This manual came into existence through a process of two years. Many organizations and individuals participated either with technical advice and project documentation, case studies, relevant information, and also financially:

**Government Organizations**

- Ministry of Agriculture, Fisheries and Forestry; Department of Forestry and Wildlife
- Ministry of Agriculture, Fisheries and Forestry; Department of Agronomy
- Ministry of Agriculture, Fisheries and Forestry; Department of Fisheries
- Ministry of Agriculture, Fisheries and Forestry; Provincial Forest Office; Mondulkiri
- Ministry of Environment, Department of Nature Conservation and Protection
- Ministry of Land Management Urban Planning and Construction; General Department of Land Management and Urban Planning
- Ministry of Land Management Urban Planning and Construction; Department of Cadastre and Geography

**Non Government Organizations**

- Concern Worldwide
- Handicap International
- World Wide Fund for Nature

**Projects**

- CBNRM (Cambodia Area Rehabilitation and Regeneration Project and IDRC), Ratanakiri
- Cambodia German Forest Project; (Technical Coopération-Federal Republic of Germany), Kompong Speu
- Land Use Planning Unit for mined Area, (Cambodia Area Rehabilitation and RegenerationProject and World Vision International-Cambodia), Battambang
- Land Management Project, (Technical Coopération-Federal Republic of Germany), Cambodia
- Participatory Natural Resources Management of the Tonle Sap Region, (Food and Agriculture Organization of the United Nation), Siem Reap
- Integrated Food Security Program; (Technical Cooperation-Federal Republic of Germany), Kampot
- Participatory Management of Mangrove Resources, Koh Kong
• Provincial Development Program; (Technical Cooperation-Federal Republic of Germany), Kompong Thom
• Non Timber Forest Products Project, (Oxfam GB), Ratanakiri
• Sustainable Management of Resources in the Lower Mekong Basin Project, Cambodia

Individuals

• Christoph Feldkötter; Consultant for GIS, Cambodia
• Doug Henderson; Consultant for Community Forestry
• Florian Rock; Consultant for Participatory Land Use Planning
• Melissa Marschke; Project Advisor for Participatory Management of Mangrove Resources
• Meng Monyrak; Consultant
• Paul Im; Consultant (earlier), now ADB, Cambodia
• Wayne Gum; Consultant
• Renaud Bailleux; FAO
• Gordon Paterson; NTFP

List of Abbreviations and Acronyms

CB-NRM Community Based-Natural Resources Management
CF Community Forestry
CF-WG Community Forestry Working Group
CPR Common Property Resources
DAFF Provincial Department of Agriculture, Forestry and Fisheries
DFW Department of Forestry and Wildlife, Phnom Penh
DoA Department of Agronomy, Phnom Penh
DoE Provincial Department of Environment
DoF Department of Fisheries, Phnom Penh
DRDC District Rural Development Committee
FAO Food and Agriculture Organization, Rome
GDCG General Department of Cadastre and Geography in MLMUPC
GDLMUP General Department of Land Management and Urban Planning
GIS Geographic Information Systems
GPS Global Positioning System
HRD Human Resource Development
IO International Organizations
JFM Joint Forest Management
MAFF Ministry of Agriculture, Forestry and Fisheries
MLMUPC Ministry of Land Management, Urban Planning and Construction
MoE Ministry of Environment
MoEF Ministry of Economy and Finance
MoI Ministry of Interior
MoIME Ministry of Industries, Mines and Energy
MRC Mekong River Commission
How to use this PLUP Manual

<table>
<thead>
<tr>
<th>Your main interest is:</th>
<th>You should read chapter(s)</th>
</tr>
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<tr>
<td>to understand first of all what PLUP stands for and what this manual is all about</td>
<td>1.1, 1.2, 1.3, 1.4</td>
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<td>to know more about and understand the legal framework for land use planning in Cambodia</td>
<td>2.1, 2.2, 2.3 annex 2</td>
</tr>
<tr>
<td>policy development in land management on a national level</td>
<td>2.1, 2.2, 2.5 annexes 2 and 4</td>
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<tr>
<td>land classification systems for land management</td>
<td>2.3, 2.4, 3.7, annex 3</td>
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<tr>
<td>to understand who is involved and who actually conducts the PLUP process</td>
<td>2.5, 3.1, 3.6, 4.4, 4.6, 4.7 annexes 4 and 5</td>
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<td>to set up a training program in relation to PLUP for field staff</td>
<td>3.1, 3.2, annexes 5 and 6</td>
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<tr>
<td>to know more about the support services and the data resources available as well as the materials and equipments you will need to improve your on-going or planned PLUP activities</td>
<td>3.3, 3.4, 3.6, annexes 7, 8 and 9</td>
</tr>
<tr>
<td>to know specifically about mapping and mapping techniques</td>
<td>4.2.3 and annex 9</td>
</tr>
<tr>
<td>particularly on the &quot;participatory&quot; aspects of PLUP and you want to know more about the use of PRA in PLUP</td>
<td>1.2, 3.2, 4.2 annexes 1 and 11</td>
</tr>
<tr>
<td>to know where to start with PLUP, how to select a planning area and how to expand PLUP at a later stage</td>
<td>3.5 and 4.9</td>
</tr>
<tr>
<td>to know and understand the specific steps and procedures applied in PLUP</td>
<td>4. annex 10</td>
</tr>
<tr>
<td>to assist villagers in the development of village regulations as part of your on-going activities in community forestry, CB-NRM or PLUP regulations in chapter 8</td>
<td>4.5.2, annex 12 some examples of village</td>
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Cambodia, such as in Protected Areas/National Parks, in ethnic minority areas, or in de-mined areas to understand the role of monitoring and evaluation in PLUP under special conditions in Cambodia, such as in Protected Areas/National Parks, in ethnic minority areas, or in de-mined areas.

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The present manual on Participatory Land-use Planning (PLUP) in Cambodia is the outcome of a series of workshops on PLUP in which many actors involved in the implementation of community forestry approaches and community based natural resources management programs have participated. The organizations represented in the workshops shared their specific experiences, presented inputs and technical papers on specific issues related to PLUP. The majority of people involved in the development of this manual work in projects and provided their inputs from the point of view of practitioners. Others are staff of government organizations and helped in their capacity of being involved in formulating policies and legal documents with relevance to the concept of land-use planning.

The workshops were organized and facilitated by the “Sustainable Management of Resources Project in the Lower Mekong Basin (SMRP)” (MRC/GTZ). In addition to the series of workshops, a consultant on Natural Resources Management and PLUP was given the opportunity to visit a number of the projects concerned and to familiarize himself with their respective field activities in Cambodia. Numerous field reports, technical documents and case studies were collected and evaluated. Then, the same consultant, with the assistance of several other SMRP project staff, compiled a first draft document, which was circulated for comments. Eventually, in May 2001, a final document was elaborated on the basis of the comments and additions made.

The contents of this manual are therefore based on:

- Experiences from various field sites within Cambodia, which are supported by local NGOs, international NGOs, projects of bilateral and multilateral donors, and projects of the Royal Government of Cambodia.
- Experiences from other countries in the region as well as from other parts of the world. Some of these experiences have been documented and are available at resource centers in Cambodia (see chapter 3.3).

This manual has to be regarded as a starting point and will need to be built up, updated and developed further. All involved parties appreciate the need for further field testing, refinement, and more clarification of many of the yet unknown or uncertain aspects of PLUP, may it be legal, institutional, procedural or methodological issue.

The manual, therefore, is considered as a tool for practitioners, which encourages all of the users to keep on learning and improving its scope and its utility. Ideally, it should be updated and revised in regular intervals by all organizations, which have been involved in the formulation of this document and all those, which are going to start PLUP activities in Cambodia in future.

The editor and the many contributors to this manual hope that the coming years of practical field work and the on-going processes of clarification will generate sufficient motivation and energy to keep on improving this manual and thereby increasing its usefulness all stakeholders.

1.1 Target Groups and Purpose of this Manual

This manual mainly addresses technical staff with a professional background in agriculture, forestry, fishery, social sciences or cadastre working in the districts and provinces of Cambodia. At the same time this document could also be of use for people working in national institutions involved in natural resources management (e.g. MAFF, MoE, MLMUPC) in view of policy development. Finally, donor organisations could draw on the experiences reflected in this publication to either improve their on-going activities in this sector or the planning of new projects and programs. Contrary to some textbooks on land-use planning, this manual is also written for people without previous working experience in PLUP and with limited technical expertise.

Box 1: Target Groups of this Manual

- Technical staff with a background in agriculture, forestry, fishery, social sciences or cadastre, working in the districts and provinces of Cambodia.
- Government staff working in the relevant ministries and departments in Phnom Penh (MAFF, MoE, MLMUPC etc.).
- NGOs and other donor organizations funding programs of projects in Cambodia
The manual describes the basic concept and procedures of a participatory land-use planning process with specific reference to the situation in Cambodia. It attempts to provide some practical advice, orientation and guidance for people interested in participatory planning approaches and land management issues. The document contains some information on the present frame conditions for PLUP in Cambodia, such as legal aspects, tenure issues and the institutional set-up. This information, although quickly becoming obsolete, could be of particular relevance to Government and project staff working in the provinces, who are not always well informed about the latest legal developments taking place in Phnom Penh.

The manual should help decision-makers to create ownership on PLUP and serve as a first rough guide to the formulation of a national PLUP policy, a sub-decree on PLUP and national PLUP implementation guidelines for Cambodia. Furthermore, this document could possibly serve as an orientation for the development of other related guidelines, such as the refinement of the draft community forestry guidelines, or guidelines on joint forest management in concession areas.

In view of the numerous cases of land conflicts, illegal appropriation and un-clarified land ownership issues in Cambodia, PLUP activities are also presented as a means towards the resolution of conflicting land claims and conflict management.

This manual should not be considered as a blueprint textbook, but it describes an approach, a methodology and a set of working steps based on present experiences. Wherever possible, it will also provide the reader with several options for dealing with specific issues from which he will be able to select the best solution for dealing with his particular situation. This flexibility is important and will permit the further adaptation of the methodology to the specific requirements of all parts of the Kingdom of Cambodia.

**Box 2: Purpose of this Manual**

- to present the basic concept of PLUP and its procedures under Cambodian conditions
- to document the presently available experience on PLUP in Cambodia
- to provide some practical advice, orientation and guidance for people involved in participatory planning approaches and land management issues
- to serve as a first guide to the formulation of a national PLUP policy, a sub-decree on PLUP and national PLUP implementation guidelines for Cambodia
- to introduce PLUP as a tool towards the resolution of conflicting land claims and for conflict management on the local level
- to contribute to an improved approach to integrated planning for sustainable management of natural resources by the local population

**1.2 Definition of Participatory Land-Use Planning**

Several organizations have been involved in developing the strategies, methods and tools for PLUP. Major contributions have been made by FAO and GTZ, drawing on their project experiences in a large number of countries.

**Box 3: Definitions for PLUP proposed by FAO & UNEP and GTZ**

(Participatory) Land-use planning is a systematic and iterative procedure carried out in order to create an enabling environment for sustainable development of land resources which meets people’s needs and demands. It assesses the physical, socio-economic, institutional and legal potentials and constraints with respect to an optimal and sustainable use of land resources, and empowers people to make decisions about how to allocate those resources.¹

Participatory land-use planning (PLUP) is an iterative process based on the dialogue amongst all stakeholders aiming at the negotiation and decision for a sustainable form of land use in rural areas as well as initiating and monitoring its implementation.²

Land-use planning happens in every society and at all times, even if the term as such is not used. Wherever groups of people use land and its resources, land use is planned and certain restrictions are set up. Very often central government adheres to the concept that decisions on land use should be taken by technical and political people on the national level, while in reality many land use decisions are made daily, mostly at the
local level where the actual management of resources is carried out. Other decisions with relevance to land use are also made on the provincial or district level with or without knowledge or consent of the national level or the local population. Very often there is an obvious lack of transparency, communication and public consultation even in crucial decision making on land management issues.

It is exactly against this background, that the concept of PLUP has developed over the past two decades. The new PLUP approach focuses on the capacities and needs of local land users, based on the assumption that sustainable resource management can only be achieved if resources are managed by the local populations once they dispose of clear use and tenure rights (for more information on typologies of participation see Annex 1).

This “participatory” approach to land-use planning represents an entirely new perspective to solving land use and resource management issues compared to the top-down and very technically oriented land-use planning approach of the 1960s and 70s.

Box 4: Differences between a “traditional LUP” approach and PLUP

<table>
<thead>
<tr>
<th>Issues/Aspects</th>
<th>Traditional LUP Approach</th>
<th>PLUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Level</td>
<td>Higher Level: Province, District, Watershed</td>
<td>Local Level: Village, Commune, Micro-Watershed</td>
</tr>
<tr>
<td>Main Actors</td>
<td>Technical staff from line agencies, Provincial and District administration</td>
<td>Local population, local administration, Process facilitators with some technical background</td>
</tr>
<tr>
<td>Main Focus</td>
<td>Identification of optimal land use according to land suitability and enforcement of these practices by the use of incentives or legal directives</td>
<td>Identification of sustainable and equitable land use opportunities on the local level by searching for compromises and coming to agreements between local needs, outsider interests and national policies; transparency is crucial.</td>
</tr>
<tr>
<td>Main Criteria</td>
<td>Technical parameters, such as soil depth, soil fertility, slope etc.</td>
<td>People’s perspectives + priorities as well as Government policies + guidelines</td>
</tr>
<tr>
<td>Land Tenure</td>
<td>Is usually not considered</td>
<td>Is considered a crucial issue; usually the need for clear ownership or use rights and eventually changes in land tenure are specified during the PLUP process</td>
</tr>
<tr>
<td>Implementation</td>
<td>Usually implemented in the form of a study within a fixed time limit</td>
<td>Implemented as a process with a sequence of steps according to the villagers’ pace and time availability</td>
</tr>
<tr>
<td>Main Objective</td>
<td>To make best use of land resources according to objective criteria</td>
<td>To strengthen local stakeholders’ capacities for managing their resources in a sustainable way</td>
</tr>
</tbody>
</table>

In addition to the local residents who directly use the land resources in a planning area, other stakeholders in PLUP include the government agencies dealing with the various land resources, the local authorities, any existing coordination committees with regard to land use, NGO and IO projects, private service providers as well as other actors outside the planning area (see chapter 3.6 on stakeholder analysis).

In Cambodia several organizations support community forestry (CF) initiatives and CF units have been created within the Department of Forestry and Wildlife (DFW) as well as within the Ministry of Environment (MoE). When looking at field experience in CF in Cambodia it is obvious that there is a strong overlap between CF and PLUP. The difference is that PLUP takes a wider perspective and should cover all land use areas, such as agricultural land, forest land, grassland and fishery zones within a given planning area (e.g. village or commune). Also PLUP has an even stronger link to the allocation or re-allocation of land use rights to individuals, groups and entire communities. Current practices in community forestry as supported e.g. by CONCERN in Kampong Chhnang and Pursat, by FAO-Participatory NRM Project in Siem Reap or CB-NRM in Ratanakiri can be regarded as one part of the PLUP methodology and could be easily complemented to cover all land categories in a selected community.

Community Forestry, Joint Forest Management, Community-Based NRM and their relationship to PLUP
1.3 Goal and Justification

So, what are the main objectives of PLUP?

Box 5: PLUP is a Method

- which leads towards achieving more sustainable management of natural resources by local communities,
- helps to analyze present use of the resources and to identify needs for changes due to over-exploitation, illegal use or conflict situations,
- and to clarify present tenure of land resources and prepare the ground for allocation or re-allocation of land and natural resources use in view of securing user rights,
- has an institution/capacity building aspect, as the method will support local communities in strengthening their management capacities as well as clarify the role and responsibility of government institutions and their committees,
- and helps to create transparency on resource use issues and intensify communication on all levels.

And, where is PLUP particularly needed?

PLUP is helpful in all areas where there is a present or a foreseeable land use conflict or where natural resources are degraded by conflicting or ill-adapted resource use practices. Conflicts over tenure of land (land disputes) are another frequent starting point for PLUP. The concept of PLUP which focuses on a participatory
process will for reasons of practicability always start from the local or lower administrative level (village, commune). In other cases this could also be a sub-catchment or a small watershed.

**PLUP** deals with all areas traditionally used or claimed by communities (e.g. forest areas and shrub lands, fishery areas, agricultural land, settlements and minefields). Therefore the PLUP scope is very wide and is about every type of land and every type of resource.

If **PLUP** is delayed or not implemented in the case of the conflict situations mentioned above, this could have serious environmental and social consequences. Usually the cost of these consequences will by far surmount the cost of initiating and implementing a proper land-use planning process.

1.4 Conceptual Framework and Principles

The conceptual framework for PLUP is set by legal, institutional, natural resources aspects and the socio-economic situation of the local population. PLUP requires a strong bottom-up planning perspective. Putting local users in the centre of interest, calls for the use of simple, low-cost planning techniques to encourage and foster active participation and consensus finding among villagers. Involvement of outsiders should be restricted primarily to the moderation and facilitation of the planning process. At least initially these outsiders might also have to play the role of strong advocates and defenders of community interest e.g. in cases of conflicts with powerful outsiders. This does often lead to specific role conflicts for Government staff involved in PLUP activities. Under no circumstances the facilitators of a PLUP process should dictate their solutions to villagers or take on a strong advisory function.

### Basic Principles of PLUP

- It is a participatory approach, which should encourage and follow the people's perspectives and priorities; it focuses on strengthening local management capacities.
- Outsiders mainly perform the role of moderators and facilitators, but can initially also become advocates and general supporters.
- PLUP can and should ideally prepare the ground for land allocation procedures.
- PLUP usually deals with all land classes regularly used by villagers within their living area.
- The PLUP process will eventually lead to organizational arrangements on village and commune level, produce a plan (usually a map) and a set of rules and regulations pertaining to the use of private, communal, open access and state land within the area of the village/commune.

## 2. Framework Conditions

In every country and every region PLUP is submitted to different framework conditions, such as specific legal and institutional aspects, national land policies, land tenure and land classification systems. The following chapters describe the present situation prevailing in the Kingdom of Cambodia.

2.1 Legal Aspects

A number of laws and sub-decrees area currently at various stages of preparation and could be passed by the central Government at some time in the near future (see list of all laws and legal documents with relevance to NRM in Annex 2). Most importantly, the new Land Law has been adopted by the Royal Government of Cambodia and endorsed by the National Assembly. Simultaneously a Forest Law and a Fishery Law are also under preparation. Provided that a good harmonization can be achieved among these three major legal documents, these will provide a comprehensive legal base for PLUP in Cambodia. Other legal documents already signed by the Government and with implications on PLUP are:

- the law on protected areas,
the sub-decree on forest concession management,
- the sub-decree on organizing and functioning of the Ministry of Land Management, Urban Planning and Construction (MLMUPC),
- the sub-decree on the procedure of establishing cadastral index map and land register, the new law on commune administration.

Based on the existing and the new laws, the Royal Government of Cambodia would then elaborate clear regulative guidelines for PLUP (e.g. in the form of a sub-decree and precise implementation guidelines). As such documents are not yet available for Cambodia, selected donor-funded projects have started developing their own approaches and adapting them to local conditions.

One aspect these projects have in common is their objective to strengthen local communities in their management capacities with regard to natural resources and to demonstrate a more participatory approach. Some of these projects work closely together or even integrate the local administration (commune, district and provincial Level) and technical staff from the Government services. Thus, despite the vague overall legal situation, practical experiences on community-based natural resources management are available from several provinces and some promising results can be demonstrated. Certain differences exist between the various approaches, although numerous attempts are currently undertaken to strengthen co-ordination and cooperation among the various actors through workshops and regular meetings in working groups (e.g. CF-WG). This diversity of approaches can be regarded as enriching as long as exchange of experience and mutual learning takes place.

The current activities of the projects focus on understanding the present resource use in their respective working areas, mapping of use areas and their boundaries, elaboration of use regulations and building up a local committee in charge of implementing and enforcing these regulations. One of the main elements in this process is usually the drafting of village or use regulations, which set the framework for handing over increased formal management responsibilities to the local population. The regulations and in some cases even more specific management plans for forest or fishery areas are submitted to the higher authorities (commune, district, province) and technical departments (e.g. DAFF) for approval and endorsement. This system of having agreed upon village regulations for all common property resources of a community and a management committee to enforce them has to some degree substituted land allocation based on clearly defined laws and decrees. It is the best possible option under the present legal setting.

By following this procedure the original land tenure does not change, only the resource tenure is transferred to local communities upon approval of their community regulations and specific management plans (e.g. forest management plans). Although this becomes a fast spreading practice it remains doubtful whether it will in the long run provide sufficient resource tenure security to the communities. The village management committees still lack official recognition from the local authorities and their actual role and responsibilities need further clarification. In most cases villagers still heavily rely on project staff or technical staff from the District and Province level to defend their newly acquired management responsibilities in case of conflicts with outsiders.

In order to enable and promote widespread implementation of PLUP the Cambodian Government would have to put in place a clear legal framework and an official policy with regard to land-use planning and land allocation. Any sub-decrees or guidelines on PLUP should incorporate the experiences made by the projects already active in this field. By the nature of PLUP this would require the involvement of several line ministries and their cooperation in the form of multi-sectoral committees from the national down to the local level (see chapter 2.5). Possibly the most important issue in this connection is the need for close cooperation in land-use planning and land allocation between the ministries involved in policy development on land use, decentralisation and legal enforcement on all levels (MLMUPC and Mol) with the NRM related ministries (MAFF, MoE) (see also Annex 4). The Royal Government of Cambodia has therefore taken a decision to give the MLMUPC the mandate of a lead agency in the process of further defining the legal and methodological details of PLUP in Cambodia. Just recently (April 2001), a PLUP network has been created under the leadership of the MLMUPC, which aims at bringing together representatives of MAFF, MoE, MRD, MoIME, IOs and NGOs as well as the private sector.
2.2 National Policies with regard to Land Management

The objective for a comprehensive land policy is to encourage a sustainable economic/social development, poverty reduction and good governance. The three priority sectors of any land policy are land administration, -management, and -distribution in view of enhancing the security of land occupation, the legal rights over private land and the management of state property. Conscious of the complex nature of a land policy framework, the Royal Government of Cambodia has recently established an inter-ministerial "National Council on Land Policy" to draft a new land policy document.

In May 2000 the RGC has presented a "Good Governance Action Plan", which "recognizes the effort required for solving land issues as one of the most important issues to alleviate poverty and lay the foundation for an environment conducive to the emergence of good governance in the use of Cambodia's most important resources." It identifies seven factors as "land problems":

- An inadequate legislation
- A general situation of weak governance
- Weak capacity of land registration and land administration.
- Distress sales of land often relating to defaulting on loans.
- Use of outdated data for land use classification and planning.
- Lack of a legal framework to cover the management and use of State land and real estate.
- Land policy and the resolution of land problems are not sufficiently gender responsive

Reforming the Land sector in Cambodia is one of the corner stones of the State Reform Program and for Sustainable Development of the country.

The RGC is addressing the following action plan

- Strengthening the role of the Ministry of Land Management, Urban Planning and Construction (MLMUPC), which has only been established in 1999, in its mission to lead, coordinate and manage the affairs of land in the Kingdom of Cambodia.
- Elaboration of a comprehensive land policy framework under the guidance of the newly nominated National Council on Land Policy.
- Application and dissemination of the new land law after passing the National Assembly, elaboration of sub-decrees and new land-related regulations and law enforcement.
- The GDLMUP will prepare guidelines on land management to support the future commune development plans.
- Strengthening the National Committee on Land Conflict Resolution and the Provincial Committees for the Regulation of Land Conflicts. These committees have been established since June 1999 and their main responsibility is to set up effective mechanisms for resolving lands conflicts out of court.
- Strengthening the central and provincial offices for land administration and land management.
- Strengthening the decentralization process by clearly defining commune boundaries, supporting commune development planning and drafting of new regulations on land tax; decentralization and deconcentration are complementary and will call for new mandates, procedures and partnerships.
- Speeding up the land registration (systematic land registration/sporadic land registration).
- Establish a systematic inventory and management system for state land.
- Strengthening the mechanisms for effective co-operation with all stakeholders, (national institutions, Bilateral and Multilateral institutions, NGO's) and inter-institutional co-ordination.
- Build up the human resources and technical capacities at all levels.

