veranderen van hun normen, houding en organisatorische competentie. Deze dimensie omvat de lokale, regionale en nationale overheid.

- drie variabelen moeten beschouwd worden in programmaplanning: het lokale landgebruikstelsel, de interventies en de uitvoerende en ondersteunende organisaties, zoals de overheid en niet-gouvernementele organisaties (NGO's). Duurzame landgebruiksprogramma's zijn alleen mogelijk als deze drie variabelen goed op elkaar zijn afgestemd.

In het strategisch model zijn deze twee uitgangspunten gecombineerd: een goede relatie tussen de variabelen wordt bereikt door een leerproces. Omdat het moeilijk is om de drie variabelen goed op elkaar af te stemmen, wordt een gefaseerde benadering toegepast. Deze bestaat uit de volgende drie stappen; een 'experimentele' fase, een 'ontwikkelings' fase en een 'expansie' fase. In de 'experimentele' fase gaat de aandacht uit naar het afstemmen van interventies op het lokale landgebruikstelsel. Dit kan worden bereikt door de uitvoering van 'trial cases' waarin dorpingen, veldwerkers van overheidsorganisaties en lokale leiders bekend raken met deze nieuwe benadering voor het plannen van duurzame landgebruiksprogramma's op lokaal niveau. In de 'ontwikkelings' fase wordt specifieke aandacht besteed aan de relatie tussen organisaties en het landgebruikstelsel. Door het onwikkelen van de 'human resources' en communicatieprocessen veranderen de vaardigheden en houding van de betrokkenen. In de 'expansie' fase gaat de aandacht uit naar een goede relatie tussen interventies en organisaties. In deze fase is de planningsbenadering geaccepteerd en wordt hij toegepast op nationaal niveau. Veranderingen in de overheidsstructuur en - procedures, zoals decentralisatieprocessen en het versterken van lokaal leiderschap moeten in deze fase worden gerealiseerd. Door het proces op te splitsen in de drie fasen worden de complexe problemen, die gepaard gaan met de planning van duurzaam landgebruik, beheersbaarder en kan stap voor stap het uiteindelijke doel de drie variabelen op elkaar af te stemmen, worden bereikt.

Planningsmethode

Voor het afstemmen van de drie variabelen in de experimentele fase, moet een planningsmethode worden toegepast om gegevens te verzamelen en te analyseren. Deze gegevens worden vervolgens met behulp van participatieve planningstechnieken gebruikt voor het ontwikkelen van effectieve programma's. Er is echter geen kant en klare planningsmethode beschikbaar die voldoet aan deze eis. In plaats daarvan is een combinatie van bestaande benaderingen, methoden en technieken nodig.

Drie benaderingen zijn hiervoor van belang n.l: landgebruiksontwikkeling, voorlichting en projectmanagement. In het algemeen gesproken dekt iedere benadering een verschillende kant van het strategische model. De

ontwikkeling van landgebruik richt zich op de relatie tussen interventies en het landgebruikstelsel; voorlichtingsprocessen kunnen gebruikt worden om organisaties en het landgebruikstelsel op elkaar af te stemmen, terwijl de relatie tussen organisaties en interventies verbeterd kan worden met de hulp van projectmanagementtechnieken.

Voor de planning van landgebruiksentwikkeling in de experimentele fase zijn een aantal bestaande methoden en technieken relevant. Dit zijn 'Farming System Analysis', 'Land Evaluation', 'Agroecosystem Analysis', 'Landscape Planning', 'Rapid Rural Appraisal' en 'Gender Analysis'. De criteria zoals geformuleerd in het strategische model bepalen welke aspecten van iedere methode of techniek bruikbaar zijn voor de ontwikkeling van een nieuwe methode. Geen van deze bestaande methoden en technieken is op zich zelf geschikt als operationele planningsmethode voor de uitvoering van de eerste fase van het model. Een combinatie van alle bruikbare elementen wordt voorgesteld.

In de experimentele fase gaat de aandacht uit naar de ontwikkeling van landgebruik, terwijl de mogelijkheden om voorlichtingsprocessen te ontwikkelen en om projectmanagement te beïnvloeden beperkt zijn. Daarom moeten de plannen voornamelijk aangepast worden aan de bestaande competentie van de organisatie. Binnen deze beperkingen echter, kan wel degelijk enige aandacht aan deze processen besteed worden door een stap toe te voegen aan de planning van landgebruik in de vorm van programmering. Deze programmering omvat gedetailleerde 'actieplannen' en een geïntegreerde programmamatrix.

Omstandigheden voor planning op Java

De omstandigheden voor de ontwikkeling van landgebruiksprogramma's in de bovenstroomse gebieden op Oost Java zijn divers en complex. Boeren hebben op deze diversiteit ingespeeld door verschillende strategieën voor landgebruik te ontwikkelen. Haaks hierop staan de standaard programma's van de overheid met uniforme en veelal vaste procedures voor de planning en uitvoering. Hoewel er procedures voor dorpsontwikkelingsplanning bestaan, functioneren ze niet als zodanig. Lokale organisaties die verantwoordelijk zijn voor dorpsontwikkelingsplanning hebben nog niet de vaardigheden om zulke plannen te ontwikkelen, en bovendien blijven de centraal georganiseerde sectorale diensten dit 'bottom-up'-proces domineren. De dominantie van de centrale overheid is een gevolg van de inlijving van een aantal sociaal-culturele elementen in hun politiek, zoals alleenheerschappij en harmonie. De overheid gebruikt deze elementen om autonome lokale organisaties in te kapselen in het overheidsstelsel en om de lokale leiders te binden aan overheidsregels en procedures.

Deze sterke gerichtheid op de overheid heeft twee belangrijke gevolgen

voor de huidige planning van interventies. Ten eerste, de interventies worden aangepast aan de competentie van de uitvoerende organisaties in plaats van dat deze hun competentie ontwikkelen om nieuwe taken uit te kunnen voeren. Ten tweede wordt er niet meer dan 'lip-service' gegeven aan de participatie van de dorpingen in de planning van hun ontwikkelingsprogramma's.

Ondanks deze tekortkomingen in de huidige procedure voor dorpsontwikkelingsplanning is er wel degelijk ruimte voor een verbetering. Deze is gericht op het tot stand komen van een evenwichtig proces waarin lokale behoeften en overheidssteun gecombineerd worden.

'Trial cases'

Deze constatering vormt de aanleiding tot een verdere ontwikkeling van een planningsmethode voor dorpsontwikkeling in de bovenstroomse gebieden in Oost-Java via een leerproces van 'trial cases'. De algemene doelstelling is om de kwaliteit van bestaande dorpsontwikkelingsplannen te verbeteren binnen de bestaande overheidsprocedures. Het planningsteam bestaat uit dorpingen en een veldstaf van de sectorale diensten, die gezamenlijk een planningsmethode uitvoeren bestaande uit een 'Rapid Village Appraisal', participatieve planning en programmering. Het resultaat is een geïntegreerd dorpsontwikkelingsprogramma, wat gericht is op de ontwikkeling van technologieën voor beheer van landgebruik, werkgelegenheidsprogramma's en ondersteunende sociaal-economische en fysieke infrastructuur.

Vier trial cases zijn uitgevoerd en de resulterende dorpsontwikkelingsprogramma's zijn geaccepteerd door de lokale overheid, waarbij Indonesische fondsen zijn gealloceerd. Het gebruik van bestaande planningprocedures en de betrokkenheid van de overheidsstaf in de planning maakt de strategie acceptabel op lokaal niveau en versnelt het institutionaliseringsproces. Aan de andere kant illustreren enkele voorlopige gegevens over de uitvoering van programma's, dat het gebruik van overheidsprocedures de resultaten sterk beïnvloedt. Hoewel deze programma's gebaseerd zijn op lokale behoeften, mogelijkheden en capaciteiten van de verschillende landgebruikers, bepalen deze overheidsregels de uitvoering in die zin dat ze minder flexibel en meer gestandaardiseerd worden.

Het strategisch model in de Javaanse context

De discussie over de uitvoerbaarheid van het strategische model in de Javaanse situatie bestaat uit twee delen.

Ten eerste, worden de mogelijkheden voor toepassing van het model per fase besproken. De 'experimentele' fase bestaat uit het uitvoeren van 'trial cases' in dorpsontwikkelingsplanning; de 'ontwikkelings' fase omvat het uitvoeren van deze planning op een regionaal niveau,

trainingprogramma's, begeleiding, advies en participatieve 'monitoring'; terwijl de 'expansie' fase decentralisatieprocessen voor ogen heeft in de vorm van een verhoogd aantal gedeconcentreerde fondsen, verbeterd personeelsbeheer, de introductie van flexibele procedures en een verandering in de organisatiestructuur door verbetering van de competentie van de lokale overheid. Om het management van de strategie te ondersteunen worden werkgroepen op regionaal en nationaal niveau voorgesteld, waardoor de politieke betrokkenheid van invloedrijke personen wordt gegarandeerd. Externe organisaties (zoals donoren) zullen gedurende alle fasen steun moeten verlenen aan het management, om de risico's te dragen die met de introductie van een nieuwe strategie gepaard gaan.