Box 6: Statement of Royal Government on Land Policy (May 2001)

The Royal Government of Cambodia is endeavouring to implement a coordinated set of laws, programs of work, and institutional arrangements regarding land which are directed toward enabling the achievement of national goals of economic development, poverty reduction and good governance, as described in the Socio-economic Development Plan, Interim Poverty Reduction Strategy and Governance Action Plan.

The objectives of these initiatives regarding land are...
2.3 Land Tenure Issues

In general terms the legal situation in Cambodia only recognizes state and private land tenure. The old Land Law (1992) states: "all land in Cambodia is the property of the state." But Cambodians have the right to possess and use this land. Full private ownership rights could be obtained only on land for housing, whereas on land for cultivation possession and use rights and the right to exclusively occupy could be obtained. Therefore, all land in the rural areas is the property of the state and only for the housing areas and a limited number of rice fields private ownership through land titles has been established. Only a very small proportion of the rural population is actually in possession of a valid land occupation and user rights certificate (land title) for their residential land, rice fields or other farmland.

The situation is different when looking at the resource tenure. Four main resource tenure schemes are widely recognized in Cambodia:

**Common property resources (CPR)** - although legally part of the state ownership in the public domain,
these resources are traditionally open access areas such as forest areas in various states of degradation, virtually all grasslands and most flooded areas around Tonle Sap.

**State tenure** - this is well established for basic infrastructures, some protected areas and the concession areas leased to investors and business companies.

**Individual or private tenure** - this concerns the homesteads and the home gardens, rice fields, upland farms and plantations as well as swidden agriculture plots.

**Communal tenure** - this is by far the smallest of the four systems and presently only concerns the community forest areas or fishing areas, the majority only created recently by involvement of projects.

**Graphic 1: Resource Tenure Schemes in Cambodia**

In Cambodian legal documents there is a lack of distinction between common property and state property. Nevertheless it has been observed that considerable areas of common property resources, such as forests, shrub lands, riverbanks, lakes and ponds have in effect become privately controlled. The privatisation of common property means that these resources become less accessible to their customary users, and hence, benefits to the majority of the people have been reduced. Legalised communal resource tenure is still the exception.

In particular the rapid changes towards a free market economy in Cambodia in combination with weak administrative structures have led to widespread cases of land grabbing. This means that common property resources are quickly appropriated and decimated by people on all levels, be it through claims to farmland by urban business people, demobilized soldiers or by simple farmers. The central government, as well as provincial and in some cases even district administrations, have taken similar approaches based on the interpretation of the old land law and have allocated wide proportions of the forest areas and water bodies to private investors or business companies under a variety of lease, sale or concession agreements. Examples are the forest concessions, fishing lots or private estates.

Some of the underlying reasons for this rapid transformation from common property of resources to private ownership are the absence of any management schemes in the vast majority of the open access areas and the ever increasing need for land and resources to fulfill the basic needs of a growing population, but also for income generation. Unfortunately this has in the past led to numerous cases of land speculation, corruption, a sharp increase in land conflicts and further impoverishment of some parts of the rural population. Recent surveys and data on landlessness, land ownership, sales and concentration as well as on poverty seem to prove these tendencies.

**Box 7: Land Tenure Issues in Land Management**

- the knowledge of public and private land rights (including the inventory of state land
Especially in the ethnic minority areas of Cambodia a well-devised and functioning system of customary or traditional use rights for local communities has been set up and respected for several generations. Numerous studies from Ratanakiri have proven the effectiveness of such systems in the management of forest areas and protection of resources.

An example: a study by Dr. Jefferson Fox of East West Centre, in Poey Commune/ Ratanakiri (1996) found that, regardless of the size of a village, the ratio of population to area (within traditional boundaries) was more or less uniform at around 30 persons per sq.km. This indicates a level of equitability in the way the traditional system shares land between communities. Within the village boundary, around 8% of the land may be under cultivation at any one time. The rest will be under fallow, which appears as a mosaic of secondary forest at different stages of regeneration. Analysis of satellite images for Poey commune indicate that under this system, Old growth forest remains at 50% cover, secondary forest is 40% and open fields (current cultivation) is 5% of the total land area. The rest is made up of roads, residential areas and water bodies. The sustainability of this system depends on maintaining a low population density and the traditional communal tenure system.

The formal recognition of these communal claims by the issuing of communal land certificates has been accepted as an addition to the new land law. This is only valid for ethnic minority communities in the North-Eastern provinces of Cambodia. The law does otherwise not foresee the issuing of communal land certificates, although this could also be a valuable option for existing community forest areas in other parts of the country.

Within an area allocated for communal use, villagers can then in turn allocate individual plots for productive activities by individual families. This is for example suggested by villagers in Ratanakiri in an area of secondary forest re-growth, which is currently used by villagers for swidden agriculture. The sale of land is usually restricted to private land. Some village regulations in Ratanakiri allow the sale of land only if at least 80% of the villagers give their consent.

2.4 Land Categories

As stated earlier, PLUP should deal with all land categories of a village or commune area. In a typical village situation in Cambodia this will comprise agricultural land, such as rice fields, orchards, home gardens or swidden agriculture land, forest land, such as spiritual forests, flooded forests or firewood collection areas and many types of permanent and seasonal water bodies mostly used for fishing, such as lakes, ponds, rivers or small streams. Apart from these units, there will be the village settlement area, as well as infrastructures such as roads or paths. Depending on the province, there could also be grassland areas and minefields. During the PLUP process the present use or functions of all these land categories will be investigated as
well as their legal and customary tenure status.

Very often villagers have their own classification of land categories e.g. based on local soil types or specific uses. As these traditional classifications will vary from one part of Cambodia to the other and will make comparisons or the implementation of standardized land allocation procedures difficult, they have to be “translated” into a generally understandable land classification system. It is therefore important to develop and apply a standardized land classification system based on criteria of function/use and on tenure systems (see example of a land classification system for Cambodia in Annex 3). Within many village or commune areas there are units, which have already been allocated for estates or plantations to companies. Sometimes village areas form part of a fast concession or fishing lot. In other cases, village areas partly cover or at least border with national protected areas (e.g. National Parks) or protected areas identified by provincial authorities (e.g. wildlife sanctuaries). For the success of PLUP on village or commune level it is crucial that transparent information on these nationally or provincially allocated protection or management areas are made available before the local PLUP process starts (see chapter 3.7).

It is obvious that one important element of PLUP is the clear definition, mapping and later demarcation of boundaries between the various land categories.

The PLUP methodology can be a useful approach to the clarification and resolution of conflicts over boundaries between the perspective of Government authorities and local views and priorities (see chapter 4.2.1.4). During the PLUP process also the administrative boundaries e.g. between villages and between communes need to be clearly defined.

### 2.5 National Institutions relevant to PLUP

On the national level a number of Ministries and Departments would be directly concerned with any land-use planning program in Cambodia, although none of them has yet a specific section or office dealing with LUP. As mentioned earlier, the MLMUPC has recently been nominated as a focal point and lead agency for a PLUP network. MLMUPC also has the national mandate on land policy development, land management, land administration and land distribution (cadastral services). On the other hand, the Ministry of Interior (MoI) is in charge of guiding the decentralization process in Cambodia, which will have many implications on PLUP in future.

Among the other Government services concerned there is first of all the Ministry of Agriculture, Forestry and Fisheries (MAFF) with the respective subordinate departments (DoA, DFW, DoF) in charge of agricultural development, the management of all forestry and fishery resources outside the protected areas and national parks. The Ministry of Environment is responsible for the protection of all natural resources in a number of protected areas across the entire country.
To a lesser degree, the Ministry of Rural Development (MRD) (e.g. for coordination purposes in the provinces) and the Ministry of Finance (MoF) (e.g. for land tax issues) would also be implied in any LUP process in the country.

All these ministries and departments have technical staff working on the provincial level, in most cases even on district level.

For internal security reasons the armed forces and the police will also have to be represented in any committee or working group dealing with LUP on the national level.

If a national PLUP program on the basis of precise implementation guidelines were to be initiated, this would require the creation of a national land-use planning committee, in which representatives of all the ministries and departments mentioned above would be invited to participate and contribute. On the provincial and district levels the existing system of Provincial Rural Development Committees (PRDC) and District Rural Development Committees (DRDC) under the chairmanship of the Provincial Department of Rural Development (PDRD) could be used for the coordination of PLUP efforts in each province (SEILA structures).

Furthermore, Provincial Land Conflict Resolution Committees under the chairmanship of the provincial Governor have been recently created by a national circular and are operational in a number of provinces. These committees could also play a crucial role in supporting PLUP. Finally, special coordination committees on Natural Resources Management in the Tonle Sap Area exist in several provinces around the great lake and just recently management committees have been set up for a number of national parks and protected areas.

As most of these existing committees on provincial level already regroup most of the institutions concerned by PLUP and partly have overlapping tasks, their involvement in the coordination of PLUP on provincial and district level would be essential. This could make the creation of additional specific PLUP committees on these levels superfluous.

**Box 8: Roles of Government Institutions in Relation to PLUP**

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Roles and Functions in Relation to PLUP in Cambodia</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAFF</td>
<td>Management of all agricultural, forestry and fishery land outside the protected areas or national parks; development and extension of sustainable and economical land use practices.</td>
</tr>
</tbody>
</table>
| DoA          | - Land use and agricultural issues  
- Agricultural research  
- Agricultural extension work |
| DFW          | - Forest policy, planning and management  
- Encouraging people to participate in forest management  
- Monitoring and enforcement of Cambodia's forestry law+regulations  
- Administrative guidance on forestry issues  
- Conducting forestry research |
| DoF          | - Management of all fishery resources and control all open water resources in the fishery domain: flooded areas, wetlands, large rivers and fishing lots (outside the protected areas and national parks) |
| MoE          | Natural resources management and land-use planning in protected areas and national parks. |
| DNCP         | - Natural resource management and protection in PLUP |
| DEDM         | - Educational materials on PLUP |
| Mol          | Political and conceptual guidance of the decentralization and de-concentration process in Cambodia |
The following chapters will try to answer a few fundamental questions at the start of a participatory land-use planning process in a rural area in Cambodia.

- Who will actually facilitate and promote the process on the local level?
- What kind of preparation would the facilitators need to fulfill their new tasks and where can they get appropriate training?
- Where can they get additional information, appropriate services and technical support?
- What materials and basic equipment is needed?
- Where to start and how to select a suitable working area?

3.1 PLUP Facilitation Teams and their Tasks

As PLUP deals with all land categories found in one village or commune or sub-catchment it requires the actual implementing team to be of multi-disciplinary nature. The facilitation team for PLUP should therefore at least comprise staff from agriculture, forestry and fishery services as well as from the Department of Environment. This can be staff seconded from the provincial or the district level of these respective offices. The facilitation team should ideally consist of 3-5 people and can be regarded as a core group for performing all PLUP tasks. The team members would have the overall responsibility for facilitating PLUP in a particular working area e.g. a district or a sub-district (see chapter 3.5).

During the working steps dealing with boundary demarcation and especially any kind of administrative
boundaries, this core team should be supplemented by staff of the Provincial office of Land Management, Urban Planning and Construction (cadastral office). Wherever available the team could also be joined by community development staff from the Provincial Department of Rural Development or technical staff working for NGO/IO projects.

In the case of donor-funded projects working in a rural area of Cambodia the exclusive use of direct-hire project staff to implement PLUP activities should be avoided for reasons of sustainability and replicability of the approach. Instead, the overall responsibility for PLUP work should always lie in the hands of the Government staff from the various institutions concerned. It is advisable for the PLUP facilitation team to elect a group leader or coordinator.

In some cases and specifically in the neighbouring country of Vietnam, the PLUP process is started by forming a district LUP (steering) committee for the supervision of the facilitation team. In other cases a similar committee is established directly on provincial level. Any of these committees would try to bring together representatives from the main institutions concerned by PLUP (see chapter 2.5). Practical experience has nevertheless shown that the creation of such committees can be a very time-consuming exercise and it is not always easy to clearly specify the tasks and responsibilities for such new committees before the actual PLUP implementation has started and gained a certain momentum. Very often the concerned services and organisations quickly lose interest in the work of such a steering committee or are ill-prepared to fulfil their new tasks, which can lead to the collapse of the committee altogether.

For Cambodia a possible alternative to creating new committees would be to start field work first and to try with time to get existing provincial committees, such as the Provincial Rural Development Committee (if available), the Provincial Land Conflict Resolution Committee or a Provincial NRM Committee (where available) involved in the PLUP process and to possibly widen their scope and responsibilities (see Annex 4).

Sample terms of reference (TOR) for a facilitation team supporting PLUP on the local level are described in Annex 5.

### 3.2 Preparatory and On-the-Job Training for PLUP Teams

A prerequisite for the PLUP facilitation team members to initiate the PLUP process on the local level is to be well versed in participatory concepts and applications. For working on the PLUP team all members will apart from their technical knowledge require skills in facilitation and moderation techniques, and an understanding of communication and team building.

Most government staff working in the districts and provinces of Cambodia in the Department of Agriculture, Fishery and Forestry or with the DoE lack this knowledge or experience. Therefore any preparatory training courses for PLUP teams must include a general introduction to the PLUP methodology and training modules on facilitation techniques and participatory working methods. Furthermore they will obviously need to be familiarized with the legal framework for PLUP, general communication skills and teambuilding techniques.

Currently the training opportunities specifically on PLUP or related issues are very limited in Cambodia and even within the sub-region. This is one of the reasons why this manual should also serve as an introduction to the approach for practitioners. A list of currently available training facilities and opportunities in Cambodia and the sub-region is given in Annex 6a.

One good opportunity to familiarize field staff with the approach is to organize exposures and internships with existing projects working in the field of participatory NRM or CF in Cambodia. A list of such projects, their contact addresses and their specific fields of experience is presented in Annex 6b. Another option is to hire an experienced consultant and trainer working in the sub-region for a special preparatory course in PLUP.

Training in mapping techniques, the use of GPS equipment and the basics of GIS can be provided by specialized service providers listed in Annex 8.

Obviously the PLUP teams would not only require an introductory training in order to get started, but will also need regular on-the-job training and backstopping. Once again this could currently only be organized through the existing training facilities in Cambodia or the region or through additional consultant missions.

Study tours and exposures can be a useful HRD measure if well prepared and if visited sites are carefully
selected. At the current time, it is doubtful whether newly composed PLUP field teams would gain a lot from visiting land-use planning or land allocation activities in the neighboring countries of Vietnam, Laos or Thailand due to the completely different nature of the legal situation in those countries. Instead, best use should be made of existing opportunities within Cambodia.

3.3 Support Services and Data Resources on the National Level

3.3.1 Libraries

All ministries, most departments and a few specialized institutions, such as NGOs, FAO and some projects maintain libraries with documents relevant to PLUP, CB-NRM or CF (list of these libraries and their specialization in Annex 7a). Public access to some of the libraries is limited, but protect staff and planners could receive permission from respective administrations to use the library facilities.

3.3.2 Internet Sites

The Internet offers information on PLUP work in other countries. Unfortunately, the internet has at least two limitations that still prevent most Cambodian practitioners from accessing it:

- access to the internet remains limited and it can be expensive
- most materials would be in English and it is likely that most PLUP team members do not have a strong command of the English language.

The most comprehensive and easy to use website dealing with NRM, PLUP and CF in the region is the MekongInfo Site (www.mekonginfo.org). MekongInfo also provides links to other websites presenting useful information on the subjects and experiences from other parts of the world. Annex 7b presents a short summary of the main functions and services available at the MekongInfo website.

3.3.3 Mapping and GIS Units

Maps and GIS data are crucial elements in a PLUP process. In Cambodia several mapping and GIS services are offered by a number of organizations based in Phnom Penh and in a few provinces. All maps produced in Cambodia must be certified by the Department of Geography, in order to be considered an official map. The data sets and the official certification process of organizations that provide maps or GIS services to external clients are described in Annex 8.

3.3.4 Other specialized Services

Detailed and up to date information on minefields and de-mining operations in Cambodia can be obtained from Handicap International (HI), the Mines Advisory Group (MAG) and CEMAC in Phnom Penh or through their offices in the affected provinces.

General statistics, such as population data can be obtained through the National Institute of Statistics in the Ministry of Planning in Phnom Penh.
3.4 Materials and Equipment used during PLUP

A limited number of materials and equipment is required for carrying out a participatory land-use planning exercise. As some of these tools have to be ordered and purchased well in advance of starting the actual fieldwork the basic requirements are listed here.

For the PRA exercises the PLUP teams will simply require large sheets of paper, markers of different colors and possibly some cardboard and scissors. Other than this, mostly local materials can be used for all the PRA tools.

It is the mapping part that requires far more inputs. For each working area the PLUP teams will need topographic maps at 1:50,000 and 1:100,000 scale, which are available in Phnom Penh at the Department of Geography and in private stores at the Russian market. For most areas of Cambodia the 1:50,000 maps are the largest scale currently available. Unfortunately all topographic maps of Cambodia are outdated with the base information established in the 1970s.

For more recent information on the state of local resources and as a base for mapping exercises during PLUP, there are basically three options (for further details see Annex 9):

The first and cheapest option is to purchase hardcopies or photocopies of the 1992/93 aerial photos or have these aerial photos scanned. In 1992/93 black and white aerial photos of the entire country were produced at approximately 1:20,000 scale. These photos are easily available, relatively cheap, but have the disadvantage of being already out of date for most areas with forest cover, as numerous land use changes have occurred in the past decade. There are more recent aerial photos available for specific parts of Cambodia, mainly for some concession areas, parts of the Tonle Sap area and a few large-scale infrastructure projects.

The second option is to have new aerial photos taken by a specialized aerial survey company. This is not a cheap solution, but if the resources are available, the use of recent aerial photos can be of tremendous help to the PLUP team during any of the mapping exercises. If sufficient funds can be provided for a new aerial survey, color photos should be ordered at a scale of approximately 1:20,000 scale. The use of color photos adds another 10-15% to the cost compared to black and white photos, but these additional costs are by far outweighed by the increased usefulness of such photos for land-use planning purposes. Enlarged color photos at 1:5,000 or 1:10,000 scale are still the best possible mapping tool, as villagers will easily identify their fields, their homesteads, their forest areas and their ponds on these photo prints. Contrary to some prejudices, aerial photos can be a very participatory tool for groups to discuss present land use issues, use conflicts and options for improved management.
The third and most sophisticated, but also still very expensive option is to purchase satellite imagery as a mapping tool. Satellite imagery will provide the PLUP team with very up to date information on the natural resources in a specific area and avoids the need for rectification of the images.

For a mapping exercise in the field, the use of GPS equipment can be very cost-effective and timesaving. There are several organizations working in Cambodia where hand-held GPS equipment could be hired for fieldwork, but the affordability of such equipment is also constantly improving (for details see Annex 9).

Mapping in land-use planning can take the form of hand-drawn sketch maps, maps drawn on the basis of enlarged aerial photos or very detailed maps produced by GPS measurements and superimposed on aerial photos or satellite imagery. The decision on which technique to use will largely depend on the available funds for PLUP, staff expertise and the opportunities to link up the work with existing GIS services in the country. In the case of aerial photos or satellite images being used, it is best to fix transparencies on to the mapping base and to draw the land use map on the transparencies.

Experiences in PLUP and community forestry have shown that a land-use planning map which meets minimum quality standards will be more easily understood and accepted by the authorities when it comes to legalizing the plan than an inaccurate hand-drawn map without any scale. For example, the experience of the FAO PNRM Project in Siem Reap has shown that printed land use maps, digitized from hand-drawn village maps increase their usefulness, their acceptability in the process of official recognition and help villagers to visualize and explain their priorities in terms of future use and protection (see also chapter 4.2.3. on mapping and modeling).

3.5 Selection of the Planning Area

A crucial question is where to start with PLUP activities. There are a few options: Depending on the overall resources (budget, staff, logistics) available and the underlying concept behind PLUP the selection of a working area can vary. A donor-funded project addressing NRM issues on a pilot basis will select a different working area compared to a broad-scale Government program where large area coverage and replicability are crucial topics. The difference can be termed as "sporadic" compared to "systematic" PLUP work.

Therefore, an important first decision to take is whether the PLUP process should primarily be applied in critical areas, such as conflict zones over natural resources use and land tenure or areas of heavy degradation or whether it is rather the aim to start a PLUP process which would eventually cover e.g. an entire district or a whole province. In the first case criteria for selecting problem zones would be formulated and applied, possibly in a meeting on provincial or district level in order to identify such conflict or degradation areas. Another question is whether sufficient information on such problem zones is already available with the local administration or whether specific field surveys for their identification would still be required. These could be very costly and time consuming.

Very often the critical areas identified will in this case follow natural boundaries (e.g. one large forest area, one small watershed) rather than administrative boundaries (e.g. one village or one commune). This is not a problem as such and constitutes a valid approach if e.g. the main objective is community forestry or management of a forest or protected area. On the other hand working according to the critical zone approach will usually make full area coverage e.g. of a commune or district difficult to achieve, even in the long run.

Box 9: List of criteria for area selection

- conflicts over natural resource use (e.g. villages located in or near forest concession areas or fishing lots, use conflicts between neighbouring communities)
- high number of land conflicts, cases of land grabbing, illegal appropriation of land or natural resources
- high pressure on local resources and environmental degradation (e.g. villages with a large population and a small village area, villages with a high seasonal influx of external resource users)
- high number of recent transformations in land use or numerous changes of ownership of land (e.g. in areas with increased cash crop production, private estates or new upland farms)
- conflicts over administrative boundaries
- presence of large infrastructure and land development projects (e.g. near irrigation
Another option is to start working right from the very beginning according to administrative boundaries, in which case the selection criteria could either emphasize on the representativity of the village or commune area selected (e.g. one village of each ethnic group, one village in a lowland, another in an upland situation etc.). The selection could also be based on an urgent need for conflict resolution and resource rehabilitation, but always within administrative boundaries.

When starting a PLUP process somewhere in Cambodia it would be also important to consider the intended expansion concept. Usually the understanding would be that, after an initial selection based on formulated criteria, the further expansion of activities should be request driven. This would mean that neighboring villages or communes after having seen the positive impact of PLUP would approach e.g. the PLUP implementation team to ask for similar assistance. In this way PLUP will gradually expand in clusters.

In order to promote PLUP the supporting projects or provincial and district institutions can also initiate information campaigns and actively create awareness on PLUP in view of increasing the demand. This promotion is possible irrespective of whether a critical zone approach or a gradual expansion from village to village has been selected.

In case the Cambodian Government in future creates a national LUP program, it will be useful to designate priority areas or provinces for the application of PLUP according to an agreed policy. Within one province duplication of PLUP efforts by bilateral or NGO projects in overlapping project areas should be avoided for obvious reasons.

3.6 Stakeholder Analysis and Review of Existing Information

When preparing for PLUP activities in a rural area of Cambodia it is important to know what is already happening in the respective area in terms of activities with relevance to NRM and CF. It is therefore important to understand which institutions on the local level (government services, NGOs, private sector) are represented in the area, with what resources (e.g. staff, funds for NRM related activities) they operate and with what capacity (scope of work, experience etc.).

The stakeholder analysis on the provincial or district level can take the form of a formalized set of interviews and surveys or a sequence of informal meetings. It is nevertheless very helpful in the overall context of PLUP to document the results of the stakeholder analysis e.g. in the form of a table in order to summarize the role and capacities of the various relevant actors. This table would need periodic updating.

The stakeholder analysis helps to identify areas of co-operation with specific institutions and organizations. It also helps to avoid duplication of efforts and can increase the understanding for PLUP activities among all the actors. The stakeholders contacted during the identification phase could also be more supportive of the PLUP work at a later stage e.g. by making specialists available for temporary support or giving advice to the core PLUP teams.

Preferably, the stakeholder analysis should be conducted by people in charge of supervising the PLUP work of a particular project or program and not by the PLUP teams alone. On the other hand the PLUP team members need to participate at all stages of the information collection and analysis.

Once a specific working area has been identified, all existing information on the respective area should be consulted and reviewed. Various data sets concerning the selected community such as population size, household composition, basic infrastructures, administrative boundary etc., are usually available in the national census data or could be obtained from the National Institute of Statistics, Ministry of Planning in Phnom Penh. Additional data could be obtained from line departments on the provincial level (e.g. agriculture, fisheries, forestry, cadastre and statistics).

In addition, it is always useful to gather and review any other known information, reports or literature about the community or the working area selected. All this background information will help to familiarize the PLUP facilitation team with their new working area.
In the Cambodian context the stakeholder analysis will very often show that a local or an international NGO has been or is presently operating in the selected working area. Usually these NGOs have particularly rich and useful background information that would be useful in the planning process. It might in some cases also be considered to initially work through an NGO that has been operating in and has been trusted by the respective community. This could provide the best point of entry into the community for the PLUP team (refer to chapter 3.1).

Many of the local or international NGOs use participatory rural appraisal (PRA) techniques or rural rapid appraisal (RRA) for information collection. In case any such tools have been applied in the working area in the past, it will be extremely useful for the PLUP team to familiarize itself with these documents.

3.7 State Land and Concession Areas

As mentioned earlier, central government, as well as governors on provincial and district level have in the past allocated important proportions of land for management by private entities (e.g. fishing lots, forest concession areas, and agricultural estates). Other areas have been declared national or provincial protected area (e.g. national parks, wildlife sanctuaries or protected areas for culture and tourism). Although these allocations can hardly be described as following a national or provincial land-use planning strategy, they have a strong influence on the local level PLUP.

Before starting PLUP in selected villages or communes it is therefore important to gather the most accurate information available on the present boundaries of such concession or protected areas (see Annex 8 for the list of data sets available on the national level). This kind of information is not always freely available, especially on the provincial level and many boundaries e.g. of agricultural concessions are not available on any maps at all. Sometimes such areas are only described in terms of localities and landmarks along the outer boundary in provincial decrees or semi-secret documents. Other boundaries of protected areas are defined e.g. as a radius around a sacred mountain or in terms of large square areas demarcated on a topographical map. Usually the demarcated areas are excessively large and go far beyond what can be efficiently protected or managed as a concession. Many of these areas contain several villages, sometimes entire communes.

In several cases land areas have been allocated to several concessionaires or new "owners". In other incidences several differing boundaries exist for the same protected area due to the inaccuracy of boundary definition on small-scale topographic maps. Due to the lack of transparency in virtually all the allocation procedures, even provincial institutions often claim not to be informed about land allocation decisions made on the national level. District authorities in turn blame the provincial level for not always communicating their decisions on land allocation to the private sector.

Still, some basic information on the areas already allocated by government authorities is essential for avoiding additional conflicts once the local level PLUP process has started. The MLMUPC has recently renewed its efforts to establish a systematic inventory of all state land and to demarcate clear boundaries. It remains to be seen whether and when such information will become publicly available for future land-use planning exercises.

All areas previously allocated to the private sector (concession areas) have to be dealt with differently in the PLUP process. On the state land and in concession areas the objective of PLUP is to identify those areas currently used by villagers, analyse existing use conflicts and restrictions and to develop proposals for some form of joint management or benefit sharing e.g. joint forest management in concession areas.

In the longer term it will be a crucial challenge in Cambodia to combine and integrate the local level PLUP with co-ordinated regional land-use planning exercises on the higher planning levels (e.g. district and provincial development plans). It is too early and not subject of this manual to devise concepts on how this integration could be achieved. Yet it is important to notice that local level PLUP will not be successful in the long run without the corresponding planning mechanisms on the higher administrative levels (e.g. master planning), which will set the regional priorities and help to balance between national development needs and local interests.
Within the framework of the on-going decentralisation in Cambodia the newly elected commune councils (elections are planned for early 2002) will be given a 12 months period to prepare comprehensive commune development plans. The exact layout and contents of the commune development plans still have to be defined, but they will necessarily have to include some details on land-use planning and natural resources management within the commune area. In this context, any communes where CF, CB-NRM or PLUP activities have already started, will have substantial advantages.

4. Steps and Procedures of PLUP

The core element of a land-use planning process is a number of working steps and procedures. In this document the steps have been listed in a certain sequence. Neither the sequence, nor the number of steps and their elements should be regarded as a compulsory guideline. Once again the steps and procedures suggested here are based on the present experience in the country and the region. Nevertheless, the user of this manual will need to evaluate carefully which steps are necessary for his particular situation and which modifications he needs to make to what is suggested here.

Wherever possible, the authors have tried to differentiate between absolutely essential steps and elements and those, which are optional or would help to improve the overall quality of the work.

The proposed steps and procedures of PLUP are also represented and summarized once more in a flowchart table in Annex 10.

Graphic 2: Process of PLUP
4.1 Preparation of Field Work

4.1.1 Distribution of Tasks among the PLUP Facilitation Team Members

After the familiarization of the PLUP team with its new tasks by training courses, study tours, the review of existing data and information as well as the establishment of contacts with relevant service providers on the national level, the team members should be well prepared to start the field activities in the selected planning area. When conducting the field activities, which will be described in detail in the following chapters, it is of great importance that all team members are given equal opportunity to practice their theoretical knowledge. Therefore the colleagues must take turns in performing the various tasks required of them.

In meetings with villagers their main tasks consist of:

- facilitating or moderating the process
- observing the reactions of community members and the PLUP team and providing feedback to all team members
• documenting the results or at least supervising the documentation by the villagers themselves

Therefore, as a standard rule the PLUP team members should shift their specific role and task from one visit in the working area to the next and take turns in moderation, observation and documentation. Needless to say, that the team members should also take turns in working with villagers e.g. during the mapping exercises, the drafting of regulations or management plans etc...

Ideally, in the PLUP team each member should be in a position to perform every working step. The specific technical knowledge of each individual will be of secondary importance during most parts of the PLUP process. Technical expertise will be mainly required during the assessment the present agricultural, fishery or forestry resources use by the local population, specific resource inventories and while advising villagers in the drafting of regulations or detailed management plans e.g. for community forest areas or specific fishponds.

Irrespective of the "generalist" approach described above, a PLUP team should elect a coordinator or group leader to be responsible for work plans, report writing and representing the team in meetings on the district or provincial level.

4.1.2 Inform Local Population and Neighbouring Villages in the Working Area

When the PLUP implementation team is ready to start the actual field work, they need to inform the villagers that their area has been selected for PLUP work or that the PLUP team is now ready to respond to a request from that particular area.

During the very first visit to the village or the planning area, the team will introduce itself to the local leaders, briefly explain about PLUP and request a first village meeting. It is very important to select the right period and the right time to start a PLUP process. Peak working seasons for farmers (e.g. field preparation or harvesting times) should be avoided. Times of particular village preoccupations with other issues can also be detrimental (e.g. serious conflicts, insecurity, feast and wedding seasons). The village authorities should in any case be consulted on the right timing for the PLUP work and possibly the team needs to react with flexibility to a particular request by villagers, such as evening meetings.

In addition, the PLUP team will have to decide whether the presence of representatives of the local authorities (e.g. District and Provincial) in the first village meeting is considered beneficial. This needs to be evaluated from case to case. The presence of higher-ranking officials in this meeting will increase its importance and justification, but could also intimidate villagers, prevent them from participating voluntarily or speaking out freely during the village meeting.

4.1.3 Introductory Meeting in the Working Area

Once the date of the village meeting has been agreed, the village leaders should invite at least one adult member of each household, representatives of all village organizations, representatives from neighbouring villages and the commune leaders for an initial meeting on PLUP. In this meeting the PLUP team members will introduce themselves, give a brief outline of the future PLUP activities, but thoroughly describe the main objectives of the whole exercise. At least one team member will moderate, others will observe and a third group or person will take first notes.

After the introduction, a good way to start is to ask villagers for the history of the village and then for a description of the currently prevailing land and resources use in their area, the agricultural land use, fishing, hunting or NTFP collection activities and finally the use of forestry resources. Once the current situation has been sufficiently clarified, the next question would deal with changes in the use of these resources over the past 10-15 years. Usually at this stage by the latest, villagers will come up with several use conflicts which have developed over the past years and a description of the general degradation of their environment.

Once the land and resource related problems have been mentioned, the team could start explaining the details of the PLUP process and describe the main objectives. In essence, this should contain the promise of the team to try and assist villagers in identifying ways and means to overcome their problems by:

• acquiring a general understanding of their situation with regard to social aspects, natural resources use and institutional aspects (situation analysis, Step 2)
• jointly assessing and mapping the different land use areas + their boundaries
• helping them to identify options and best solutions for future use (Step 3) assisting them to form a committee in order to supervise the work process and to improve the management of the village
resources (Step 4)
- helping them to draft future land-use plans, regulations + management plans (Step 5)
- applying together with them for official endorsement of the plans and regulations and possibly supporting them to request formal land allocation for specific areas within their community (Step 6)
- supporting them in the implementation and enforcement of their plans and regulations (Step 7 and 8).

As mentioned before, the presence of higher authorities in the first meeting is optional, but at least representatives from the commune level and especially from neighbouring villages need to be present.

In case the working area has been selected on a higher level and villagers (see chapter 3.5) have formulated no request it could be possible that the local population rejects PLUP for whatever reasons. In such a case the PLUP team should not insist, but select another, possibly a neighbouring area. Voluntary participation and contribution by the villagers to the work process is essential.

4.2 Situation Analysis (collection of data and information - interpretation and analysis)

In order to support villagers to identify ways of improving the management of their local environment, the PLUP teams need to gain a good understanding of the present situation in the respective community. To this end, the team will start their fieldwork by conducting an in-depth situation analysis; covering socio-economic, institutional and natural resources related aspects. The current use of land within the working area and the prevailing use conflicts will be identified and analysed together with the local population. As the team will undertake certain parts of the situation analysis with smaller groups of villagers, it is absolutely crucial to provide regular feedback to the entire community. This will permit all households of the community to stay informed and to contribute accordingly to the overall PLUP process. Wherever possible, the gained information should be cross-checked and analysed in the presence of a larger group of villagers.

4.2.1 First Phase - Participatory Appraisal and Information Collection

Information and data requirements in PLUP have to be carefully defined to avoid “data graveyards”. Very often Cambodian institutions and foreign organizations indulge in data collection (not only those involved in research work) without critically assessing their real or minimum information requirements.
Robert Chambers, the “father” of PRA has created the expression of "optimal ignorance" to describe what external facilitators should strive for during the situation analysis phase. They will never be able to collect and understand the totality of issues and facts in a given working area, so they will basically remain “ignorant”. Yet, they should try to single out the most important facts and information, concentrate on those aspects and aim for reaching the best possible level of understanding (“optimal ignorance”).

Another important issue is the question of "ownership" to the data and information collected during this first phase. The concept of a participatory approach requires the outsiders to support the local population in the analysis of their own situation, their own needs and priorities.

This is the first step towards the broader aim of formulating their need for change themselves. Therefore, the data and information should basically remain the "property" of the villagers and stay in the village. This would on the other hand prevent the PLUP team from playing their role of active supporters, advocates and sometimes lobbyists. A reasonable compromise is to work according to the principle that all original documents and PRA tools should remain in or be returned to the village after being copied manually by the PLUP team. PLUP team members can then make use of all the data and information in order to advance the PLUP working process. In case anybody wants to use the data and information for research or publication purposes, a special permission should be obtained from the villagers.

4.2.1.1 Analyzing Socio-economic Aspects in the Working Area

The PLUP team will have to gain a basic understanding of the socio-economic situation of the village or the working area. One of the main objectives is to get an optimal understanding of the current and possibly future demand situation on land and natural resources:

**Essential elements:** The overall population and the number of families of a community, the ethnic composition and some indications on the population growth (natural and by immigration). Some information on any long term or seasonal migration of villagers to areas outside their usual boundaries is also required.

Furthermore, information on the main occupations of villagers and their sources of income needs to be collected. In this context it can be useful to jointly compile a long list of all subsistence and income generating activities as practiced by villagers and to ask for each activity how many families are involved in it.

Finally some indications on poverty levels in the respective area or village are an important aspect. The PLUP team should try to identify how many families in the planning area are considered poor, average or better off by their fellow villagers. Also the incidence of landlessness or insufficient land availability should be assessed.

**Optional information:** Sometimes it is useful to gain some deeper understanding on the history and origin of the community. In case the PLUP team is not very familiar with the local society and their practices or traditions, additional information on e.g. main household activities by gender, annual and daily time use by men and women, detailed household analysis of better-off, medium and poor families and livestock numbers per family can be collected. Other details could be the number of women-headed households, age structures, birth and death rates. It could also be attempted to identify and analyse social or tribal conflicts within the village.

**Methods, tools:** Information on the population, their main occupations and income generating activities can be gathered in direct or semi-structured interviews in a village meeting. The incidence of poverty is best assessed by the use of wealth ranking exercises (see Annex 11).

4.2.1.2 Analyzing Institutional Aspects in the Working Area

The local leadership and existence of community-based organizations needs to be analysed to understand the degree of self-reliance and cohesion within the community:

**Essential elements:** All existing local institutions and community-based organizations, including formal and informal leadership within the village need to be identified. Determine their roles and functions and their relationship to the entire community. How did these organizations or committees get created? Identify the key individuals in the community who influence village life and find out how they came into this position. Do these local institutions and organizations address issues relating to land and natural resources use? Which other project or donor-funded activities have in the past been implemented in the community?

**Optional information:** The internal functioning of the existing committees and village-based organizations
can be further analysed. Their outputs and activities as well as those implemented with or by other projects/donors can possibly be visited and assessed. The representation of women in all the groups can be identified.

**Methods, tools:** Direct or semi-structured interviews. The relative importance of all the identified institutions and community-based organizations can be further assessed by the use of Venn diagramming (see Annex 11).

### 4.2.1.3 Analyzing Current Land and Natural Resource Use Patterns

Villagers should be encouraged by the PLUP team to openly present and discuss their current land and NR use. The objective is for the PLUP team to understand what the main prevailing issues are at the time being. For example: Is there basically sufficient availability of land and NR in the area? And, what could be a solution if this is not the case. Do villagers make use of many resources outside the community or planning area? Are there important conflicts with outsiders or neighbouring villagers? Are there vast open access areas around the community without any control or management principles? Are there any traditional use restrictions or protection mechanisms in specific areas? Etc.

**Essential elements:** The main land use areas need to be identified. Also it needs to be determined how local people actually manage and use the land and natural resources in their community. Then the status of land ownership in the community is assessed e.g. by checking for receipts, applications for possession, land certificates and land titles (formal/informal). Assess customary access rights e.g. to forests or fishing areas (who uses the resources?, for what purpose?, with what exploitation levels and frequency?, where are important boundaries?).

In many areas of Cambodia, the villagers seasonally or permanently make use of fishing or forest resources far away from their home community.

Such resource use outside the village or commune boundaries also needs to be considered. Vice versa, there are usually many other users exploiting NR within the planning area and these should also be identified (who comes from outside and when?, what do they use?, in what quantities and in which seasons?, what traditional or formal rights do they have?). Are there customary or traditional management rules for specific areas? If yes, are these existing rules and regulations known to everybody?, respected?, available in written form? Does the local population use a traditional land classification system? If yes, what are the main elements and how does it work? Finally, it would be important to know if allocation of land resources by the Government to outsiders has had serious effects on the local population and their customary practices?

**Methods, tools:** Villagers should be asked to draw a simple “community resources sketch map” (also called: village base map) on a large sheet of paper with coloured markers. The hand-drawn map should distinguish the settlement area, the main roads and paths, main landmarks, roughly the outer village boundary and all agricultural areas including swidden fields, upland farms and orchards, all forest areas, possibly distinguishing their current condition (e.g. very dense, good, slightly degraded, degraded, very poor, shrub land), all grasslands and all fishing areas (e.g. lakes, ponds, rivers, small streams, canals). See details on resource mapping in Annex 11.

Remember that it is not important to have a true to scale map at the end of this first mapping exercise. The village base map is a tool to roughly assess the overall situation of present land use. Detailed mapping will follow at a later stage (see chapter 4.2.3). It should not be forgotten that one PLUP team member has to moderate the drawing of the village base map and that another team member documents any other comments by people not directly involved in drawing the map. All PLUP team members should continue asking questions by pointing on the map to fill any empty spaces and to get the complete picture. Finally, a simple legend should be added to the map. An example of a village resource map is given in Annex 11.

### 4.2.1.4 Analyzing Current Land and Natural Resource Use Conflicts and Past Changes in Resource Use

Most probably any conflicts over NR use within the community or with outsiders will have already emerged during any of the previous steps. Nevertheless the PLUP team will have to take this up once again, as PLUP can also contribute to conflict management. The team therefore needs to determine what and who are the causes of the conflicts and what previous efforts have been made to resolve them. The PLUP team also has to get a clear understanding of the changes in NR use that have taken place in recent years.

**Essential aspects:** What are the main conflicts over resources use with outsiders? How does the community
deal with conflict situations on land use? Are there cases of land grabbing or land sales to any businessmen or powerful persons? Is the resources use by outsiders dominated by subsistence needs or for income generation purposes? Who are these outsiders? How has the overall situation on land and NR use evolved over the past 10-15 years?

Optional information: Possibly, the PLUP team could proceed immediately to an investigation of the views of others involved in any serious land use conflicts within the planning area. By looking at “the other side of the coin” they will be able to gain a better understanding of the overall situation and the causes of the conflict. This cross-checking of use and tenure conflicts is relatively easy in case of other villages being involved. In case of business people, concession companies, demobilised soldiers etc. this is more difficult and should be postponed to a later stage in the PLUP process (see chapter 4.3.2).

Methods, tools: In a second hand-drawn map (often referred to as “conflict map”), villagers should copy the main land use areas from the “village base map” and then mark in which area there is currently use of resources by outsiders, e.g. the name of the village or area they come from and the main products they use as well as the season and the number of outsiders making use of the NR. Zones where this leads to conflicts should be particularly highlighted with bright colours or flash signs.

In the same way all areas where outsiders have illegally appropriated land against the will of the villagers, should also be marked. Finally, arrows should be drawn across the village boundaries towards areas used by the local population which fall outside the planning zones. For example, if villagers seasonally migrate to the Tonle Sap area for fishing or exploit distant forest resources for certain times of the year, arrows should be marked on the map towards these areas. Along the arrows it would be useful to mark the season they travel, the products utilized, the number of families concerned and the approximate distance travelled (in days or km).

The PLUP team should always remember that their role is to ask questions and not to give the answers. In the case of the first resource maps drawn in the village, it is absolutely crucial that these are drawn by villagers and not by technical staff. At a later stage, these maps can be copied by the team. One important aspect of the entire situation analysis is to create trust and understanding between the PLUP team and the local population. This confidence and trust cannot develop if team members take a dominating attitude and order people what to do or what not. At the end of each exercise, the final question by the moderators should be: Have we overlooked or forgotten any issues relating to land and natural resource use that we should address? Do you want to add something?

4.2.2 Second Phase - Preliminary Analysis of Information and Feedback to the Entire Community

Under normal circumstances the participatory appraisal and information collection phase will take approximately 2 days of fieldwork. After this stage, the PLUP team will need time to review, analyse and copy the information collected. This means some office work. The team will compile and compare all their notes and the PRA tools to obtain a general picture of the community. This will also give them a chance to check and discuss whether they consider their information as complete and detailed enough.

In some cases, standard “village profiles” are compiled in order to standardize the information, to make it easier to check the information for completeness and to make the data more comparable between the various working areas.

Once the team feels it has sufficiently analyzed the information received, it should prepare for another village meeting to present how they have understood the villagers, cross-check the information and provide the chance to the local population to correct them. These feedback sessions with the whole community are extremely important during the entire process in order to avoid misunderstandings, keep all villagers informed and maintain an atmosphere of mutual understanding.

4.2.3 Third Phase - Transect Walks, Mapping and Modeling

4.2.3.1 Assess and Map Present Land Use and/or Prepare Models

Once the PLUP team has conducted the cross-checking and feedback session in the working area it is time to explore the land-use planning area in more detail. One suitable technique to start the field exploration steps is to carry out transect walks (see Annex 11). During the transect walks the PLUP team will split up in several sub-groups. A number of villagers will guide each sub-group in their walk across the village area. This can take the form of the groups walking in straight lines, e.g. from one end of the village boundary to the other in
East-West and North-South directions or the team members can request villagers to show them areas or spots they consider as particularly important. Once again, the transect walks and all observations made during these walks need to be properly documented. Topographic maps or even better, aerial photos can help tremendously in the orientation during these walks.

After the PLUP team has also physically experienced the character of the planning area, the PLUP team in cooperation with the villagers has to take a decision on:

- which part of the area needs to be mapped for present land use?
- what degree of detail should the mapping exercise achieve?
- should a traditional or a "modern" land use classification system be used for the mapping exercise?

Let us take a few examples to clarify the decisions, which have to be taken here: in a village area in the Tonle Sap region most families will have access to their own rice fields, home-gardens a number of ponds, lakes etc. for fishing and sometimes upland farms e.g. with cashew plantations.

In such a case, the question is whether the villagers and the PLUP team will have to map every single rice field, every lake or pond or every upland farm including data on the present use and the ownership issue. In the North-Eastern part of Cambodia the situation would be totally different. There, the question would be whether every single swidden field and all fallow areas claimed by one family or by the entire clan needs to be mapped. Remember that it is extremely difficult to distinguish between secondary forest areas and old fallow areas of shifting cultivation.

There are no standard rules on what should be covered at the present land use mapping stage and in what detail. This is an issue the PLUP team will have to decide on a case by case level. Nevertheless, certain minimum requirements can be formulated:

**Essential information and requirements:**

- The present land use map of the planning area should have a scale between 1:5,000 and 1:20,000. Ideally, it should be prepared on a transparent laid over enlarged aerial photos or satellite imagery. Enlarged topographic maps are usually insufficient as a mapping base (see Annex 9).
- In some projects with easy access to GIS facilities the present land use mapping is done by using the hand-drawn village resource map (see 4.2.1.3) and digitising that sketchmap with the help of GPS measurements. Thereby, the map originally drawn by villagers is gradually transformed to a true to scale village map reflecting present land use.
- On the present land use map at least a relatively accurate village boundary or boundary of the planning area should be marked. Staff from the Provincial Cadastre Office should assist in the demarcation of any administrative boundaries.
- Furthermore, the present land use map should reflect all units of common property resources or open
access areas with some indication on their **function** (e.g. production forest used for communal firewood supply, spiritual forest), **current condition** (e.g. severely degraded) and describe the prevailing access rights (e.g. used by villagers from x, y, z). This means that at least a complete inventory of all forest areas and all fishing areas should be aimed for during the mapping exercise. The details on each mapping unit should be compiled in a small table or data sheet. The use of codes (see example of classification system in Annex 3) for each mapping unit saves time and will improve the utility of the map.

- The present land use map should under Cambodian conditions always contain information on any minefields within the planning area, possibly with additional remarks on past and planned de-mining activities, mine density etc.

- As a rule of thumb, any areas showing rapid transformation in the type of land use and particularly in the tenure system should also be mapped in detail, unless this would mean more than 10-15 days of fieldwork for the team. Such areas could be recent upland farm areas established in former secondary forests or shrub lands, new plantations claimed by outsiders or expansions of the rice fields.

- On the other hand, old rice production areas (e.g. rain fed rice fields, floating rice areas) should normally not be mapped as individual fields or family properties, but as rice fields in general. Also, swidden fields and the corresponding fallow areas should not be mapped by family, but marked on the map as e.g. shifting cultivation area within a secondary production forest. The surveying and detailed mapping of the rice fields, all upland farms and swidden fields will be carried out by MLMUPC staff once a land registration and distribution program with the attribution of land certificates is conducted in the specific area after the PLUP mapping work.

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measurements at landmarks (e.g. old buildings, stream bends or mountain peaks) or clearly visible crossroads. This is also the case if the mapping base was an un-rectified aerial photo or even a satellite image.

In mountainous areas another technique of assessing present and discussing future land use can be used. This technique is called modelling and simply means that a three-dimensional model of the village or planning area is built. The villagers should preferably do this themselves. Models can be of temporary (e.g. sand or clay models in the village), semi-permanent (clay models fixed with glue cover) or permanent nature (e.g. cardboard or Styrofoam models). As this technique only makes sense in an undulating landscape, this method would not be applicable in the major part of Cambodia with essentially flat relief structure this method would not be applicable, but could be an interesting alternative in the more mountainous North-eastern parts of the country.

Modelling has the advantage of being a very participatory approach in case of temporary or semi-permanent terrain models being built by villagers. On the other hand, modelling is time consuming and does in most cases not fully replace the need for mapping exercises, as official endorsement procedures for land use plans usually require maps on paper.

Once again: a certain standardization of land and resource types is required for efficient mapping purposes. Official recognition, comparability and usability of a map will greatly increase by the use of a standardized classification system for land use units (see Annex 3) and the use of GIS for clean prints.

One sensitive issue when mapping present land use is the recording of the village or commune boundary. Officially, the administrative boundaries have only been determined down to the commune level. Even in the case of the commune boundaries there are still many uncertainties remaining over commune boundaries and re-surveying of some of these boundaries is currently under way in several provinces by staff of MLMUPC.