Ten tweede, worden de beperkingen die verwacht kunnen worden tijdens de uitvoering van het model geëvalueerd. De uitvoerbaarheid van de experimentele fase van de strategie is gebaseerd op ervaringen met de 'trial cases'. Tijdens deze evaluatie rijst de vraag in hoeverre de resultaten van planning op lokaal niveau op Java beantwoorden aan de onderzoeksdoelstellingen zoals geformuleerd aan het begin van deze studie. Geen ervaring is nog opgedaan met de uitvoering van de 'ontwikkelings' en 'expansie' fase. Hiervoor zijn de ervaringen met het 'Java Social Forestry Programme' waardevol. Dit programma heeft een vergelijkbare faseringsstrategie gevolgd maar verkeert al in de expansie fase.

De ervaringen hebben betrekking op: (i) incongruentie van doelstellingen tussen de donor en overheidsorganisatie in de zin van productie versus bevolkingsparticipatie; (ii) beperkte invloed op de ontwikkeling van de armsten; (iii) geen betrokkenheid van vrouwen, terwijl zij tot de belangrijkste gebruikers van het bos behoren; (iv) sterke hiërarchische organisatie, die leidt tot geformaliseerd en inflexibel beleid voor uitvoering; (v) een te snelle expansie ten koste van management en training; en (vi) een beperkte rol van de NGO's vanwege de lage prioriteit voor training en management.

Conclusies en beleidsaanbevelingen

De evaluatie resulteert in een aantal conclusies betreffende voorwaarden waaraan moet worden voldaan voor succesvolle uitvoering van de strategie. Deze conclusies zijn:

- hoewel de strategie gericht is op het lokale niveau, kan ze niet op het lokale niveau alleen uitgevoerd worden, omdat dit een samenwerking vereist van de regionale en nationale overheidsorganisaties om veranderingen in communicatieprocessen en organisatiestructuren te kunnen realiseren;
- de doelstellingen voor dorpsontwikkelingsplanning moeten

- realistisch worden geformuleerd, aangezien korte termijn resultaten altijd de lange termijn perspectieven zullen domineren, tastbare resultaten een hogere prioriteit zullen krijgen dan sociale veranderingen, terwijl top-down invloeden van sectorale diensten zullen overheersen;
- bij het plannen van de organisatorische dimensie moet een keuze gemaakt worden tussen een benadering van gedecentraliseerde 'trial cases' en centraal geleide 'bottom-up' processen. Onafhankelijk van de keuze voor een strategie is goed management vereist om problemen met institutionalisering (eerste geval) of van een te snelle expansie (tweede geval) te voorkomen;
 - het is noodzakelijk om de overheid goede resultaten te laten zien in de vorm van succesvolle programma's voor duurzaam landgebruik, uitgevoerd door gemotiveerde en enthousiaste mensen. Slechts dan kan de overheid gemotiveerd raken om deze strategie te accepteren ten koste van een verlies aan invloed.
 - de uitvoering van een participatief planningsproces is aanvankelijk een langzaam proces, dat een langdurige politieke betrokkenheid van de overheid vereist.

Deze conclusies zijn vertaald in een aantal beleidsaanbevelingen voor donoren en lokale overheden met betrekking tot: langdurige en continue betrokkenheid; ontwikkeling van de managementcapaciteit en motivatie van de betrokken mensen; en het versterken van de competentie van de organisatie voor verantwoord beleid.

Ervaringen op Java hebben het belang geïllustreerd van de samenhang tussen het plannen van landgebruiksinterventies, de ontwikkeling van communicatieprocessen en de ontwikkeling van de organisatorische competentie. Alle mensen die een rol spelen bij het bereiken van duurzaam landgebruik - van dorpelingen tot programmamanagers - zullen moeten helpen om deze samenhang te realiseren. Ze zullen dat alleen kunnen doen als ze planning zien als een leerproces.