According to present experience, villagers in many parts of Cambodia have differing views on village boundaries. In relatively densely populated areas, village boundaries seem to be fairly well defined and known to everyone. Yet, some cases where village boundaries cross commune boundaries have also been recorded.

In cases where villages border large open access areas, such as vast forest areas or the Tonle Sap flooding zone, villagers tend to define village boundaries as the area within the direct vicinity of their village. Large common property resources are not considered part of the village area.

Yet, any given point in Cambodia should fall within the boundaries of a village, a commune, a district etc... Therefore each village should eventually have clear and definite boundaries with all its neighbouring villages and could never border with “no man's land”.

During mapping exercises it is extremely useful to cross-check village to village boundaries marked on the map in the presence of the neighbouring communities, although this is not always easy to organize. In some cases the boundary conflicts between neighbouring villages can only be solved by decisions on a higher administrative level (commune or district), which will seriously delay the PLUP work. Nevertheless, a clear demarcation of the planning area and its administrative boundaries is essential in order to clarify the management responsibilities of the local population.

While during the initial stages of the situation analysis, villagers should always take the leading role in analysing their current situation, the PLUP team members need to take a more active role in the mapping procedures on present land use. Villagers should be encouraged as much as possible to contribute to the mapping work, but generally speaking and due to the technical demands, they will mostly play the role of informants during the field work and GPS measurements. In case the team has enlarged colour aerial photos at their disposal, this will increase the opportunities for villagers' participation, as they will usually be capable of reading and interpreting these photos.

4.2.4 Fourth Phase - Feedback to Entire Community (Village Workshop)

Once the mapping exercise on present land use has been concluded, a second general village feedback session should be organized. Some projects in Cambodia (e.g. FAO-PMNR in Siem Reap) refer to this type of meeting as village workshop in which also representatives of local authorities (commune, district, DAFF, armed forces etc.) can be invited.

The objective of such a meeting or workshop is to reflect once more on the present land use, check the map
for completeness of information and to start discussions on options for land use changes, future land use and possibly land distribution.

4.3 Preliminary Identification and Screening of Options

4.3.1 Identification of Land Use Areas Requiring Changes

After the detailed analysis of the present situation in a specific planning area, it is important for the PLUP team to assist villagers in the development of a common vision of the future land use and to prioritize their needs for change. On the basis of the collected village data and information, the village base map, the conflict map and the more detailed present land use map as well as any other source of information, the PLUP team can now proceed to moderate the discussion on required changes in the planning area. These changes can be of several types:

- Change of land use in one land unit without changing the tenure rights (e.g. transforming a swidden agriculture plot into a permanent upland farm or fruit tree plantation).
- Change or at least clear definition of tenure rights to specific land units (e.g. allocation of specific forest areas as "community forests" and requesting official endorsement for this or allocation of former common property resources to individual families with insufficient or no land resources for productive measures).
- Re-allocation of land already claimed by certain people, but presently without formal title (e.g. distribution of illegally appropriated land areas to landless people in the village).
- Re-definition of village boundaries, protected areas or concession areas, as well as proposals for joint management models in large forest areas, in case the area available for use by villagers is highly insufficient.
- Resettlement of the entire village as the last option, which would only be considered under specific circumstances.

It must always be kept in mind, that any changes proposed by the villagers together with the PLUP team have to be considered as provisional and will need endorsement from the higher administrative levels. At this stage, the PLUP team will sometimes have to fulfil the difficult task of having to play two roles at the same time. On one hand they should be the advocates or lobbyists for the village interests. Yet, as staff members of Government institutions they also have to be loyal to their superiors and represent the state's interests.

Once the PLUP team comes to the stage of discussing the need for changes in current land and natural resources management practices as well as the related tenure issues, it is important to have a notion of any additional land requirements or improved access rights for poor families within the planning area. This means, that from the original data and information collected during the situation analysis, the PLUP team should be in a position to say how many families in the village currently have access to sufficient land and natural resources and how many do not. Basically, they will have to review all present land claims in the planning area.

In some countries standard rules are defined e.g. on the minimum land requirements for agricultural production (e.g. in sq.m per capita or ha/family), for forest use (e.g. in cub.m per capita or ha/family) etc. Most of these standards are highly controversial and very difficult to adhere to in practice. Equally, the standards become quickly obsolete and irrelevant in view of rapid population growth on one hand and dwindling resources on the other. Nevertheless, the PLUP team needs to jointly evaluate with the villagers during the PLUP process the relationship between peoples' needs and the overall availability of resources. It is an obligation for the PLUP team to identify practical solutions for the landless or destitute people in the village in cooperation with village authorities. In case a solution can be found, this should be noted for later inclusion in the future land use map and the village regulations.

Nevertheless, when the land claims of the local population are reviewed some kind of regulating body or a set of rules is required to avoid unjustified and exaggerated resource appropriation by the villagers. This aspect would have to be clarified further in the implementation guidelines on land distribution following the new land law.
PLUP can also play an important role in stabilizing shifting cultivation practices by e.g.:

- encouraging the local population to limit swidden agriculture to designated and clearly demarcated production areas, which will usually be in fairly degraded secondary forests.
- allocating these specific areas of secondary forest to the entire community for management according to a set of rules and regulations (see chapter 4.5) or clearly allocating (with a land certificate) specific fields and fallow areas to families for use under a rotational swidden system.
- assisting shifting cultivators to gradually transform at least some of their traditional swidden fields to permanent upland farms or fruit tree plantations (e.g. with mixed cropping systems, agro-forestry etc.).

In Ratanakiri Province the provincial authorities have proposed the demarcation of individual swidden agriculture plots per family within a communal land area. The land resources available for this type of cultivation will then be limited to 5 ha per household (depending on labor availability or number of family members). Traditionally in this area any person who develops a piece of land for swidden or permanent agriculture is recognized as having exclusive rights to harvest the produce and may pass on these rights in inheritance. The new 5 ha rule also means that a ceiling of 5 ha per nuclear family is placed on the conversion of swidden land to permanent use. This on the one hand protects weaker members of the community (widows and families with limited labor resources) from being marginalized by more aggressive or innovative community members.

Still, in the less fertile parts of Ratanakiri an area of 5 ha is considered insufficient for the survival of an average family. To a certain degree, the 5 ha provision will encourage families to engage in perennial cash crop production and thereby support a land use conversion.

In rare cases, the need to re-discuss village boundaries can be identified during the PLUP fieldwork. This could be the case when large parts of the village population have insufficient resources at their disposal within the village area, while large common property resources are located in the neighbourhood, which are already widely used and claimed by the villagers. In such cases, the PLUP team also needs to assure the equitable distribution of land resources between neighbouring communities and this will imperatively require the cooperation with provincial cadastre staff.

In mountainous areas, the relocation of the entire settlement area can sometimes enhance sustainable use of the resources and improve control over a specific village area. Under Cambodian conditions, this would mainly concern minority people who traditionally move settlements for spiritual reasons within certain boundaries. This moving of the settlements within the traditional area should not be confounded with a resettlement of the villagers outside their customary boundaries. This approach, although widely practiced in minority areas throughout Cambodia, Laos and Vietnam, has no connection to PLUP procedures and has in most cases had detrimental or counter-productive consequences.

### 4.3.2 Evaluation of Options

In most cases the changes required are not clear-cut, simple solutions. In most PLUP exercises there will be a multitude of options for changes in land use, NR use and tenure. The challenge is to identify socially acceptable, environmentally favorable and practically feasible solutions for the main land use related problems. The leading principles for the evaluation of options would be:

- at least subsistence needs of all villagers should be satisfied,
- any decision must be socially just and equitable,
- sustainable use and protection of resources should be promoted,
- and in some cases additional income generating opportunities could be identified.

This requires a thorough analysis of the available options for all major land use units. The role of the PLUP team is to introduce and clarify the various options and to moderate the village discussions on the various choices. The discussion on necessary changes in land and resources use within the community can be aided by the use of PRA tools, such as dream mapping, ranking and matrix scoring exercises (see Annex 11).

Once the community has decided on which option to choose, these should be written down by a village representative in view of using them again in the preparation of the future land use map and the village regulations.

Changes in agricultural land use will mostly concern upland areas (e.g. swidden areas or upland farms) and will require the formulation of certain restrictions and possibly some incentives to promote the wanted
transformations. Usually, the present rice field areas require fewer changes.

Changes in the use of common property resources could be envisaged for forest areas, grassland areas and water bodies. The management changes could take the form of specific use restrictions (by season, by technique, by selection of permitted users etc.) or lead to total protection of the area.

Any envisaged management changes will also require a review of the land and resource tenure system. State land (concession areas or protected zones) is a priori excluded from any changes in tenure. In some cases the local community will request improved access rights and a co-management responsibility in state concession or protected areas. As mentioned earlier, there would be numerous options for joint or collaborative management models in such areas, depending on the level of devolution and the institutional arrangements. Sometimes this could also necessitate the re-definition and adaptation of boundaries.

For designated community forest areas there are a few tenure options. These could be maintained in one block under communal management according to a set of rules or be subdivided in individual family forest plots under household management.

One important issue, which is often overlooked, concerns the definition of land and resources needs for future generations. Ideally, the PLUP team should during the evaluation of options also discuss the setting aside of sufficient land areas for use by young families in future. This concerns agricultural land, but possibly also forest land and fishing areas. In those areas where the current exploitation levels are close to or beyond the limit of the natural production potential, this issue will be particularly difficult to solve.

The re-allocation of individual property for agricultural production (e.g. farmland acquired by outsiders or fields of large landowners in the village) will be one of the most sensitive issues during the PLUP process. In case villagers request this option, conflicts with higher administrative levels are very likely. The village authorities and the PLUP team will have to decide whether such cases should be brought up to the “Land Conflict Resolution Committee”.

4.3.3 Technical Suitability Assessments

In those areas where the need for a change in land or resources use has been identified, more detailed land capability assessments or resource assessment (e.g. agricultural potential, water availability etc.) could be envisaged. In practice, such assessments are extremely time consuming, costly and require good technical expertise. Therefore, the implementation of suitability assessments is only optional during the PLUP process. In view of establishing simple management plans by communities a participatory resource inventory and some specific measurements should be conducted (see chapter 4.5.3). Yet, these inventories are very different from comprehensive land capability and resource assessments.

Usually, villagers know best about their direct environment and can judge quite well on the suitability of land areas to fulfil their own needs. It is this local expertise that is mainly used for PLUP and it will be complemented by the technical knowledge of the PLUP team members. This is different in the case of PLUP in resettlement or de-mined areas, where generally a more thorough assessment of the potentials of land use units is required.

4.3.4 Decision on best Options for Future Land Use

Once, the community has exhausted the discussion and evaluation of the different options, decisions need to be taken and documented. These decisions will later be incorporated in the future land use map, the village regulations and eventually the management plans.

4.4 Creation of a Management Committee

At one stage of the PLUP process it will be necessary to create a committee for the management of land and natural resources in the planning area. This could be a village committee, elected by the villagers of one
community or it could be a committee with representatives from several villages in the case of a small watershed or a larger forest area. Equally, there could be a management committee on the commune level with participants from all villages in that particular commune. The creation of such a committee could also come earlier than step 4, e.g. already during the situation analysis phase or before the evaluation of options for land use changes. Practical experience has shown, that the election of such a committee at the very beginning of the process will rather confuse villagers, because the PLUP work has not yet advanced and the tasks of the committee members still remain difficult to understand.

All projects and organizations working in CF or CB-NRM in Cambodia have encouraged villagers to form such management committees at one stage of their work. According to their main responsibilities, the committees carry different names in the various project areas. Some are Village or Community Forest Management Committees (FAO Siem Reap), Community Consultation Committees (NTFP), Village NRM Committees (PDP-Kampong Thom, CB-NRM Ratanakiri), Resource User Committees or simply PLUP committees. Obviously, the tasks will vary slightly between CF, consultation and NRM committees.

Yet, the basic functions of any of these committees will include elements of the following:

- Represent villagers or improve coordination among villagers in the PLUP, CF or CB-NRM process.
- Accompany and assist the team of facilitators (e.g. PLUP team or core team).
- Support the team of facilitators in the moderation of village discussions, create awareness on the PLUP work and NRM issues in the area.
- Help in the resolution of conflicts within the village or with outsiders (e.g. boundary demarcation).
- Guide the elaboration process of village regulations on land and NRM use by a sequence of village meetings.
- Develop an action plan for the community in terms of land and NRM related activities and organize the implementation of these activities.
- Monitor the application and enforcement of the village regulations, including the punishment of illegal activities, collection of fines, but also the granting of incentives.
- Administrate the money collected in fines or fees, decide on and account for the use of the funds for NRM activities.
- Maintain contacts with neighbouring villages, the commune level, the district level and the provincial level as necessary.
- Report to the concerned institutions (commune level, fishery and forestry staff on district level etc.) any illegal activities and conflict situations over NR use in the area, which cannot be resolved by the committee itself.
- As a general rule, there should not be more than one committee per village or commune dealing with NRM issues or aspects of these. This means that if PLUP work is started in areas, which already have a Community Forest Management Committee, the tasks of this committee should simply be revised and complemented. Any kind of NRM committee should be considered as a sub-committee of the VDC, if such an organization exists in the village. Possibly, the relationship of the NRM committee with other village committees (e.g. pagoda committees, parents or elders associations) needs to be clarified in advance.

Ideally, the NRM committee should be elected from all and by all adult members of the community. Some projects prefer to further specify the composition of the committee, by requesting villagers to elect or nominate a minimum number of women, elders, young men or the head of village. Especially the representation of a sufficient number of women on the committee should be taken seriously for gender reasons. In some cases it will be a major challenge to include all relevant stakeholders, even those living far from the protected or jointly managed resource area and to achieve an equitable representation of all groups and social classes in the committee. A domination by the most powerful and wealthier people in the area must be avoided by all means.

Due to the documentation work (e.g. drafting of village regulations) and accounting responsibilities, all members of the committee should normally be literate. The number of members in the village committee should be limited to between 5 and 8 (for very large villages). In some cases villagers opt for also electing some special advisors to the committee, such as monks or abbots from the area, old knowledgeable people etc. For NRM committees on the commune level the number of members will depend on the number of villages concerned.

As a general rule the village or commune NRM committees should be re-elected every 3 to 5 years. Experience has shown that a facilitation and supervision of the election procedures by the team of outsiders (PLUP team) is generally appreciated by villagers and improves transparency and fairness of the process. Some projects even demand the presence of commune and district level representatives during the election process (FAO Siem Reap). Elected members of the committee should ideally perform their new tasks on a
voluntary basis, but the community could also envisage internal compensation mechanisms, such as the exemption from fees and other communal work obligations or neighbourhood assistance for operations on their fields etc…

4.5 Preparation of Future Land Use Plan, Village Regulations, and Detailed Management Plans

4.5.1 Future Land Use Plan

The future land use plan is a map, preferably in the same scale as the present land use map of the planning area (see chapter 4.2.3.1). On the basis of the present land use map and a transparent laid over the mapping base (e.g. aerial or satellite photos), the new map is first drawn by hand, but could later be digitised for GIS treatment and printing. All areas, which require any type of change and all decisions taken during the discussion on the options should be copied to the future land use plan. The various land units should be given the new codes according to the classification system (see Annex 3) and all remarks on the required changes within a particular unit could be added in a small database sheet.

Together with the document on the village regulations and eventually some detailed management plans for specific areas under communal control, the future land use map is one of the core outputs of the entire PLUP process. The future land use map and the regulations are the main documents submitted to the authorities for endorsement and official approval of the PLUP work.

In terms of timing, the elaboration of the future land use map in many cases will directly follow the decision making process described in chapter 4.3.3 and 4.3.4.

4.5.2 Village Regulations

Village regulations (VR) are another core element of land-use planning exercises, as they reflect the decisions taken by the community on the future management of all local resources. The agreed upon management rules and regulations will vary from one village to the other. Therefore, the drafting of the VRs should be kept flexible and adapted to local conditions. It is highly problematic if projects or village facilitators promote "standard" regulations or impose good examples of such documents from other areas to the villagers. Instead, every community should be encouraged to evaluate their own situation, discuss openly and come to their own conclusions. Unless this is done, villagers will always consider the village regulations as those of outsiders and not as their own. This would mean, that the rules and regulations would be less respected and adhered to.

Still, the villagers and the PLUP team need certain guidelines for the elaboration of the VR. The PLUP team needs to introduce the concept of VRs, describe the main topics to be covered in the VRs and give a short introduction on the respective responsibilities of the villagers and the PLUP team during the drafting process. The best option for the PLUP team is to use simple guiding questions in order to make sure that villagers and the village NRM committee have thought of all the main aspects and possible issues. An example for such questions and a rough guideline is presented in Annex 12.

Box 10: Approaches used by various projects in the development of regulations

<table>
<thead>
<tr>
<th>CONCERN (Kampong Chhnang/Pursat)</th>
<th>FAO - PMNR (Siem Reap)</th>
<th>CARERE (Battambang) Upland areas</th>
<th>CB-NRM (CARERE) (Ratanakiri)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CONCERN staff drafts regulations for the village committee (the structure of the committee is mentioned in the VR).</td>
<td>1. With facilitation by project staff, the community develops draft regulations based on the ideas of each village within the project area.</td>
<td>1. Villagers receive existing regulations from the facilitator to get some ideas.</td>
<td>1. A village meeting is organised to initiate the development of regulations.</td>
</tr>
<tr>
<td>Step</td>
<td>Description</td>
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<td>------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>The draft VR are reviewed by group leaders, the village committee and the project committee members.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>CONCERN staff reads each article/clause of the draft VR in front of the villagers and answers all questions raised by villagers until they agree and get a consensus; each point in the VR needs to be accepted by voting (raising the hands).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>CONCERN staff edits a second draft of the VR and takes it back for presentation in another village meeting.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>CONCERN staff requests the approval and organizes the signing of the final document by the village committee, the head of commune, the district governor and line agencies (DAFF).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>A final version of the VR is prepared, signed by the village committee, the commune leader, district governor, line agencies, the Provincial Governor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>A seminar is organized on the provincial level to agree on the Regulations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>The Regulations are submitted to line agencies at the provincial level for comments.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>The Regulations are signed by local authorities, line agencies and the Governor’s office.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>The Regulations are submitted to PRDC for the handing over.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Village regulations are a very useful tool to make traditional (usually unwritten) use rules and regulations known, transparent and get official recognition for them. In case these traditional regulations exist, they are usually the starting point in the drafting process. One example: spiritual (sacred) or ghost forests of minority people are among the best protected forests in Cambodia, same as in other neighboring countries. The interdictions with regard to the specific forest area are well known to all villagers and possibly to the neighboring communities. On the other hand, government officials and other outsiders will not be aware of the existing taboos. By including them into the VR, these rules become more transparent and publicized and chances will increase to have them respected even by outsiders. In case no traditional regulations exist, these simple rules have to be developed in steps and cover all land units. The document on regulations should be particularly exhaustive where maps are not very detailed or of good quality. As a general rule the document should include a general description of the village location, an enumeration of the main common property...
resources in the area, any restrictions on individual land use areas (farms, home-gardens, rice fields), management guidelines for all CPR, indications on conflict resolution mechanisms and how to deal with land owned or managed by emigrants or new immigrants to the village. The annexes to the VR should contain information on the current village

NRM committee and the fining catalogue, as these might have to be reviewed more frequently than the entire VR document (see Annex 12). Village regulations need to be drafted by the villagers themselves. This could be either done by the NRM committee in a small group and then cross-checked and approved by the entire community, or by a sequence of (evening) village meetings to discuss and decide all the articles of the document in a larger group. Ideally, representatives of the commune level should be present in the discussion stage of VR. The PLUP team will come back regularly to the village to listen to the drafts, ask questions of understanding or remind villagers of issues not yet sufficiently covered in the document. They should in no case change the VR themselves or force upon villagers certain reformulations, unless any article in the document is clearly in contradiction to Cambodian laws. Practical experience has shown that the PLUP team will have to listen and advise on the VRs at least 2-3 times over a period of several weeks.

Once the hand-written document on the VR is sufficiently comprehensive and approved by all adult villagers in a general village meeting, the draft version should be typed in Khmer language. Usually a VR document will contain a number of articles and paragraphs and comprise between 15 and 30 pages, including the annexes. At the end of the document, space is left for the signatures of all parties having to approve the regulations (see chapter 4.6).

At the same time as village regulations are elaborated, it is very useful to note down future implementation activities in NRM into a simple action plan (see example in Annex 12). This work-plan could be used as a basis for extension and support activities by projects and programs or simply reflect the jointly agreed upon self-help activities of a community once all PLUP documents have been officially endorsed (see chapter 4.7).

Once, the regulations of several villages in one commune have been approved by the local administration, a summary of these regulations needs to be prepared to form the commune statutes in which the main guidelines for the management of resources in the entire commune will be described. Especially, the key common property resources for each commune need to be listed by name and their use or protection rules need to be described. Elements of these commune statutes would be included in the commune development plans, which have to be drafted by the elected commune councils from the year 2002 onwards. Examples of village regulations from Cambodia are represented in chapter 9 of this document.

4.5.3 Management Plans for Communal Areas (Community Forests or Community Fishing Areas)

Once the village regulations are officially recognized and approved, the village NRM committees should be encouraged to draft more specific management plans for all areas under communal management. These could be fishing areas, such as ponds, lakes, parts of rivers and streams or forest areas such as community production forests or protected forests.

The management plans define specific management activities and timeframes. These plans are essentially more "technical" than the village regulations. The community prepares the management plans after analyzing their user needs, the condition of the forests or water bodies and discussing issues like prohibitions, protection and management responsibilities and benefit sharing mechanisms.

The plans need to be based on a participatory resource inventory exercise, which for example will include assessing the number of trees standing in community forest areas, describing the species composition, assessing approximate volumes and sustainable yield rates (for an example of a participatory forest inventory see Annex 13). Correspondingly, in the case of fishery resources the predominant fish and aquatic animal species, the approximate productivity rates and specific protection requirements (spawning seasons, migration periods etc.) need to be identified. These inventories are conducted jointly between the NRM committee, other knowledgeable villagers and the PLUP team members. In this exceptional case, the PLUP team members split up according to their technical specialization, with the fishery staff assisting villagers in the fishery resources inventory and the foresters supporting the participatory forest inventory. The results of these inventories will help in the elaboration of the management plans.

The final document of a communal management plan should include the following details: objectives, forest type and condition, forest product harvesting, natural regeneration, forest rehabilitation needs, land use and land allocation, distribution of benefits, management activities, bio-diversity considerations, roles and responsibilities (see Annex 14).
In the FAO Participatory NRM Project in Siem Reap the specific steps of the preparation of management plans are:

- participatory mapping of management areas
- block division and sub-block division based on forest productivity and the objective of the users
- allocation of management responsibilities based on indigenous forest management system and village location
- participatory forest inventory
- data analysis and discussion with community members
- drafting of management plan
- review and finalization of management plan with community
- submission of management plan to provincial forestry office (or fishery office for fishery domain land) for approval

In many cases of community forestry in Cambodia, the local authorities and forestry representatives only agree to the allocation of fairly degraded or at least less productive forest areas for communal management schemes. Therefore, the resource inventories in the forest areas will frequently come to the conclusion that the area or the amount of resources allocated to the community is not sufficient to meet all peoples’ needs. Government services then expect villagers to carry out rehabilitation measures.

In case the community decides temporary protection and regeneration measures in the degraded forests, this will mean that pressure on the resources of other areas in the vicinity will grow. In case this continues for some time, it can lead to increased degradation of the resources located outside the working area. Examples in Siem Reap (FAO) or Kampong Chhnang (CONCERN) have shown that forest regeneration and recovery in community controlled areas can be impressive, but the effect on surrounding areas has never been measured. Still, there is an obvious need for regenerating and temporarily protecting such community forests. At present, it still remains very difficult to make predictions on future productivity levels of such regenerated forests and therefore on sustainable yields.

Same as the VR, the management plans for communal areas need to be typed and submitted for official approval and endorsement procedures (see chapter 4.6).

Once, the approval is granted to the community, such areas need to be physically demarcated on the ground, either by the use of signboards, painted poles or other boundary marks. The village NRM committee then has the overall responsibility of supervising the implementation of the management plans, enforcing the prohibitions and making sure that eventual benefits are shared equally, as planned in the document. A selection of communal management plans from Cambodia is included in chapter 9 of this document.

### 4.6 Submit Land Use Plan, Regulations, and Management Plans for Official Endorsement and Approval

The village regulations are a tool towards getting recognized collective rights on cracking down on illegal activities and introducing sustainable management practices in village/commune areas and this requires official recognition from the district, provincial and sometimes the national level.

The future land use plan reflects all state land areas, all areas which should fall under community management in future and areas which are considered part of the private domain. The management plans present the detailed management guidelines for all areas under community control. On the last page or at the bottom of all these documents space is left for the official signatures of approval. All these proposals, which have essentially been prepared by villagers and present their views and priorities, need to be counter-checked and approved by Government officials from technical services and local authorities.

In the case of the FAO project in Siem Reap the final regulations are submitted to the Provincial Governor for official endorsement and approval after being checked and signed by the village committee, the commune chief, the district governor, the forestry and/or fishery office and the head of the provincial agriculture department (DAFF). In case of the planning area being located in the flooding zone of Tonle Sap (fishery
domain), the regulations and management plans have to be finally submitted to the head of the Department of Fisheries at the national level where the final signature is usually delayed for several months.

In the Province of Kampong Thom the NRM section of the GTZ supported PDP-KT has started presenting the first village regulations to the members of the Provincial Committee on NRM in the Tonle Sap area under the chairmanship of the Provincial Governor. Before reaching this committee the VR are checked and signed by the village NRM committee, the commune chief and the district governor. During the meeting of the Provincial NRM Committee, copies of VRs are distributed to all heads of provincial departments and security officials represented in the committee for critical evaluation. In the next session, the committee members can then make remarks or request amendments. In case of substantial changes proposed to the documents, they have to go back to the village level for discussion and through the commune and district level once again if a new compromise has been found. In the CB-NRM Project in Ratanakiri, the procedures of submitting the regulations is similar, except for the fact that the project organizes a sequence of workshops to involve the district level, the line departments and the provincial authorities. Finally, the regulations are signed, and endorsed by the PRDC and an official handing over ceremony is organised in the community.

In general, the role of the PLUP team is to submit the regulations and possibly present them to a committee, follow up the endorsement procedures of the documents and eventually mediate between the wish for changes by district or provincial officials and villagers. Very often, the final product of the plan, the regulations and the management plans will constitute a compromise between the various views and opinions. PLUP team members play a mediating, but sometimes also a lobbying role during this stage. A discussion on institutional settings for the official approval of land-use planning activities and the present situation in all provinces of Cambodia is presented in Annex 4.

4.7 Implementation of Action Plans and Land Allocation Programs, Link to Extension Services and Conflict Resolution

Once all the land-use planning documents have been agreed and officially endorsed, the implementation phase will start. Ideally, the implementation of activities should follow the village NRM activity plan (also called NRM action plan or village work plan by other organizations). This plan is usually set up and modified during the process of elaborating the future land use plan, the village regulations and the management plans. Typically, the activity plan will include village tree nursery establishment, tree planting, fish breeding, environmental education, energy saving stoves, fruit tree promotion, improved agricultural production or rural credit activities.

For the planned land use changes to succeed, villagers require outside support during the transformation process. This support has to come through qualified agricultural, forestry and fishery staff providing extension and training. If well documented, the village plans can serve as a basis for extension work, development support and a program of demonstrations (e.g. on improved land management techniques) by NGOs and Government services (see Annex 12).

The Provincial Offices of Land Management, Urban Planning, Construction and Cadastre should always receive a copy of all future land use plans elaborated for any area within the province.

This map will clearly specify the areas in need of land demarcation and allocation procedures outside the private domain (rice fields, home-gardens, homesteads), see next page. In addition, the PLUP team should specifically inform the cadastral staff on the land registration and allocation needs of each planning area or village. Once clear implementation guidelines for land allocation are available, the cadastral services could then start demarcation and registration work in the respective PLUP areas according to the future land use plans.

PLUP on village or commune level can lead to the need to renegotiate the boundaries of protected or concession areas (e.g. fishing lots). This re-evaluation of boundaries can only be done under the supervision of the respective land conflict resolution committees in the various provinces or special committees on boundary demarcation e.g. for the Tonle Sap fishing lots.
Despite the fact that PLUP can in itself be regarded as a conflict resolution mechanism for land conflicts by searching for equitable and transparent solutions in land management, some land use problems will usually even persist after PLUP. Most of these conflicts will involve the villagers on the one hand and outsiders on the other. The outsiders could be neighbouring villagers. Even more frequently under the Cambodian conditions, these outsiders are demobilized or active soldiers, private businessmen or Government officials. Therefore, conflict resolution remains a crucial issue even after the PLUP documents have been officially endorsed. A description of the main conflict resolution mechanisms applicable in PLUP is presented in Annex 15.

**Land Demarcation for Cadastral Services**

4.8 Monitoring and Evaluation

In the case of PLUP there are various forms of monitoring and evaluation activities involved. In a village where the PLUP process has been successfully implemented this could be:

- Self-monitoring of the entire PLUP process, e.g. by counter-checking the activities of the PLUP team against the recommendations made in this PLUP manual.
- Monitoring of extension and demonstration activities carried out by NGO or Government services in support of the planned land use changes.
- Monitoring of the activities included in the village NRM activity plan.
- Monitoring of the village regulations and management plans: their enforcement, rates of compliance, collection of fines, incidences of conflicts with outsiders etc., which could possibly lead to periodic
revisions of the documents.
- Monitoring of changes in land use practices and tenure systems as well as their direct effects.
- Monitoring of the overall impact of the PLUP work on natural resources and socio-economic situation (wanted/unwanted effects).

The village NRM activity plan and all the extension activities promoted in the area should be reviewed periodically by the villagers and the extension staff (possibly every 6 months). This will help both sides to critically evaluate which activities were successful, what has not been implemented at all or only with delays and will help to improve the accurateness of future work-plans. Particularly successful extension or demonstration activities can be further promoted in other areas.

The village NRM committee will monitor the compliance with the village regulations and management plans. Periodically the village NRM committee should meet with the PLUP team to jointly discuss and assess the enforcement of the regulations and management plans. These meetings should also include joint field visits to critical sites. Typical indicators to evaluate whether the enforcement of the regulations has been carried out successfully, are the number of violations observed, the amount of funds collected in fines, the cases of conflicts with outsiders and their resolution. The PLUP team has to make sure, that the village NRM committee gets regular support through such supervision and joint evaluation visits the village. In the beginning, these visits should be more frequent (e.g. every 2 weeks) and intervals could then gradually decrease, as the NRM committee becomes more self-confident and independent.

Once a year the direct effects of the entire PLUP work on the natural resources in the area, on land use practices and on tenure issues should be critically reviewed in a village workshop. Commune representatives, district officials and provincial staff should also be invited on such occasions. The workshop should also include field visits to specific sites. In case photos have been taken during the earlier stages of PLUP work, e.g. the mapping of land use, these photos can be compared to the actual situation e.g. one or two years later.

After a period of approximately 5 years the overall impact and the wanted and unwanted effects of the work can be assessed. University students, consultants or research staff could be given the task to do this. They would then compare the original data and information collected during the situation analysis in the planning area, look at all the PRA tools, maps and documents and compare these to the present situation. Preferably, this type of work should be done by outsiders of the PLUP process in order to give a critical feedback on the impact of PLUP to the PLUP team members, all involved Government institutions and projects.

The overall impact assessment studies could also clarify which are essential enabling environments for PLUP in Cambodia, what are the conditions for successful implementation and which are the main hindrances.

### 4.9 Expansion and Time Requirements of PLUP

As described in this manual, the PLUP team will have to provide intensive facilitation support during the PLUP steps 1-6. In a normal situation in Cambodia, these steps will require a total of approximately 20 to 30 working days for the PLUP team members per village over a time span of 6 to 10 months. With steps 7 + 8, the extension and support work will slowly diminish, as described above. This in turn permits the PLUP team to start new activities in other villages and thereby slowly expand the work. It is estimated that one PLUP team of 3-5 staff members could be responsible for up to 20-30 villages at a time, depending on transport means and distances. After 3-5 years of cooperation with one village NRM committee, the PLUP team should be able to reduce their monitoring visits to approximately once a year. Obviously, the rate at which the outside support to the respective village NRM committees is reduced over time depends on their capacities and degree of confidence.

It is extremely important for the PLUP team to achieve a certain area coverage and expansion rate in their PLUP activities to justify their personnel and training costs. Equally, the PLUP work needs to be expanded to other areas in order to achieve equal benefits for a wider range of villages, their inhabitants and the natural resources in their areas.
5.1 PLUP in Protected Areas/National Parks

Land-use planning in Cambodia's 23 designated protected areas (PA) falls under the jurisdiction of the Ministry of Environment.

Although not yet passed, a protected areas sub-decree was drafted in late 1999 for the use, wise management and protection of natural resources falling within protected areas. Within Cambodia there is little experience working in PA's with local communities, and typically there is conflict in terms of land use practices. Legally, villagers living in the protected area prior to 1993 have user rights in the community zone of the PA; that is, they are not able to buy or sell land within PA's.

According to the sub-decree, PA's are to be divided into three areas: core zone, buffer zone, and community development zone. Any land-use planning process needs to consider this, especially as Cambodia will begin to undertake a land-titling process (this land-titling process will not take place in PA's). Therefore, land titling issues need to be addressed and further examined for PA's.

In the Participatory Management of Mangrove Resources Project in Koh Kong experience working in a coastal PA, PLUP can work if there is neutral facilitation in a village between villagers and various government agencies. For example, the Ministry of Environment has supported community involvement in resource management and planning activities (specifically pertaining to fisheries and forestry issues) in Peam Krasoap Wildlife Sanctuary. Resource management initiatives work when the village chief supports such initiatives and for villages that are interested in resource management.

Like elsewhere in Cambodia, land ownership issues also occur within the PA. For example, some richer villagers claim land title rights for prime farmland (which is limited in coastal villages) even though land title was never supposed to be given out in PA's and other families claim ownership to shrimp farm areas (meaning that others cannot access these areas). Even though legally villagers only have user rights within the PA, those that have the most support or backing are those that can access the best fishing grounds or shrimp farm areas.

5.2 PLUP in Ethnic Minority Areas

The main ethnic minority areas in Cambodia are located in the provinces of Ratanakiri, Mondulkiri, Stung Treng, parts of Kratie and Preah Vihear. In this region the conditions for PLUP are different from other parts of Cambodia, as the land management practices, customary land tenure and social organisation differ from the main areas inhabited by Khmer people.

Some characteristics are:

- Slash and burn (swidden) cultivation is the most important economic activity of indigenous people
- Clearly defined boundaries, which have been set by elders in the past separate the user areas of adjacent communities
- Membership in the community is the primary pre-requisite for rights to cultivate land within the communal boundary
- Sacred or spirit forests are protected areas as they are believed to be inhabited by powerful spirits, as are the burial grounds
- Large areas of old growth forest (in some communes up to 50% of the total land area) are maintained for collection of forest products, outside the village cultivation boundaries
- There is a strong tradition of communal tenure of land and resources, joint decision making and leadership by village elders

The NTFP Project has started supporting land-use planning activities in various ethnic minority communities of Ratanakiri Province. The following is an account of the PLUP process in one ethnic minority village:

In view of the difficulties being face by other villages due to loss of land to forest concession areas, private
agribusiness etc., leaders from Kro Lah village (Kreuung minority) decided to request assistance from NTFP Project in late 1997. After considering a number of options for land tenure (including individual titles and a collective of individual titles) the villagers chose the option of mapping user areas with participation from local authorities in preference of legal title options. Their rationale was the recognition from the local authorities would provide better protection than legal title.

The land-use planning process would enable them to continue to use some areas (e.g. for swidden farming) communally and allocate other areas for individual use (such as paddy and fruit tree orchards). Staff from the Central Land Titles Department in conjunction with the Land Management Project (MLMUPC/GTZ) provided technical expertise in producing a participatory land use map of the village user areas. 12 micro-zones were identified and mapped. These include:

- Old forest for collection of NTFPs
- Spirit (sacred) forest
- Bamboo forest (for collection of building materials)
- Watershed protection forest
- Burial forest
- Buffer forest (around the village)
- Village (residential) area
- Paddy
- Swidden and fallows
- Perennial (fruit) orchard
- Investment zone for cash crop production

The total area covered by the land use map is approximately 1200 hectares. Of this, about 35% is agricultural land (swidden, fallow, paddy, orchards). This approximates the 5 ha per family (79 families) which is consistent with the circular on land use in Ratanakiri Province.

For each of the 12 micro-zones, internal regulations on use and management were developed. These were produced by a village land use working group, with technical assistance provided, where needed from NTFP and technical counterparts from the Central Land Titles Department. The process of formulating regulations included regular review at a meeting of all village members.

All communities with user areas adjacent to Kro Lah village sent representatives to join the process at all crucial steps. Kro Lah representatives attended meetings in all of the neighbouring villages in order to ensure understanding of the process and to resolve any outstanding disagreements about the extent of user areas between the neighbouring communities. After all negotiations were completed, elders and leaders from the neighbouring villages placed their thumbprints on the land use map to signify their support.

Since support/recognition by the authorities is a crucial factor in ensuring land/resource security, relevant authorities and line departments were involved in the process at all steps. The process of mapping and developing user regulations took approximately 4 months. At this stage, a "Land and Natural Resources Committee" was elected. The land management regulations include provisions for re-election of the committee and principles of its operation.

Examples of the regulations:

- Sale of land must be endorsed by consensus of at least 80% of the voting members of the village. (This will help protect the food production potential of the village for future generations)
- Access and rights of use are allocated by the community to individuals or families who are members of the village. Productive activities are primarily carried out by individual families.
- Swidden land (chamkar) may be converted to permanent land uses, such as perennial fruit orchard or cash crops. Any family who develops a parcel of land is recognized as having exclusive rights to harvest the produce (and may pass these rights on in inheritance). A ceiling of 5 hectares per nuclear family is placed on the conversion of swidden land to permanent uses. This helps to protect widows and other families with limited labour resources from being marginalized by more aggressive community members. The 5 hectare provision encourages families to engage in perennial cash crop production, according to the provincial development policy. Villagers can expand their area of perennial crops year by year, according to their own pace and capacities. As these crops come into production, one may expect a corresponding decrease in dependence on shifting cultivation.
- As the village population increases (and the number of nuclear families), the situation may arise where all swidden land has been allocated to individuals. At this stage, parcels may begin to be divided to children by inheritance. This situation would be little different from having private land titles, with the
exception that sale of the land would not be permitted.

- Old growth forest areas and spirit forests are protected from further encroachment.
- Significant areas have been set aside for joint investment in cash crop production. The community welcomes any investors who are interested in developing this land for cash crops. An agreement would be required, defining the period of cooperation and provisions for sharing of responsibilities and benefits between investment company and the local community. Such an approach allows for the Government priorities of encouraging investment to be realized, at the same time as protecting the community's interests. It effectively recognizes that the state, local communities and the investor are all legitimate stakeholders in the land. This approach introduces a new tier of decision making in development and investment on customary land - that of consultation, participation and negotiation with the local community.

Based on their traditions, the ethnic minority community of Kro Lah gives clear preference to communal tenure of land (with the exception of paddy land and orchards) and today requests the distribution of communal land titles for the different micro-zones distinguished during the PLUP process (for more details see case study 8.10 on PLUP in minority areas of NE Cambodia and Kro Lah village)

### 5.3 PLUP in Forest Concession Areas

Presently, there is hardly any experience available on CF or PLUP in forest concession areas of Cambodia. The PNRM FAO Project in Siem Reap has recently started supporting one community forestry site within a concession area following the same procedure as in other forest areas.

The main difference is the involvement of the concessionaire during all working steps and the signing of a formal agreement with the concessionaire at the end of the process (which has not yet been achieved in the case of Siem Reap).

A PLUP exercise would be ideally suited for villages located entirely within the boundaries of a forest concession area, a case in which there are usually numerous land and resources use conflicts reported. In this type of situation, PLUP would support the consultation and negotiation process between villagers and the concessionaire. Conflict resolution mechanisms would certainly play an important role (see Annex 15).

### 5.4 PLUP in the Fishery Domain

For CF or PLUP in the fishery domain (any periodically flooded area around Tonle Sap, the Mekong river area and all coastal zones) the same procedures and working steps are applied as in other areas. The main difference is that the future land use map, the regulations and any documents on the management of forestry or fishery areas have to be also signed by the Department of Fisheries on the national level to become effective.

A Sub-decree on Community Fisheries currently exists in draft form and has been reviewed in a public consultation process (see Annex 2). The draft Sub-decree on Establishment of Community Fisheries contains the following important points:

- Community fisheries is defined as a group of people who volunteer to agree and co-operate in order to establish a local organization with the objective to manage, conserve, develop and sustainably use fisheries resources in order to protect the rights and benefits of the people.
- Community fisheries projects may be started throughout the fisheries domain. This includes marine areas, rivers, lakes, wetlands or any fishing areas which are open to the public. This excludes areas closed to the public such as fishing lots, fish sanctuaries and private property.
- Participation in a community fisheries project is voluntary and open to all citizens of Cambodia. Participants can come from any number of villages.
- Community fisheries are a partnership between the people and the relevant authorities such as the DoF, local authorities etc. The participants are able to develop their own by-laws to manage the community fisheries organization and regulations to manage the fisheries resource provided that they are consistent with existing laws.
- Authorities such as the DoF and local authorities must co-operate and assist people wishing to start and implement a community fisheries project.
- The participants in a community fisheries project are represented by a committee, which must be elected by the participants. The committee members cannot be government employees.
- Community fisheries is restricted to family scale fishing gears in inland areas and family and middle-scale fishing gears in marine areas.
- Recognition of a Community Fisheries organization/project requires the drafting of a document containing the names and organizational structure of the elected fisheries committee, the community by-laws and regulations, a management plan and a map of the area to be managed. This document must be signed by the Head of the Provincial Office of Fisheries.
- After signing by the Head of the Provincial Office of Fisheries, the Community Fisheries project is able to implement the by-laws and regulations with the full co-operation and support of the relevant authorities.

### 5.5 PLUP in De-mined Areas

The Land-use Planning Unit (LUPU) in Battambang which is supported by CARERE/UNDP and the Land Use Management Unit in Banthay Meanchey supported by Handicap INTERNATIONAL have acquired particular experiences on land-use planning in de-mined areas. The following paragraphs summarize the main institutional aspects and describe the approach:

#### Institutional Aspects

In Battambang province the Provincial Sub-Committee (PSC) and the Land-use Planning Unit (LUPU) for de-mined land were established in May 1999. The task of these units is to coordinate mine clearance planning, subsequent land-use planning and strengthening of the management structures, particularly at the district level, as they relate to mined land. LUPU develops the de-mining and land use plan, relying on discussion and cooperation from local authorities, provincial government, development agencies and demining agencies. The plans are authorized by the PSC and the PSC also works to solve land conflicts.

The PSC consists of managerial staff from government departments including the Governors office, Military Region 5, Provincial Department of Rural Development (PDRD), CMAC, Provincial Rural Development Committee (PRDC), Department of Agriculture, Department of Land Management, Urban Planning, Construction and Cadastre (DLUCC), Department of Planning (DoP), Department of Environment (DoE), district chiefs and development agency representatives. It aims to alleviate some of the land use problems resulting in poor living standards; accordingly the mission of the PSC is:

- to ensure effective, suitable and fair land use, land management and allocation of land in de-mined areas;
- to ensure the de-mining process is clearly planned and transparent; and
- to reduce land conflicts through effective land management and well planned de-mining agendas.

LUPU reports directly to the PSC. The members of LUPU are also derived from government departments including PDRD, PRDC, DLUCC, DoP, Governors Office and Military Region 5. The tasks of LUPU include:

- encouraging discussion and coordination between local authorities, development agencies, de-mining agencies and the PSC to clearly and transparently identify existing minefields. Prioritise minefields for clearance and develop de-mining and land use plans;
- the preparation of documents regarding beneficiaries of land;
- organising land allocation after de-mining in a documented and transparent manner;
- identifying and addressing problems of land use and land disputes on mined land following clearance and only on minefields cleared in or after the year 2000.

The general process of establishing community fisheries follows the same principals as the PLUP procedures and should be combined in all areas where PLUP is applied within the fishery domain.

**Box 11: Key problems leading to the formation of LUPU/PSC**

- Land conflicts,
- Land grabbing, inappropriate land allocation and land use by powerful or rich people, including large tracts of mined land under military control,
Soon after it was established LUPU set up District Working Groups (DWG) and District LUPUs in 9 districts. The District LUPU reports to the DWG and Provincial LUPU. The DWGs and DLUPU aid in the selection of beneficiaries, the allocation of land and identifying land disputes.

The Approach to Land-use Planning

According to the LUPU process land-use planning begins with a workshop in each of the relevant districts. The workshop is attended by the DWG, LUPU, local authorities, development agencies and de-mining agencies. During this workshop the priority of mine fields is discussed and a tentative schedule for clearance for the following year is developed.

<table>
<thead>
<tr>
<th>Box 12: Criteria of high priority minefields</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. After clearance the land must be used by villagers for resettlement, rice production and/or public infrastructure.</td>
</tr>
<tr>
<td>2. Beneficiaries must be poor and landless.</td>
</tr>
<tr>
<td>3. The project area must be governed by the local authorities at all levels (i.e. not private land) and the development agency able to work in the area.</td>
</tr>
<tr>
<td>4. There must be land allocation plans and acknowledgement of the use of the land by the beneficiaries.</td>
</tr>
<tr>
<td>5. It must be in an area with a high rate of mine accidents (mine incidence data is collected by Handicap International and the Cambodian Red Cross).</td>
</tr>
<tr>
<td>6. Operational concerns of the de-mining agency will be considered when choosing the minefield i.e., is there secure access to the minefield?</td>
</tr>
</tbody>
</table>

De-mining agencies and LUPU research the minefields addressing each of the points above. During this time the de-mining agency may also estimate the area of the minefield and assess the number of de-miners required and operational aspects of dry and wet season. A proposed list of minefields is presented to the village chief for approval.

A provincial workshop is held and attended by PSC, LUPU, DWG, development agencies and de-mining agencies to finalise the yearly plan for de-mining. This workshop allows opportunity for DWGs and development agencies to request changes to the plan if required.

Following approval of the de-mining applications by the PSC, another round of fieldwork takes place. The de-mining agencies and LUPU visit the chosen minefields. The de-mining agency gets a more accurate boundary of the minefield using topographic maps and GPS's. LUPU coordinates with the district office of LUCC, village chief and NGOs to develop the land use plan. The boundary of the minefield and land use following clearance is put into the GIS.

Cycle for De-mining and Land-use Planning
The beneficiaries are given an application form to apply for a land plot. The form also describes the conditions associated with staying on the land. This application is approved by the local authorities.

Following de-mining, the de-mining agency and the development agency attend the minefield. These representatives discuss the proposed land use with the beneficiaries and local authorities, if some changes are required these are also discussed. When a final land use plan has been agreed on, the staff survey and divide the minefield. Following this, the development agency produces a survey certificate showing the dimensions of the minefield.
each plot and this certificate, as well as the approved application form, are given to the beneficiary.

There are conditions that the beneficiary must abide by when residing on the land. In addition to these the PSC must conform to the following when allocating land:

1. People are permitted to build and grow plants on the land that is designated:
   - Resettlement land
   - Farmland
   - Concession land

2. The resettlement area for one family is limited to not more than 2000 m$^2$ and must be approved by the Provincial Governor.

3. Farmland for rice production and other growths does not exceed 5 hectares of land per family and it must be approved by the District Governor.

4. The concession land exceeds 5 hectares of land per family and must be approved by the Minister of Agriculture.

Within the first 3 months of allocation, LUPU and the local authorities conduct monitoring to ensure that beneficiaries adhere to the PSC's terms and conditions. If they do not, the local authorities will confiscate the allocated land and it will be re-allocated to another family.

If, at any time in the LUPU process, a land dispute arises it is submitted to the PSC for discussion and solution.

The LUPU process in Battambang is proving very effective and successful for mine clearance planning and allocation of land to beneficiaries. The project has received valuable support from de-mining agencies, development agencies and government authorities. There is a need to endorse the procedures and land-use planning system on the national level to provide recognition for the work already done. Also, there is hope for the standardization and legal recognition of the procedures.

Mine incidence data for Cambodia can be supplied by Handicap International, MAG, CMAC.

### 6. References

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Bottomley, R. Structural Analysis of Deforestation in Cambodia, Non-Timber Forest Products Project, for Mekong Watch and Institute for Global Environmental Strategies (March/April 2000)


Degen, P. et al: Taken for granted: Conflicts over Cambodia's freshwater fish resources (2000)


Meijers, H.: Land Tenure and Agriculture in Cambodia (1994)

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OXFAM: Interim Report on Findings of Landlessness and Development Information Tool (LADIT) Research, Cambodia Land Study Project (June 2000)


Sik, Boreak: Land Ownership, Sales and Concentration in Cambodia, CDRI (2000) SMRP (MRC/GTZ)

Christ, H. Participatory Land-use Planning in Cambodia - Proceedings of the Introductory Workshop (14-15 September 1999), Phnom Penh, Main Report and Annexes, SMRP (MRC/GTZ)

Rock, F. Participatory Land-use Planning in Cambodia - Proceedings of the Second Workshop (03-04 April 2000), Phnom Penh, Report and Appendices, SMRP (MRC/GTZ)

Rock, F. Participatory Land-use Planning in Cambodia - Proceedings of the Third Workshop (29-30 June 2000), Phnom Penh, Report and Appendices


Notes:

1 FAO/UNEP/GTZ (1999): The Future of Our Land - Facing the Challenge
2 GTZ (1999): Land Use Planning: Methods, Strategies and Tools

3 e.g. FAO-Participatory Management of Natural Resources in the Tonle Sap Area in Siem Reap, CONCERN in Pursat and Kampong Chnang, CARERE CB-NRM and NTFP in Ratanakiri, PDP-KT in Kampong Thom, LUPU/CARERE in Battambang


5 Sik Boreak (2000): Land Ownership, Sales and Concentration in Cambodia, CDRI

6 UNDP (1997)
Participation in PLUP

What is to be understood by "participation" in PLUP?

Over the years, the term participation has come to have very different meanings for different people and groups. As the following box indicates, there are basically seven ways in which development organisations interpret participation, ranging from manipulative participation to self-mobilisation.

<table>
<thead>
<tr>
<th>Typologies of Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Manipulative Participation</strong> - participation is a pretence with people's representatives on official boards but un-elected and having no power.</td>
</tr>
<tr>
<td>2. <strong>Passive Participation</strong> - people participate by being told what is going to happen or what has already happened. It involves unilateral announcements by an administration or project without listening to people’s responses.</td>
</tr>
<tr>
<td>3. <strong>Participation by Consultation</strong> - people participate by being consulted or by answering questions. External agents define problems and information-gathering processes, and so control analysis. The information being shared belongs only to external professionals.</td>
</tr>
<tr>
<td>4. <strong>Participation for Material Incentives</strong> - people participate by providing resources, e.g. labour, in return for food, cash or other material incentives.</td>
</tr>
<tr>
<td>5. <strong>Functional Participation</strong> - participation seen by external agencies as a means to achieve project goals. People may participate by forming groups to meet predetermined objectives related to the project, but tend to be dependent on external initiators.</td>
</tr>
<tr>
<td>6. <strong>Interactive Participation</strong> - people participate in joint analysis, development of action plans and formation or strengthening of local institutions. Participation is seen as a right, not just as a means to achieve project goals. The process involves interdisciplinary methodologies that seek multiple perspectives and make use of systematic and structured learning processes. People take control over local decisions and determine how available resources are used.</td>
</tr>
<tr>
<td>7. <strong>Self-Mobilization</strong> - institutions to change systems. They develop contracts with external institutions for resources and technical advice they need, but retain control over how resources are used.</td>
</tr>
</tbody>
</table>

Source: Hobley (1996)

The PLUP approach recognizes that the degree of participation is highly dependent on the context; however, participation should be interactive to be successful (FAO & UNEP, 1999).

Drawing on GTZ (1999), participation in PLUP is to be understood as an interactive and co-operative process of analysing, planning and decision-making in which all relevant stakeholders take part. This process allows the specification of the interests and objectives of the different stakeholders in a dialogue providing the basis for negotiations of conflicting interests and harmonized decisions on future land use. Its major objective is to increase the planning competence, the self-responsibility and autonomy in decision-making, as well as the organizational capacity of the local people.
## Annex 2

### List of Legal Documents with Relevance to NRM

(Last updated on: 01 May 2001)

<table>
<thead>
<tr>
<th>Name of legal document</th>
<th>Date of signature</th>
<th>Current status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Land Law</td>
<td>July 2001</td>
<td>Approved by the National Assembly</td>
</tr>
<tr>
<td>Old Land Law</td>
<td>1992</td>
<td></td>
</tr>
<tr>
<td>Urbanization Law with the Ministry of Agr., For., Fish.</td>
<td></td>
<td>Currently under review in MLMUPC</td>
</tr>
<tr>
<td>Circular on the Creation of Committees for Land Conflict Resolution in Provinces and Municipalities throughout the country</td>
<td></td>
<td>Signed</td>
</tr>
<tr>
<td>Sub-Decree on the Organization and Functioning of the MLMUPC</td>
<td>20 July 1999</td>
<td>Signed and sealed by H.E. Prime Minister Hun Sen</td>
</tr>
<tr>
<td>Sub-Decree on map production in the Kingdom of Cambodia, Management and Use</td>
<td>27 Dec. 1999</td>
<td>Signed and sealed by H.E. Prime Minister Hun Sen</td>
</tr>
<tr>
<td>Sub-Decree on the Procedure of Establishing Cadastral Index Maps and Land Registers</td>
<td>22 March 2000</td>
<td>Signed and sealed by H.E. Prime Minister Hun Sen</td>
</tr>
<tr>
<td>Sub-Decree on the nomination of the members of the Steering Committee on Land Policy</td>
<td>07 Dec. 2000</td>
<td>Signed and sealed by H.E. Prime Minister Hun Sen</td>
</tr>
<tr>
<td><strong>Forestry</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest Law</td>
<td></td>
<td>Submitted by the Council of Ministers to other legislatve bodies</td>
</tr>
<tr>
<td>Sub-Decree on Forest Concession Management</td>
<td>07 Feb. 2000</td>
<td>Signed and sealed by H.E. Prime Minister Hun Sen</td>
</tr>
<tr>
<td>Sub-Decree on the Establishment of Community Forestry Management</td>
<td></td>
<td>Available as first draft</td>
</tr>
<tr>
<td>National Forest Policy</td>
<td></td>
<td>Signed and sealed by the Minister of Agr., For., Fish. (currently being revised)</td>
</tr>
<tr>
<td>Special Law on Forest Crime and Suppression</td>
<td></td>
<td>Signed and sealed by the Minister of Agr., For., Fish.</td>
</tr>
<tr>
<td>Community Forestry Guidelines</td>
<td></td>
<td>Under review in MAFF</td>
</tr>
<tr>
<td>NCF Strategic Plan</td>
<td></td>
<td>Under preparation in DFW</td>
</tr>
<tr>
<td>Banning conversion of forest land and review of all forest concessions</td>
<td></td>
<td>Signed and sealed by H.E. Prime Minister Hun Sen</td>
</tr>
<tr>
<td>Code of practice for forest harvesting</td>
<td></td>
<td>Signed and sealed by the Minister of Agr., For., Fish.</td>
</tr>
<tr>
<td><strong>Fishery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishery Conservation, Management and Development</td>
<td></td>
<td>Draft under review</td>
</tr>
</tbody>
</table>

1. Current status
2. Banning conversion of forest land and review of all forest concessions
3. Code of practice for forest harvesting
4. Fishery Conservation, Management and Development
5. Draft under review
On 21 July 2000 the Council of Ministers of the Royal Government of Cambodia (RGC) adopted the **Immovable Property Bill** (New Land Law) and forwarded it to the National Assembly for debate.

The adoption of the **Immovable Property Bill** was the culmination of a two-year collaboration between the RGC and a coalition of Cambodian Non-Government Organizations and International Organizations, including legal aid, human rights, and educational organizations.

The **Immovable Property Bill** is to provide a comprehensive revision of the existing Cambodian Land Law and to bring the law into line with the private and public property rights provided for in the 1993 Constitution of the Kingdom of Cambodia.

From 1975 until 1989 there was no private ownership of property. In 1989 the government first permitted citizens to privately own buildings and the land that they occupied, however ownership of non-residential land was still not permitted. The 1992 State of Cambodia Land Law extended private property rights to include rights of temporary possession, usufruct, use and easements, but still did not permit full ownership rights in non-residential land.

Article 44 of the 1993 Constitution provides that: "All persons individually or collectively shall have the right to ownership. Only Khmer legal entities and citizens of Khmer nationality shall have the right to own land."

In recognition of this Article, the **Immovable Property Bill** provides that all types of land may be subject to private ownership, with the exception of public property reserved for the state.

The **Immovable Property Bill** also provides for different ways of obtaining ownership, including private purchase of property from the state or from a current owner of residential property, the grant of a social concession (land given by the state to poor people), donation by the state, and gift or inheritance from a private owner.

The most important means of acquiring private ownership of property, however, is through' acquisitive possession'. This means that any person who has occupied land for five years prior to the enactment of the **Immovable Property Bill** is entitled to receive a certificate of title of ownership of that land.

If possession commenced at least two years prior to the enactment of the **Immovable Property Bill** then the
tenant will be entitled to a possession certificate that can be turned into an ownership certificate after the period of possession reaches 5 years. If a person has occupied land for less than two years at the time the Bill becomes a law, they have no rights to possession or ownership of that land.

The Bill tries to deal with the problem of land grabbing by providing that any land taken violently or by abuse of power of the authorities reverts to the state, unless there is a valid claim from the lawful owner. However, the problem of innocent third-party purchasers of such land has not been addressed.

The Immovable Property Bill also provides for central Land Registries to be created at the provincial and municipal levels to register ownership and dealings in all properties, both state and private, and to issue certificates of title of ownership of land. Certificates of title will be evidence of ownership of the land, and may be traded or used as collateral to obtain loans. Unregistered dealings in land will not be enforceable against third parties. The Ministry of Land Management, Urban Planning and Construction will be responsible for establishing and controlling these registries, and will have ultimate responsibility for the issuing of all certificates of title by them.

Centralized land registration is very important for the prevention and resolution of disputes relating to land rights. In some cases duplicate or even fake titles have been issued to different ‘owners’ for the same parcel of land. In others, state property has been illegally sold to private individuals. A compulsory registration system, in conjunction with an efficient land dispute resolution mechanism, should reduce the incidence of such problems and future disputes.

The Immovable Property Bill also recognizes the rights of indigenous communities to communal ownership of land that they occupy and use for traditional cultivation. Indigenous communities own the land in perpetuity, and if it is also state public property, the community may not sell it to persons or groups outside the community.

The Bill also recognizes ‘condominium’ rights - the right to ownership of part of a building, such as an apartment in a high-rise building, and provides for responsibility of co-owners for common property (grounds, car-parks, stairs, plumbing etc.).

The adoption of the Immovable Property Bill in a form that is generally acceptable to the Government, Civil Society and donors, would not have been possible without close cooperation between all three groups.
Example of a Land Classification System for Cambodia

<table>
<thead>
<tr>
<th>Land use/Function</th>
<th>State tenure</th>
<th>Tenure System</th>
<th>Private tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>National</td>
<td>Province</td>
<td>District</td>
</tr>
<tr>
<td>Forests</td>
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<td></td>
</tr>
<tr>
<td>1 - Protection Forest</td>
<td>PA1</td>
<td>PA2</td>
<td>PA3</td>
</tr>
<tr>
<td>+ Sacred, spiritual or Wat Forest</td>
<td>PA1a</td>
<td>PA2a</td>
<td>PA3a</td>
</tr>
<tr>
<td>+ Watershed protection forest</td>
<td>PA1b</td>
<td>PA2b</td>
<td>PA3b</td>
</tr>
<tr>
<td>+ Flooded forest</td>
<td>PF1c</td>
<td>PF2c</td>
<td>PF3c</td>
</tr>
<tr>
<td>2 - Conservation Forest (e.g. for bio-diversity conservation)</td>
<td>CF1</td>
<td>CF2</td>
<td>CF3</td>
</tr>
<tr>
<td>3 - Production Forest</td>
<td>PR1</td>
<td>PR2</td>
<td>PR3</td>
</tr>
<tr>
<td>+ Timber concessions</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ Firewood/construction wood</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ Bamboo</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ Flooded forest</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4 - Plantation Forest</td>
<td>PL1</td>
<td>PL2</td>
<td>PL3</td>
</tr>
<tr>
<td>5 - Degraded Forest/Wasteland</td>
<td>DE1</td>
<td>DE2</td>
<td>DE3</td>
</tr>
<tr>
<td>6 - Agro-Forest</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7 - Mangrove</td>
<td>MA1</td>
<td>MA2</td>
<td>MA3</td>
</tr>
<tr>
<td>Rangeland</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - Flooded Grass-Bushland</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2 - Silvi-Pasture</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - Irrigated Paddy</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2 - Rainfed Paddy</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3 - Floating Rice</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4 - Upland Crops</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ annual crops</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>+ perennial crops</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5 - Gardens</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6 - Orchards/Plantations</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Swidden Agriculture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - Cultivated Swidden</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2 - Fallow Swidden</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>Abbreviations and colours used:</td>
<td>Other specific information to be included in Land use Plans:</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------------------------</td>
<td>-------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>1 - Swamps</td>
<td>SW</td>
<td>Military Areas: MIL</td>
<td></td>
</tr>
<tr>
<td>Settlement Area</td>
<td>SA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Water Areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - Rivers, Streams</td>
<td>Blue lines and name of river/stream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - Seasonal Rivers</td>
<td>Dotted blue line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - Seasonally flooded Zones</td>
<td>Shaded in blue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - Lakes</td>
<td>Blue circles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 - Ponds</td>
<td>Small blue circles/crosses PO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roads, Tracks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - Major Roads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thick black line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - Feeder Roads</td>
<td>Black line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 - Tracks</td>
<td>Thin black line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - Paths, Trails</td>
<td>Dotted black line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Village Boundary</td>
<td>Red Line (dotted in cases of boundary uncertainty)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commune Boundary</td>
<td>Double Red Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landmarks</td>
<td>Names of mountains, stones, special trees etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minefields</td>
<td>Shaded in red MIN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Institutional Aspects of PLUP in Cambodia

A nationwide approach to PLUP requires steering committees or working groups on the provincial, the district and the commune level in order to be successfully implemented. Instead of creating new committees on all the relevant administrative levels, one proposal is to make best use of existing development committees, such as those created under the SEILA structure. The newly created land conflict resolution committees could also play a crucial role in resolving apparent land and resources use conflicts identified during the land-use planning process.

Therefore, the exact roles and responsibilities of the existing committees need to be reviewed and possibly widened to include land-use planning issues. The current SEILA participatory rural development planning or local development plans organized by PRDC should be extended to PLUP. In the SEILA context, there should be a Commune NRM Core Team under the Commune Development Committee (CDC) and a Village NRM Committee under the Village Development Committee (VDC).

In those provinces presently without SEILA structures, other pragmatic solutions for the coordination of PLUP activities on the provincial and district level have to be identified.

On the national level a national steering committee on PLUP would need to be created with representatives coming from MLMUPC, MoI, MoIME, MAFF, MoE, the Armed Forces and Police Services. Possibly such a steering committee could emerge from the present Council on Land Policy. The PLUP steering committee would have the following tasks:

- to coordinate land-use planning activities in all provinces and municipalities of Cambodia,
- to advise the Government on issues related to land and the use and management of land resources,
- to facilitate the exchange of information to the provincial, district and commune level and promote a holistic and integrated approach to land related issues,
- to develop an information system covering land resources, land use and effects on the environment,
- to predict and track land use needs and priorities,
- to support a coordinated approach to the formation, implementation and monitoring of village and communal land use plans,
- to modify and update the national land use policy and related legislative or institutional matters.

The national steering committee on PLUP would have to cooperate closely with the National Commission for Resolving Land Issues (created in June 1999) and all the Provincial Land Conflict Resolution Committees.

Levels, Institutions and their Tasks

<table>
<thead>
<tr>
<th>Administrative Level</th>
<th>Policy Land-use plans</th>
<th>Institutions</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Level</td>
<td>National Council of Land Policy</td>
<td>Secretariat of NCLP</td>
<td>Responds to national demands (economy, politics, environment, etc.); Decision making</td>
</tr>
<tr>
<td>Provincial Level</td>
<td>Provincial Development Master plan</td>
<td>Provincial Rural Development Committee (SEILA) or Provincial NRM/PLUP Committee</td>
<td>Sets provincial priorities; Coordination; Technical knowledge; Facilitation; Decision making</td>
</tr>
<tr>
<td>District Level</td>
<td>District Development Master plan</td>
<td>District Rural Development Committee (SEILA)</td>
<td>Coordination; Technical knowledge</td>
</tr>
<tr>
<td>Commune Level</td>
<td>Commune land use plan</td>
<td>Commune Council (currently Commune Development Committee (CDC) for SEILA); Commune NRM Sub-Committee (under the Council)</td>
<td>Local administration; Indigenous knowledge; Sets local priorities; Decision making</td>
</tr>
<tr>
<td></td>
<td>Commune statutes/by-laws</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Urban Masterplan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Village Level</td>
<td>Village land use plan</td>
<td>Village Development Committee (VDC); Village NRM or PLUP Sub-Committee</td>
<td>Indigenous knowledge; Demands; Needs; Decision making</td>
</tr>
<tr>
<td></td>
<td>Village regulations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management plans for communal areas</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graphic 3: Planning at Different Levels
On the local administrative level, the election of new commune councils early in 2002 will mark an important step in the process of decentralization and de-concentration. The creation of elected commune council will further enhance a bottom-up planning process, which could take the following sequence: Ideally, the PLUP process should start from the village level. Once village regulations, future land use plans and some management plans for community forests or fisheries exist for a majority of the villages in a commune, these would need to be scrutinized, combined, and eventually utilized for the elaboration of commune land use plans as well as commune statutes or by-laws. The commune development plans, which need to be elaborated by the elected councils, will then include specific elements of the land use plans for implementation in the planning period.

**Commune Councils**

<table>
<thead>
<tr>
<th>Province/Municipality</th>
<th>SEILA Structure (yes/no)</th>
<th>Provincial NRM Committee (yes/no)</th>
<th>Land Conflict Resolution Committee (yes/no)</th>
<th>Other Options for PLUP Coordination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banteay Meanchey</td>
<td>Yes</td>
<td>No</td>
<td>Not operational</td>
<td>Land use Management Unit</td>
</tr>
<tr>
<td>Battambang</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>PSC/LUPU</td>
</tr>
<tr>
<td>Kampong Cham</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the long run, the commune land use plans and statutes will need to be coordinated and have to be brought in agreement with provincial or district master plans.

**Present Institutional Situation in the Provinces and Municipalities of Cambodia**

Last Updated on: 01 May 2001
### Actors in PLUP in the Future

<table>
<thead>
<tr>
<th>Province</th>
<th>Support for Coastal Working Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kampong Chhnang</td>
<td>No</td>
</tr>
<tr>
<td>Kampong Speu</td>
<td>No</td>
</tr>
<tr>
<td>Kampong Thom</td>
<td>Partly Yes, but not operational</td>
</tr>
<tr>
<td>Kampong</td>
<td>Yes</td>
</tr>
<tr>
<td>Kandal</td>
<td>No</td>
</tr>
<tr>
<td>Koh Kong</td>
<td>No</td>
</tr>
<tr>
<td>Kratie</td>
<td>No</td>
</tr>
<tr>
<td>Kroung Kep</td>
<td>No</td>
</tr>
<tr>
<td>Kroung Pelin</td>
<td>Yes, but not operational</td>
</tr>
<tr>
<td>Mondulkiri</td>
<td>No</td>
</tr>
<tr>
<td>Oudor</td>
<td>Yes</td>
</tr>
<tr>
<td>Meanchey</td>
<td>No</td>
</tr>
<tr>
<td>Phnom Penh</td>
<td>No</td>
</tr>
<tr>
<td>Preah Vihear</td>
<td>Yes</td>
</tr>
<tr>
<td>Prey Veng</td>
<td>Yes, Yes, No</td>
</tr>
<tr>
<td>Pursat</td>
<td>Yes, Yes, No</td>
</tr>
<tr>
<td>Ratanakiri</td>
<td>Yes, No</td>
</tr>
<tr>
<td>Siem Reap</td>
<td>No</td>
</tr>
<tr>
<td>Sihanoukville</td>
<td>No</td>
</tr>
<tr>
<td>Stung Treng</td>
<td>No</td>
</tr>
<tr>
<td>Svay Rieng</td>
<td>Yes</td>
</tr>
<tr>
<td>Takeo</td>
<td>Yes</td>
</tr>
</tbody>
</table>

---

1. **DANIDA is in the process of supporting the development of coastal Working Groups which villagers can potentially feed into.**
Sample Terms of Reference for PLUP Field Teams

Tasks of team members:

Organize and moderate PRA exercises as well as village meetings in selected target villages in view of analysing the present situation in those villages with regard to land and NR use by the villagers; document and analyse the results. Identify capable local organizations, institutions or village leaders to be the main partners on village level to guide the process of working towards improved village-based NRM.

Conduct detailed surveys and PLUP mapping exercises (present land use, future land use) of all main land use zones in the planning area; assist the community to describe their current use, degradation status, ownership claims and use conflicts. Translate traditional land classification systems into a modern classification system used for the entire nation of Cambodia.

Support the election of a village NRM committee in a free and fair election by the entire community.

Facilitate village meetings and discussions on land use changes, tenure options etc. and assist villagers to document their final decisions.

Periodically inform the superiors and directors of all the partner institutions in PLUP on the results of the situation analysis in the selected target villages, the main problems identified and possible solutions for each planning area.

Facilitate the elaboration of village regulations specific to each village situation. Use the list of important elements to be included in the regulations as a guideline, but do not impose rules on villagers. These regulations must be understood by villagers as their own regulations, not those imposed by outsiders.

Type and submit the village regulations to the local authorities for signing by the commune leaders, the technical institutions, the district authority and the provincial authorities. Encourage the villagers to announce the signed regulations once again in village meetings and to all neighbouring villages.

Request and lobby for the support by the partner institutions, local authorities (Province, District) and relevant committees on provincial level to secure clear access rights for villagers, to mediate land conflicts and approve the village PLUP documents.

Define activities and measures necessary for improved NRM according to the village regulations in each village and include these in village activity plans. These activities could include protection measures (signboards, fencing), planting activities (tree planting around home gardens and in protected forest areas) and fish raising activities (fish reproduction ponds).

Support villagers and NRM committees in participatory resource assessments and in the drafting of simple management plans for all communal management areas (e.g. forests and fishery areas).

Type and submit the management plans for approval to the appointed committees and representatives.

Prepare brief reports on activities implemented.

Follow up and monitor the implementation of PLUP and NRM measures in the villages and monitor whether the village regulations are effectively applied or not.
Human Resource Development Facilities and Opportunities

Building the capacity of the PLUP facilitation team members is essential for enabling communities to undertake PLUP. An option to consider during the development of a training program for PLUP is to conduct a countrywide training needs assessment. After a comprehensive stakeholder analysis and clarification of the roles in implementing PLUP within the Government structure, a training strategy needs to be developed. Initially it would be advisable to conduct a training of trainers (ToT) programme. In addition or as an alternative, a mobile training team approach could also be a solution. In any case the MLMUPC and the recently created PLUP network should play a coordinating role.

Any PLUP capacity building concepts should be integrated in the existing SEILA structure of human capacity building on the provincial, district and commune level.

Ideally, the training program for the teams should introduce the following basic concepts of participatory land-use planning:

- Land-Use Planning: Procedures, tools and techniques
- Group facilitation skills and moderation techniques
- Principles of participatory working methods and PRA
- Communication skills
- Mapping techniques and the use of GPS
- Conflict resolution mechanisms
- Basics of Monitoring and Evaluation

There are several organizations that can be approached to provide or to assist with the development of a training program relevant to PLUP, though currently there are no training programs available in Cambodia or the sub-region geared specifically to the implementation of PLUP. The following organizations and individuals can either provide training or be a resource centre:

Last update of information: 01 May 2001

<table>
<thead>
<tr>
<th>Name of Organization</th>
<th>Address</th>
<th>Specialization</th>
<th>Remarks/ List of Courses offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMCOFTT - Cambodian Community Forestry Training Team</td>
<td># 36, St. 352 BKK1, Ch. Mon Phnom Penh P.O.Box 485</td>
<td>Community forestry training: CF concepts and methods, CF facilitation skills, seedling production, tree planting techniques</td>
<td>This is an in-country training association which covers many concepts relevant to PLUP and operates countrywide</td>
</tr>
<tr>
<td>RECOFTC</td>
<td>P.O. Box 1111, Kasetsart University, Bangkok 10903, Thailand E-mail: <a href="mailto:Ftcsss@nontri.ku.ac.th">Ftcsss@nontri.ku.ac.th</a> <a href="HTTP://www.recoftc.org">HTTP://www.recoftc.org</a></td>
<td>Community forestry, CBNRM</td>
<td>Community Forestry Facilitation Skills Conflict Management</td>
</tr>
<tr>
<td>PNRM Siem Reap, FAO</td>
<td>P.O.Box 2 Siem Reap</td>
<td>Community forestry, Community fisheries, Tree nurseries, Agroforestry, Gender, GIS</td>
<td>On demand</td>
</tr>
<tr>
<td>CFRP - Community Forestry Research Project in Cambodia</td>
<td># 48, St. Preah Sihanouk, P.O.Box 2114, Phnom Penh</td>
<td>CF field research CF policy and replication efforts Human resource development</td>
<td>On demand</td>
</tr>
<tr>
<td>DFW Community Forestry Unit</td>
<td># 40, Preah Norodom Blvd., Phnom Penh</td>
<td>CF policy, CF guidance</td>
<td>Through CAMCOFTT</td>
</tr>
</tbody>
</table>
The Phnom Penh University has already shown interest to become more involved in training programs on land management issues.

Furthermore, there is substantial implementation experience available in NGOs and other project staff e.g. on Community Forestry and Fisheries, PRA, participatory mapping techniques, drafting of regulations etc. Therefore projects involved in CF or CB-NRM implementation are listed below:

### List of Projects/Institutions supporting CF, CB-NRM or Land management in Cambodia

<table>
<thead>
<tr>
<th>Name of Project</th>
<th>Geographical Area of Information</th>
<th>Specialization</th>
<th>Training Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNRM, Siem Reap, FAO</td>
<td>Siem Reap</td>
<td>Community Forestry and Community Fishery implementation; CF Management Plans; Community Regulations; Support activities: GIS, gender studies, agroforestry, credit</td>
<td>Training on Community Forestry and Fisheries, PRA and GIS</td>
</tr>
<tr>
<td>CB-NRM-Carere</td>
<td>Ratanakiri</td>
<td>Village/commune land use plans; CF and fishery rules and regulations; Maps; Land right options and awareness raising; Conduct NRM (CF and PLUP) with communities; Support GIS Unit of PRDC</td>
<td>Training on land-use planning, NRM, practical CF for local communities and provincial staff</td>
</tr>
<tr>
<td>PDP-GTZ</td>
<td>Kampong Thom</td>
<td>Community based NRM; Village Regulations; Mapping by GIS</td>
<td></td>
</tr>
<tr>
<td>CONCERN Worldwide</td>
<td>Pursat, Kampong Chhnang</td>
<td>CF statutes; CF management plans</td>
<td>Training on PRA</td>
</tr>
<tr>
<td>MCC</td>
<td>Takeo</td>
<td>Community Forestry</td>
<td></td>
</tr>
<tr>
<td>HANDICAP International</td>
<td>Banthey Meanchey, Oudor Meanchey, Preah Vihear</td>
<td>LUP and process of land allocation after de-mining; Strengthening of local institutions for land management; Facilitation on land conflicts</td>
<td></td>
</tr>
<tr>
<td>NTFP</td>
<td>Ratanakiri</td>
<td>Customary land use; Community rules and regulations; Land rights for indigenous people; Land-use planning</td>
<td></td>
</tr>
<tr>
<td>CAA-Community Fisheries Project</td>
<td>Kratie, Stung Treng</td>
<td>Community Fisheries on the Mekong River</td>
<td></td>
</tr>
<tr>
<td>SMRP-DFW (MRC/GTZ)</td>
<td>Mondulkiri</td>
<td>Participatory Land-use Planning</td>
<td></td>
</tr>
<tr>
<td>BPAMP: Biodiversity and Protected Areas Management Project</td>
<td>MoE Department of Environment, Ratanakiri</td>
<td>CF Policy; CF Guidelines; Protected Areas Guidelines</td>
<td></td>
</tr>
<tr>
<td>LUPU- Carere</td>
<td>Battambang</td>
<td>Land-use Planning and process of land allocation after de-mining; Strengthening of local institutions for land management; Facilitation on land conflicts</td>
<td></td>
</tr>
<tr>
<td>CGFP (DFW-GTZ)</td>
<td>Kampong Speu</td>
<td>Community Forestry</td>
<td></td>
</tr>
<tr>
<td>Project Description</td>
<td>Location</td>
<td>Activities</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>MRC/Danida/DoF</td>
<td>Kampong Chhnang</td>
<td>PRA in case study areas; Facilitate public consultation on sub-decree on community fishery; Research on governance and access rights to fish resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kampong Thom</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Battambang</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pursat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Management Project (MLMUPC-GTZ)</td>
<td>Kampong Thom</td>
<td>Land registration; Land policy issues; Land distribution; Field surveys</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kampot</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Takeo Kandal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFRP - Community Forestry Research Project (IDRC)</td>
<td>Kampot</td>
<td>CF field research and implementation; Comment on CF policy and replication efforts; Human resource development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Siem Reap</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Koh Kong</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participatory Management of Mangrove Resource (PMMR) MoE/IDRC</td>
<td>Koh Kong</td>
<td>Planning and management of resources in Protected Areas; Community organizing; PLUP process</td>
<td></td>
</tr>
<tr>
<td>Church World Services (CWS)</td>
<td>Kampong Thom and other provinces</td>
<td>Community Forestry</td>
<td></td>
</tr>
</tbody>
</table>
Support Services and Information Resources

Last update of information: 01 May 2001

Libraries (with books and materials relevant to PLUP, CF and NRM)

<table>
<thead>
<tr>
<th>Name of Organization</th>
<th>Address</th>
<th>Specialization of the Library</th>
<th>Restrictions to public Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMCOFTT</td>
<td># 36, St. 352 BKK1, Ch. Mon Phnom Penh P.O.Box 485</td>
<td>CF Training, CF Reports and Files</td>
<td>Open to all</td>
</tr>
<tr>
<td>CF Unit of DFW</td>
<td># 40, Preah Norodom Blvd., Phnom Penh</td>
<td>Community Forestry</td>
<td>Open to all</td>
</tr>
<tr>
<td>MRC-S</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>CONCERN Worldwide</td>
<td># 36, St. 352 BKK1, Ch. Mon Phnom Penh P.O.Box 485</td>
<td>Resource Center of the NCFP Cataloging: CF, Case Studies, ICS</td>
<td>All interested agencies, groups, individuals are given free access.</td>
</tr>
<tr>
<td>OXFAM</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>DFW</td>
<td># 40, Preah Norodom Blvd., Phnom Penh</td>
<td>All Forestry Matters</td>
<td>Free access after approval</td>
</tr>
<tr>
<td>MoE– CF Unit</td>
<td># 48, Samdech Preah Sihanouk Blvd., Tonle Bassac, Chamkarmon, Phnom Penh</td>
<td>Community Forestry</td>
<td>Open to all</td>
</tr>
<tr>
<td>MoE– Information Management Unit</td>
<td># 48, Samdech Preah Sihanouk Blvd., Tonle Bassac, Chamkarmon, Phnom Penh</td>
<td>Environmental Issues</td>
<td>Open to all</td>
</tr>
<tr>
<td>IRIC-Dept. of Geography</td>
<td># 4, Street 65, Phonm Penh</td>
<td>GIS and Remote Sensing</td>
<td>Free access after approval</td>
</tr>
<tr>
<td>PNRM FAO Siem Reap</td>
<td>P.O. Box 2 Siem Reap</td>
<td>Agriculture Forestry Rural Development Etc.</td>
<td>Open to all</td>
</tr>
<tr>
<td>FAO Phnom Penh</td>
<td># 5, Street 370, Boeung Keng Kang, Phonm Penh</td>
<td>Agriculture and Nutrition</td>
<td>Open to all</td>
</tr>
<tr>
<td>UNDP</td>
<td># 53, Street Pasteur, Boeung Keng Kang, Phnom Penh</td>
<td>General library (mostly in English; not much on Cambodia)</td>
<td>Open to all</td>
</tr>
<tr>
<td>NGO Forum</td>
<td># 245, Street 51, Boeung Rang, Phnom Penh</td>
<td>Social Sciences, Community Development, Forestry issues</td>
<td>Open to all, material on forestry is with Mr. Andrew Cock</td>
</tr>
<tr>
<td>BPAMP Ratanakiri</td>
<td>Office of BPAMP, Ratanakiri</td>
<td>Protected Areas, Community Forestry</td>
<td>Open to all</td>
</tr>
<tr>
<td>RUA</td>
<td>Royal University of Agriculture, Dang Kor (In addition: Five small libraries in each faculty)</td>
<td>Agriculture</td>
<td>Open to all</td>
</tr>
<tr>
<td>CARERE Ratanakiri</td>
<td>CARERE Ratanakiri Province</td>
<td>NRM Rural Development</td>
<td>Open for public use</td>
</tr>
</tbody>
</table>
MekongINFO

MekongINFO is an interactive Web-based system for sharing information and knowledge about participatory natural resource management (NRM) in Cambodia, Laos, Thailand and Vietnam. MekongINFO was developed by the Sustainable Management of Resources in the Lower Mekong Basin Project (SMRP) based on a partnership approach that aims to build capacity of selected local organisations to maintain and manage the system. Support is given to create MekongINFO nodes, which train future providers and managers of information, and contribute to the growth of a regional network for NRM information exchange.

MekongINFO aims to:

- Provide access to information about NRM, with a focus on forestry, in Cambodia, Laos, Thailand and Vietnam
- Empower and support professionals in the sector to share their experiences and learn from each other's lessons
- Enable actors in the region to tap outside knowledge
- Facilitate the emergence of sectoral knowledge networks and communities of practice

MekongINFO offers a range of free information services for sector actors, including:

- Virtual library with reports, case studies and "grey" project literature related to NRM, with a focus on forestry (the system has Vietnamese, Khmer, Thai and English language versions)
- Web hosting service
- Resource Gallery presenting resource materials, guidelines, training documents, etc.
- Information about events, news, sector actors
- Forum for your online discussions
- CD-ROMs
- Monthly updates by e-mail

For further information, please visit www.mekonginfo.org or e-mail hoapp@mekonginfo.org
Annex 8

GIS Support Centers and available Data Sets

Last update of information: 01 May 2001

Existing GIS Units

The following table lists those GIS units, which can easily support PLUP given their current thematic focus. There are other GIS units, the thematic focus of which is not on issues related to land use, but rather on issues such as transportation or telecommunications.

<table>
<thead>
<tr>
<th>#</th>
<th>Unit</th>
<th>Contact Person</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Department of Geography</td>
<td>Mr. Ith Sotha</td>
<td><a href="mailto:geographydept@camnet.com.kh">geographydept@camnet.com.kh</a></td>
<td>016 859576</td>
</tr>
<tr>
<td>2</td>
<td>Ministry of Environment</td>
<td>Mr. Chuon Chanrithy</td>
<td><a href="mailto:Chanrithy_Ch@hotmail.com">Chanrithy_Ch@hotmail.com</a></td>
<td>012 872458</td>
</tr>
<tr>
<td>3</td>
<td>Department of Forestry and Wildlife</td>
<td>Mr. Meas Makara</td>
<td><a href="mailto:dfwgis@bigpond.com.kh">dfwgis@bigpond.com.kh</a></td>
<td>023 211636</td>
</tr>
<tr>
<td>4</td>
<td>FAO Siem Reap</td>
<td>Mr. Kim Veng</td>
<td><a href="mailto:faofish@rep.forum.org.kh">faofish@rep.forum.org.kh</a></td>
<td>063 963461</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>CARERE Ratanakiri</td>
<td>Mr. Phat Phallit</td>
<td><a href="mailto:carererat@camintel.com">carererat@camintel.com</a></td>
<td>075 974058</td>
</tr>
<tr>
<td>6</td>
<td>GD Cadastre and Geography</td>
<td>Mr. He Sophannara</td>
<td><a href="mailto:GTZ.LMP@bigpond.com.kh">GTZ.LMP@bigpond.com.kh</a></td>
<td>023 213817</td>
</tr>
<tr>
<td>7</td>
<td>Aruna Technology Ltd.</td>
<td>Mr. Jeffrey Himel</td>
<td><a href="mailto:jmh55@cornel.edu">jmh55@cornel.edu</a></td>
<td>012 978269</td>
</tr>
<tr>
<td>8</td>
<td>FINNMAP</td>
<td>Mr. Veikko Jantunen</td>
<td><a href="mailto:veikko.jantunen@bigpond.com.kh">veikko.jantunen@bigpond.com.kh</a></td>
<td>016 832880</td>
</tr>
</tbody>
</table>

Services offered

The following table contains the services offered by the GIS units listed above. The numbers under the heading "Offered by Unit" refer to the above table under Existing GIS Units. This list intends to give an overview and does not claim to be complete.

<table>
<thead>
<tr>
<th>Service</th>
<th>Offered by Unit</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production of Aerial Photos</td>
<td>1 2</td>
<td>x</td>
</tr>
<tr>
<td>Scanning of Aerial Photos</td>
<td>x x x x x x</td>
<td>quality may vary</td>
</tr>
<tr>
<td>Procurement of Satellite Images</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Geo-Referencing of Aerial Photos</td>
<td>x x x x x x x</td>
<td></td>
</tr>
<tr>
<td>Ortho-Correction of Aerial Photos</td>
<td>x</td>
<td>x x</td>
</tr>
<tr>
<td>Interpretation of Aerial Photos</td>
<td>x x</td>
<td>x</td>
</tr>
<tr>
<td>Geo-Referencing of Satellite Images</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
Existence and Availability of GIS Data Sets

The following table lists GIS data sets relevant to LUP, which are known to the author of this annex. There may be other data sets, which are either not considered relevant to LUP here, or the existence of which is not known. For a more extensive listing of GIS data sets, please refer to the ETAP/IRIC GIS Meta Data Base, version 1.0 (1997) or version 1.1 (1999), or to its most recent update, the publication of which is scheduled for July 2001. The Meta Data Base can be obtained via the following e-mail address:
geographydpt@camnet.com.kh

The numbers under the heading "Primary Distributor" refer to the above table under Existing GIS Units.

The Primary Distributor is typically the manufacturer of the respective data set. Please note that most of the GIS data listed are also available from other distributors, which are, however, not always distributing them officially or legally.

Some Primary Distributors not listed in the above table of Existing GIS Units:

<table>
<thead>
<tr>
<th>Primary Distributor</th>
<th>Address/Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPWT</td>
<td>Ministry of Public Works and Transportation</td>
</tr>
<tr>
<td>MRCS</td>
<td>Mekong River Commission Secretariat Technical Support Division</td>
</tr>
<tr>
<td>NMC</td>
<td>National Mekong Committee</td>
</tr>
<tr>
<td>NPC</td>
<td>National Population Census Ministry of Planning</td>
</tr>
</tbody>
</table>

The names of data sets not available/ not disclosed to the public are set in square brackets.

<table>
<thead>
<tr>
<th>Data Set</th>
<th>Coverage</th>
<th>Latest Update</th>
<th>Scale</th>
<th>Primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distributor administrative boundaries country, province, district, commune</td>
<td>Cambodia</td>
<td>late 1990s</td>
<td>1:50,000</td>
<td>1</td>
</tr>
<tr>
<td>village locations</td>
<td>Cambodia</td>
<td>late 1990s</td>
<td>1:50,000</td>
<td>1</td>
</tr>
<tr>
<td>population census data</td>
<td>Cambodia</td>
<td>1998</td>
<td>1:50,000</td>
<td>NPC</td>
</tr>
<tr>
<td>topographic map scans</td>
<td>Cambodia</td>
<td>early 1970s</td>
<td>1:50,000</td>
<td>1</td>
</tr>
<tr>
<td>topographic map vectors (1)</td>
<td>Cambodia</td>
<td>early 1970s</td>
<td>1:50,000</td>
<td>1</td>
</tr>
<tr>
<td>[topographic map scans]</td>
<td>central Cambodia</td>
<td>1998</td>
<td>1:100,000</td>
<td>3</td>
</tr>
<tr>
<td>topographic map vectors (1)</td>
<td>central Cambodia</td>
<td>1998</td>
<td>1:100,000</td>
<td>MPWT</td>
</tr>
<tr>
<td>digital elevation model (DTM)</td>
<td>Cambodia</td>
<td>1990s</td>
<td>1:50,000</td>
<td>MRCS</td>
</tr>
<tr>
<td>planned major roads</td>
<td>Cambodia</td>
<td>1990s</td>
<td>1:100,000</td>
<td>MPWT</td>
</tr>
<tr>
<td>aerial photos (2)</td>
<td>Cambodia</td>
<td>1990s</td>
<td>1:25,000</td>
<td>1 + NMC</td>
</tr>
</tbody>
</table>
GIS Coordination Body

The institutional landscape with respect to GIS units and the services offered by them, as well as the availability of GIS data in general, are subject to rapid change. Recently, a new GIS Coordination Body for Cambodia has been established, with members coming from various government organizations, development projects and private sector companies. This GIS Coordination Body is charged with coordination of GIS activities, with informing the user community about recent trends and developments in the GIS sector, and also with updating the GIS Meta Data Base discussed above. The GIS Coordination Body may be contacted for updates of the information listed in the above tables under the following e-mail address: geographydpt@camnet.com.kh

Copyright of GIS Data

The copyright issue pertaining to GIS data remains unresolved in Cambodia. As of yet, there are no legal instruments that effectively protect intellectual property or property of digital data.

In many cases, data is exchanged or traded unofficially. The disadvantage of this practice is, that data obtained unofficially can often not be used in official or semi-official documents, such as e.g in a digitized future land use plan for signature by provincial authorities.

It is strongly recommended that everyone who copies GIS data should attempt to enter into a written agreement with the institution that provides the data. This agreement should state at least (a) which GIS data set is provided, (b) the intended use of the data set and (c) that the data provider has no objections against the intended use.

Official Certification Process for Maps

In Cambodia, maps and their publication are subject to an official process of certification. The details of this process are explained in the Sub-Decree on Kingdom of Cambodia's Map Production, Management and Exploitation and in the respective Guideline for Implementation. Amongst others, the guideline for implementation states that (original, un-corrected translation):

1. Agencies (institutions), organization, companies and individual can produce all kind of thematic maps for use and distribute in their working project only. All those maps must be made using base map data, which is registered in Geography Department of General Department of Cadastre and Geography.

2. All kind of maps, which are printed either in or outside of country for public use must have an approval and registration from Ministry of Land management, Urban planning and Construction.

3. Maps, which are printed for public as mentioned in number two must indicate about name of producer, date

<table>
<thead>
<tr>
<th>data set</th>
<th>country</th>
<th>date</th>
<th>scale</th>
<th>number</th>
</tr>
</thead>
<tbody>
<tr>
<td>land use/cover from aerial photos</td>
<td>scattered</td>
<td>1990s</td>
<td>1:25,000</td>
<td>1</td>
</tr>
<tr>
<td>satellite images (Landsat TM/ETM)</td>
<td>Cambodia</td>
<td>2000</td>
<td>up to 50,000</td>
<td>1+3</td>
</tr>
<tr>
<td>satellite images (SPOT)</td>
<td>central Cambodia</td>
<td>mid 1990s</td>
<td>up to 25,000</td>
<td>MPWT</td>
</tr>
<tr>
<td>land use/cover from satellite im.</td>
<td>Cambodia</td>
<td>1990s</td>
<td>1:250,000</td>
<td>MRCS + 3</td>
</tr>
<tr>
<td>land use/cover from satellite im.</td>
<td>scattered</td>
<td>1990s</td>
<td>1:100,000</td>
<td>3</td>
</tr>
<tr>
<td>protected area boundaries</td>
<td>Cambodia</td>
<td>1990s</td>
<td>1:250,000</td>
<td>2</td>
</tr>
<tr>
<td>protected area boundaries</td>
<td>scattered</td>
<td>1990s</td>
<td>1:50,000</td>
<td>2</td>
</tr>
<tr>
<td>forest concession boundaries</td>
<td>Cambodia</td>
<td>1999</td>
<td>1:50,000</td>
<td>3</td>
</tr>
<tr>
<td>land titling information</td>
<td>scattered</td>
<td>late 1990s</td>
<td>1:5,000</td>
<td>6</td>
</tr>
</tbody>
</table>

1) includes transportation + hydrography

(2) only few photos are available digitally, mostly paper copies

Please see also Annex 9 for more details on the use of the above data sets, especially on aerial photos and satellite images.
of printing, address of printing house and number of maps to be printed.

Two copies of printed maps must be sent to the General Department of Cadastre and Geography for documentation and archiving in ten days after printing.

...

5. All kind of thematic maps, which are done in digital format in purpose of public distribute must be followed to number 2, 3 and 4."

For the full text of the Sub-Decree or the Guideline for Implementation or for more detailed advice on the official certification of maps, please contact the General Department of Cadastre and Geography of the Ministry of Land Management, Urban Planning and Construction.

**Additional Information:** If additional clarification is needed, please contact the author under: Christoph Feldkötter, Phone: (855) 012 982570, Email: cfeldko@gmx.net
Annex 9

Maps, Aerial Photos, Satellite Imagery and GPS

Last update of information: 01 May 2001

Introduction

This annex intends to inform about "technical mapping" as opposed to "manual (PRA style) village mapping". In particular, this annex intends to inform about mapping techniques that can support the PLUP process, with special emphasis on source materials that form the basis of mapping activities, such as topographic maps and remote sensing images. It intends to enable the PLUP practitioner to ask the right questions when searching for or negotiating about technical support with one of the GIS units listed in Annex 8.

This annex does not intend to give detailed technical guidelines on how to produce maps. Production of maps is a specialist task for which substantial training is required, if one wants the results to be sufficiently accurate. Detailed technical guidelines would go beyond the scope of this manual.

Some Examples of Maps and Images

In the following, some pictures containing clip-outs of maps and images of various origins are shown. They have been included in order to give those readers, who are not familiar with the matter, an impression of the quality and the resolution of different source materials. All four pictures cover the same area (Yeak Laom Lake in Ban Lung, Ratanakiri) and have been enlarged to the same scale of 1:25,000.

The Satellite Image provides a good overview of the main land cover / land use classes (dense forest appears dark red, agriculture bluish or greyish). However, it does not have a high enough resolution to allow drawing of boundaries with high accuracy. Note, that there are satellite images of much higher resolution than the one shown here: Their appearance comes close to that of aerial photography. No high resolution satellite images of the area shown here were available yet at the time this manual was written.

Only the Aerial Photo (or satellite images coming close to its appearance) will obviously be sufficient for land use planning at the level of individual parcels or plots.

The Topographic Map is clearly outdated (see for example the road leading towards the lake, which does not even exist any more on the aerial photo). It can, however, still be of considerable use as a basis for deriving secondary products such as the slope map.

The Slope Map (or other maps creating a 3-dimensional impression of the terrain) have been demonstrated to be highly useful for the PLUP process when working in hilly or mountainous terrain.

Finally, technical maps may contribute to creating awareness of land use problems in ways that manual maps may not be able to achieve. In a number of cases, such maps were instrumental in obtaining endorsement for the establishment of a PLUP process by relevant authorities.
Satellite Image, Landsat ETM (30 meters resolution), Year 2000

Aerial Photo, Scale 1:25,000 (enlarged from 1:30,000), Year 2001

Topographic Map, Scale 1:25,000 (enlarged from 1:50,000), Year 1970
Scale and Accuracy

<table>
<thead>
<tr>
<th>Map Scale</th>
<th>Accuracy - Meters at Map Scale</th>
<th>Accuracy - Millimetres on Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:10,000</td>
<td>± 8</td>
<td>± 0.8</td>
</tr>
<tr>
<td>1:50,000</td>
<td>± 25</td>
<td>± 0.5</td>
</tr>
<tr>
<td>1:100,000</td>
<td>± 50</td>
<td>± 0.5</td>
</tr>
<tr>
<td>1:250,000</td>
<td>± 100</td>
<td>± 0.5</td>
</tr>
<tr>
<td>1:500,000</td>
<td>± 250</td>
<td>± 0.5</td>
</tr>
</tbody>
</table>

Scale and accuracy of a map are closely linked. In general, maps with smaller scales are less accurate. This also holds true for GIS data sets, which are normally derived from maps or images at given scales. Even though GIS software allows the user to zoom in closely on a data set or print it at very large scales, such zooms or prints are not any more accurate than the maps or images they have been derived from. The following table gives an overview of the relation between scale and accuracy (example taken from US government guidelines on map accuracy standards).

In no case can a GIS data set be more accurate than the map it has been derived from. To estimate the accuracy of most GIS data sets used in Cambodia, one should typically multiply the accuracy values listed in the above table by factor 2.

Scale and Workload

A fact that is often not perceived, and which has basically the same cause as the scale / accuracy problem discussed above, is that enlarging a map or GIS data set does not increase its information content. To effectively increase the information content, one would have to re-map the area in question, instead of just enlarging an existing map or GIS data set. This, on the other hand, causes a workload that increases by the power of two of the scale ratio. In other words: mapping an area at a scale of 1:50,000 requires four times as much effort as mapping it at a scale of 1:100,000.

This explains why institutions charged with mapping and preparation of GIS data sets typically tend to work at rather small scales, particularly if they are under-staffed, as is the case in most GIS units in Cambodia.

Especially maps that require a high degree of detail, such as village level maps for PLUP showing fragmented land use types, have therefore been produced only in very few cases. Land use maps are very often overly generalized and available only at rather small scales, which limits their usefulness for PLUP. In other words: if technical mapping for PLUP is to be done, which in most cases does require a high degree of detail, one has to budget sufficient resources (in terms of working time or funding to contract external services) for this task.

Scale and Planning Level
For detailed land use planning at the village or commune level, it will be difficult to obtain good results without using enlargements of the aerial photos (originally at around 1:25,000 scale, can be enlarged up to a scale of 1:5,000) or high resolution satellite images such as IKONOS. For land use master planning at the district or provincial level, data sets at lower scales (1:50,000 and less) may be sufficient, such as the Landsat ETM example shown above.

**Comparison of Available Source Materials**

The following table gives an overview of the quality, suitability and prices of various source materials for mapping in Cambodia, which are either already available or can be purchased from a commercial provider.

Please note that the largest scale at which exhaustive topographic map coverage is available in Cambodia is 1:50,000. Maps at larger scales have occasionally been produced, but only on a project basis and for small areas. They will therefore not be dealt with here.

<table>
<thead>
<tr>
<th>Map / Image</th>
<th>Remarks</th>
<th>US$ per km²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:50,000 Topo Map</td>
<td>compiled by US Military in 1960s - 70s</td>
<td>0.0005 (digitally)</td>
</tr>
<tr>
<td></td>
<td>partly updated and reprinted by Vietnamese</td>
<td></td>
</tr>
<tr>
<td></td>
<td>infrastructure, irrigation, populated places largely outdated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>see printed example above</td>
<td></td>
</tr>
<tr>
<td></td>
<td>digital copies of these maps can be obtained from the Dept of Geography for an administrative fee of about US$ 100</td>
<td></td>
</tr>
<tr>
<td>1:100,000 Topo Map</td>
<td>compiled with Japanese assistance in 1998</td>
<td>0.0005 (digitally)</td>
</tr>
<tr>
<td></td>
<td>covers only populated areas around the Tonle Sap Lake and Phnom Penh</td>
<td></td>
</tr>
<tr>
<td></td>
<td>infrastructure, irrigation, populated areas updated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>digital copies of these maps can be obtained from the Ministry of Public Works for an administrative fee of about US$ 50</td>
<td></td>
</tr>
<tr>
<td>1:250,000 Topo Map</td>
<td>compiled by US DMA in 1960s - 70s</td>
<td>unknown</td>
</tr>
<tr>
<td></td>
<td>infrastructure, irrigation, populated places largely outdated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>positional accuracy less than standard: only about ± 500 meters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>maps are available only as prints, can be purchased in book shops</td>
<td></td>
</tr>
<tr>
<td>Landsat ETM Satellite Images</td>
<td>type: colour</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>resolution: 30 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>coverage (1 image): 185 x 185 km</td>
<td></td>
</tr>
<tr>
<td></td>
<td>minimum order volume: US$ 600 (1 image)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>images are available only digitally</td>
<td></td>
</tr>
<tr>
<td></td>
<td>see printed example above</td>
<td></td>
</tr>
<tr>
<td>SPOT Satellite Images</td>
<td>type: black and white</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>resolution: 10 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>coverage (1 image): 60 x 60 km</td>
<td></td>
</tr>
<tr>
<td></td>
<td>minimum order volume: US$ 2,600 (1 image)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>images are available only digitally</td>
<td></td>
</tr>
<tr>
<td>IRS Satellite Images</td>
<td>type: black and white</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>resolution: 5.8 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>coverage: 70 x 70 km</td>
<td></td>
</tr>
<tr>
<td></td>
<td>minimum order volume: US$ 2,500 (1 image)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>images are available only digitally</td>
<td></td>
</tr>
<tr>
<td>IKONOS Satellite Images</td>
<td>type: black and white</td>
<td>34.00</td>
</tr>
<tr>
<td></td>
<td>resolution: 1.0 m</td>
<td></td>
</tr>
<tr>
<td></td>
<td>coverage: variable (around 20 x 20 km)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>minimum order volume: US$ 3,500 (10 x 10 km)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>images are available only digitally</td>
<td></td>
</tr>
<tr>
<td>Aerial Photographs</td>
<td>type: most common are black + white photos at a 1:25,000 scale</td>
<td>15.00 - 25.00 (new)</td>
</tr>
<tr>
<td></td>
<td>resolution: 0.5 m (at 1:25,000 scale)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>coverage: 6 x 6 km (at 1:25,000 scale)</td>
<td>0.10 (paper)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Processing Requirements

The maps listed above do not require further processing if they are obtained digitally. Aerial photos need to be scanned, and both satellite images and digital aerial photos need to be geo-referenced, if they are to be used in GIS or mapping software. Geo-referencing is the process by which the image is fitted to a coordinate system. This is a specialist task, which should be done by or at least under supervision of one of the GIS units listed in Annex 8.

Aerial photos and high resolution satellite images need to be ortho-corrected, if they are to be used for activities that require high geometrical accuracy (such as cadastral mapping work). Ortho-correction is the process by which geometrical distortions of the image caused by topography are removed. This is a specialist task, which should be done by one of the GIS units listed in Annex 8.

Since geometrical distortions of aerial photography depend on the topography, ortho-correction may be unnecessary for non-cadastral mapping work in relatively flat areas, such as most provinces around the Tonle Sap Lake.

GPS Support for Mapping

GPS (Global Positioning System) is a satellite based system, in which the user employs a ground receiver (hand-held or on a tripod) to track signals sent by the satellites. The receiver then determines its position (its coordinates) on the surface of the earth from the signals received.

The following table gives indications of the accuracy, cost, and potential fields of application of different types of GPS receivers.

<table>
<thead>
<tr>
<th>Type</th>
<th>Accuracy (m)</th>
<th>Indicative Cost (US$)</th>
<th>Application Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Receiver without Differential Correction (1)</td>
<td>± 5 - 20</td>
<td>200 - 500</td>
<td>- village / commune boundary mapping</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- forest concession mapping</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- land use zoning</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- simple road surveys</td>
</tr>
<tr>
<td>Receiver with Differential Correction (2)</td>
<td>± 1 - 5</td>
<td>1,000 - 10,000</td>
<td>- as above</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- accurate road surveys</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- land parcel mapping (with high quality receivers)</td>
</tr>
<tr>
<td>Survey Grade Receiver with Differential Correction (2)</td>
<td>± 0.005 - 0.05</td>
<td>&gt; 10,000</td>
<td>- land titling</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- geodetic surveys</td>
</tr>
</tbody>
</table>

(1) Accuracy is subject to deliberate distortion controlled by the US military. Accuracy can be degraded to as little as ± 100 m. ± 5 - 20 m is the accuracy with all settings undistorted.

(2) Differential correction requires: 2 receivers operating simultaneously or subscription to a correction signal broadcast

Note: in general, the accuracy of a GPS measurement depends on the occupation time. The longer a surveyed point is occupied with a receiver, the higher the accuracy will be (within the respective accuracy range as indicated above). This implies that "moving" surveys (such as road surveys from moving vehicles, transect or boundary walks) are the least accurate form of survey.
All applications listed above require that the coordinates determined by the receiver are transferred to a map. This in turn requires that both the GPS receiver and the map use exactly the same coordinate system. There is a number of pitfalls when attempting to transfer GPS coordinates to a map. The most commonly neglected one is that GPS receiver must be set to use the same geodetic datum as the map. It is further necessary that the operator is familiar with the use of geographic or Cartesian coordinate systems, especially when transferring coordinates manually.

Given these potential complications and the general proneness to error, it is highly recommended that users not familiar with the technology should, at least initially, enlist technical support of one of the GIS units listed in Annex 8. Even users familiar with the technology might want to establish contact with these GIS units, e.g. for advice on the use of advanced features or on the automated download of coordinates from GPS receivers.

GPS is often used in combination with traditional survey equipment, such as theodolites of total stations, which requires specially trained operators.

**Advantages of Using Maps and Images in the PLUP Process**

Quite frequently one will encounter the opinion that “technical mapping” is inappropriate for PLUP in Cambodia because it is too complicated and too expensive. There is no doubt that “manual (PRA style) village mapping” is an indispensable tool for PLUP. It can and should, however, be combined with technical mapping for the following reasons:

- Technical maps provide an accurate and to scale picture of sizes and interrelations of different land use categories. This is important for example in boundary areas where claims of villages or communes may overlap. With manual village mapping, the magnitude of such overlaps quite often remains unclear, which makes it difficult to find solutions accepted by all parties.
- Technical mapping eliminates ambiguities and uncertainties (e.g. as to the exact size and location of plots of land) and provides a clear reference for registration. Hence, technical maps enjoy much better recognition by the authorities than manual village maps. This is an important issue when PLUP is used to prepare maps that register existing and propose long-term future user rights, which need approval and signature by the authorities.
- Manual village mapping and technical mapping are not mutually exclusive. It may, for example, be highly beneficial to use technical maps, such as enlarged aerial photos or 3-dimensional terrain maps as shown in the examples above, as base materials on which manual village maps can be drawn.
- Every developed country has land administration and cadastral systems, which are always based on technical mapping. Since Cambodia will certainly benefit from a functioning land administration and cadastral system, the issue of technical mapping will have to be addressed sooner or later in any case. Omitting technical mapping now means that it will have to be done later. This implies that at least parts of the PLUP process will have to be repeated. This in turn means that due to a duplication of certain parts the total costs of the process will be higher than they are if proper technical mapping is done in the first place. No matter whether such higher costs are borne by the Cambodian national economy or by foreign development assistance, spending more funds than necessary means in any case that resources are used inefficiently.

**Further Reading**


Feldkötter, C.: Mapping Options for PLUP. PLUP Workshop 1, Phnom Penh, June 15 - 16 1999

**Additional Information**

If additional clarification is needed, please contact the author under:

Christoph Feldkötter,
Phone: (855) 012 982570,
Email: cfeldko@gmx.net
Steps and Procedure in PLUP

Step 0: Getting Started

Activities
- Compose the PLUP facilitation team
- Prepare the team for their new tasks (training and supervision)
- Consult all available support services and existing data resources

What? (Material/Equipment)
- Maps
- Aerial photos
- Satellite imagery
- Purchase required materials and equipment
- Select the planning area
- Conduct a stakeholder analysis on the provincial and/or district level
- Review all existing information on the new planning area

**Who? (Actors/Participants)**
- PLUP Coordinators on the provincial level
- PRDC or Provincial NRM Committee (if existing)
- Trainers/consultants (possibly a mobile training team)
- The newly formed PLUP team
- Donor-founded projects (IO/NGO)

**How long? When?**
4 - 6 weeks; including 10 - 12 days of training with practical exercises

**How? (Tools/Techniques)**
- Facilitation of a first village meeting
- Meetings with local authorities
- Meetings with commune/village leaders
- Facilitation of a first village meeting

**Result:**
A trained and well-prepared PLUP facilitation team of 3-5 people is available to start PLUP activities in a selected planning area.

**Step 1**

**Step 1: Preparation of Field Work**

**Activities**
- Distribute tasks among the PLUP team members
- Inform the local population in the selected planning area
- Conduct an introductory in the village(s) or commune selected

**Who? (Actors/Participants)**
- PLUP team
- Local authorities
- Local leaders
- Villagers

**How long? When?**
- up to 3 working days, including one day for village meeting
- Peak working times (e.g. harvest, rice planting) should be avoided.

**What? (Material/Equipment)**
None

**How? (Tools/Techniques)**
- Participatory training modules
- Group exercises
- Facilitation
- Meeting and interviews
- Joint data evaluation

**Result:**
Local authorities, local leaders and the villagers are informed about the PLUP process to start in their area and know the responsible PLUP team members.

**Step 2**
Step 2: Situation Analysis in the Community

<table>
<thead>
<tr>
<th>Phase 1: Participatory Appraisal and Information Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activities</strong></td>
</tr>
<tr>
<td>- Analyse socio-economic aspects in the working area</td>
</tr>
<tr>
<td>- Analyse institutional aspects in the working area</td>
</tr>
<tr>
<td>- Analyse current land and natural resource use patterns</td>
</tr>
<tr>
<td>- Analyse current land/natural resource use conflicts + past changes in resource use</td>
</tr>
<tr>
<td><strong>What?</strong> (Material/Equipment)</td>
</tr>
<tr>
<td>Large paper sheets, markers,</td>
</tr>
<tr>
<td>Cardboard, scissors,</td>
</tr>
<tr>
<td>Photo camera for documentation</td>
</tr>
<tr>
<td><strong>How?</strong> (Tools/Techniques)</td>
</tr>
<tr>
<td>Group meetings</td>
</tr>
<tr>
<td>PRA tools:</td>
</tr>
<tr>
<td>Semi-structured interviews</td>
</tr>
<tr>
<td>Wealth ranking exercises</td>
</tr>
<tr>
<td>Venn diagram</td>
</tr>
<tr>
<td>Village resource maps</td>
</tr>
<tr>
<td>Historical maps</td>
</tr>
<tr>
<td>Trend analysis</td>
</tr>
<tr>
<td>Mobility and conflict maps</td>
</tr>
<tr>
<td><strong>Who?</strong> (Actors/Participants)</td>
</tr>
<tr>
<td>PLUP team, villagers, key informants</td>
</tr>
<tr>
<td><strong>How long? When?</strong></td>
</tr>
<tr>
<td>2 - 3 days in the village, plus documentation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase 2: Preliminary Analysis of Information, Feedback to the Entire Community</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activities</strong></td>
</tr>
<tr>
<td>- Review and analyse all information collected</td>
</tr>
<tr>
<td>- Complement the documentation</td>
</tr>
<tr>
<td>- Conduct village meeting for cross-checking and feedback</td>
</tr>
<tr>
<td><strong>What?</strong> (Material/Equipment)</td>
</tr>
<tr>
<td>Large paper sheets</td>
</tr>
<tr>
<td>Markers</td>
</tr>
<tr>
<td>Cardboard</td>
</tr>
<tr>
<td>Scissors for copying the PRA tools</td>
</tr>
<tr>
<td>Photo camera for documentation</td>
</tr>
<tr>
<td><strong>How?</strong> (Tools/Techniques)</td>
</tr>
<tr>
<td>Team discussions</td>
</tr>
<tr>
<td>Exchange of observations</td>
</tr>
<tr>
<td>Village meeting for feedback</td>
</tr>
<tr>
<td><strong>Who?</strong> (Actors/Participants)</td>
</tr>
<tr>
<td>PLUP team, villagers</td>
</tr>
<tr>
<td><strong>How long? When?</strong></td>
</tr>
<tr>
<td>2 days in the office, 1 day for village meeting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase 3: Transect walks, Mapping and Modelling</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activities</strong></td>
</tr>
<tr>
<td><strong>What?</strong> (Material/Equipment)</td>
</tr>
<tr>
<td>Large paper sheets</td>
</tr>
</tbody>
</table>
- Carry out transect walks through the planning area
- Conduct boundary demarcation on a map and in the field
- Prepare a present land use map (and a terrain model)

<table>
<thead>
<tr>
<th>Who? (Actors/Participants)</th>
<th>How long? When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUP team (+ MLMUPC staff for boundary demarcation)</td>
<td>3 - 5 days in the field depending on the area</td>
</tr>
<tr>
<td>Key resource persons from the community</td>
<td>2 - 3 days for documentation in the office</td>
</tr>
</tbody>
</table>

**Phase 4: Feedback to the Entire Community (Village Workshop)**

**Activities**

- Prepare final copy of the present land use map
- Present and discuss the map in a general village meeting

<table>
<thead>
<tr>
<th>Who? (Actors/Participants)</th>
<th>How long? When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUP team, Villagers</td>
<td>1 day for general village meeting</td>
</tr>
</tbody>
</table>

**Result:**

Villagers and the PLUP team have jointly analysed the present situation and come to a good understanding concerning land use/land conflicts in the planning area. A present land use map has been prepared.

**Step 3**

**Step 3: Preliminary Identification + Screening of Options**

<table>
<thead>
<tr>
<th>Activities</th>
<th>What? (Material/Equipment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jointly identify land use areas requiring changes (on the map and in the field)</td>
<td>Present land use map</td>
</tr>
<tr>
<td>Evaluate the various options</td>
<td>All PRA tools prepared during step 2</td>
</tr>
<tr>
<td>Possibly conduct technical suitability assessments</td>
<td></td>
</tr>
<tr>
<td>Facilitate the decision making on best options for future land use</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who? (Actors/Participants)</th>
<th>How long? When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUP team</td>
<td>1 - 2 days depending on complexity of the situation</td>
</tr>
<tr>
<td>Villagers</td>
<td></td>
</tr>
</tbody>
</table>

Markers
Topographic maps
Aerial photos
Satellite imagery
Transparency film sheets

How? (Tools/Techniques)
Transect walks
Mapping on enlarged aerial photos
or paper sheets with GPS readings

What? (Material/Equipment)
Present land use map

How? (Tools/Techniques)
Village meeting
for discussion and feedback

Result:

Villagers and the PLUP team have jointly analysed the present situation and come to a good understanding concerning land use/land conflicts in the planning area. A present land use map has been prepared.

**Step 3**

**Step 3: Preliminary Identification + Screening of Options**

<table>
<thead>
<tr>
<th>Activities</th>
<th>What? (Material/Equipment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jointly identify land use areas requiring changes (on the map and in the field)</td>
<td>Present land use map</td>
</tr>
<tr>
<td>Evaluate the various options</td>
<td>All PRA tools prepared during step 2</td>
</tr>
<tr>
<td>Possibly conduct technical suitability assessments</td>
<td></td>
</tr>
<tr>
<td>Facilitate the decision making on best options for future land use</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who? (Actors/Participants)</th>
<th>How long? When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUP team</td>
<td>1 - 2 days depending on complexity of the situation</td>
</tr>
<tr>
<td>Villagers</td>
<td></td>
</tr>
</tbody>
</table>
Step 4: Creation of a Management Committee

<table>
<thead>
<tr>
<th>Activities</th>
<th>What? (Material/Equipment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Inform villagers on the tasks of a management committee</td>
<td>Large paper sheets and markers</td>
</tr>
<tr>
<td>- Prepare the election and identify candidates</td>
<td>(to collect names of candidates)</td>
</tr>
<tr>
<td>- Conduct the election</td>
<td>Possibly simple ballot papers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who? (Actors/Participants)</th>
<th>How long? When? 1 day</th>
<th>How? (Tools/Techniques)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- PLUP team</td>
<td>General village meeting</td>
<td></td>
</tr>
<tr>
<td>- Villagers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Result:

A management committee for the planning area has been established by free and fair elections

Step 5: Preparation of Future Land Use Plan, Village Regulations, and Detailed Management Plans

<table>
<thead>
<tr>
<th>Activities</th>
<th>What? (Material/Equipment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Prepare the future land use plan (map)</td>
<td>Copy of present land use map</td>
</tr>
<tr>
<td>- Inform villagers about the main contents of village regulations</td>
<td>Aerial photos</td>
</tr>
<tr>
<td>- Facilitate the drafting of village regulations</td>
<td>Guidelines for the preparation of</td>
</tr>
<tr>
<td>- Prepare specific management plans for selected communal areas, such as community forest and community fishery areas</td>
<td>village regulations</td>
</tr>
<tr>
<td></td>
<td>Guidelines for particip.forest inventory</td>
</tr>
<tr>
<td></td>
<td>Form sheets</td>
</tr>
</tbody>
</table>
### Step 6: Submission of the Land Use Plan, the Regulations and the Management Plans for Official Endorsement and Approval

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUP team</td>
<td>10 - 15 working days over a period of several weeks</td>
<td>Mapping on the present land use map or on aerial photos</td>
</tr>
<tr>
<td>Management Committee</td>
<td></td>
<td>Facilitation of group sessions</td>
</tr>
<tr>
<td>Villagers</td>
<td></td>
<td>Listening to draft VR versions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participatory forest or fish inventories</td>
</tr>
</tbody>
</table>

**Result:**

A land use plan, draft village regulations and possibly some detailed management plans for communal areas have been elaborated.

---

### Step 6

#### Activities

- Prepare a typed version of the village regulations
- Organize signing of all the relevant documents on village, commune and district level
- Organize digitization of land use plan by GIS services
- Facilitate changes to the draft documents on village level
- Present the land use plan, village regulation and management plans to a provincial committee for final endorsement and signing

<table>
<thead>
<tr>
<th>What? (Material/Equipment)</th>
<th>Management plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future land use plan</td>
<td>Typed village regulations</td>
</tr>
</tbody>
</table>

---

### Step 7

#### Who? (Actors/Participants)

- PLUP team
- Local authorities and leaders
- Provincial Committee (e.g. PRDC or Provincial NRM Committee)
- Concessionnaires, private investors, villagers

<table>
<thead>
<tr>
<th>How long? When?</th>
<th>How? (Tools/Techniques)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 - 7 days including preparatory work</td>
<td>Meetings</td>
</tr>
</tbody>
</table>

**Result:**

The land use plan, village regulations and possibly some detailed management plans for communal areas are officially endorsed and accepted by all parties.

---

![Diagram](image-url)
### Step 7: Link to Extension Services on Improved Land Management and Cadastral Services for Land Allocation Programs

|------------|---------------------------|-------------------------|
| - Possibly prepare and implement a village NRM activity plan  
- Provide information on land use to relevant extension services for support in implementation  
- Provide land use plan to cadastral services for land registration and distribution  
- Apply conflict resolution mechanisms if necessary | Form sheet for Village NRM Activity Plan | Information sessions  
Meetings |

<table>
<thead>
<tr>
<th>Who? (Actors/Participants)</th>
<th>How long? When? 3 - 5 working days</th>
</tr>
</thead>
</table>
| PLUP team  
DAFF  
Provincial cadastre services  
Villagers | |

**Result:**

The relevant extension and cadastral services are informed about the results of the land use planning exercise and land use and tenure changes are given the necessary support.

**Step 8**

### Step 8: Monitoring and Evaluation

|------------|---------------------------|-------------------------|
| - Monitor the results of extension and demonstration activities e.g. by DAFF  
- Monitor the implementation of the village NRM activity plan together with management committee  
- Monitor the enforcement of the village regulations and management plans together with the management committee  
- Conduct impact assessments | Material for PRA tools | Meetings with management committee  
PRA tools for particip. impact monitorin |

<table>
<thead>
<tr>
<th>Who? (Actors/Participants)</th>
<th>How long? When?</th>
</tr>
</thead>
</table>
| PLUP team  
Management committee  
Evaluators | Initially, 2 days per month; decreasing over time  
Impact assessment: 2 - 3 days per village |

Semi-structured interviews  
Trend analysis  
Matrix scoring and ranking  
Mapping
<table>
<thead>
<tr>
<th>Transect walks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Final Result:</strong></td>
<td></td>
</tr>
<tr>
<td>Local communities are strengthened in their management capacities, have clear ownership and tenure rights and manage the natural resources in their village area sustainably</td>
<td></td>
</tr>
</tbody>
</table>
Description of suitable PRA Tools for PLUP

Participatory Rural Appraisal or PRA is a way of enabling local (rural and urban) people to analyse their living conditions, to share the outcomes and to plan their activities. It's a "handing over the stick to the insider" in methods and action. The outsider's role is that of a catalyst, a facilitator and convenor of processes within a community, which is prepared to alter their situation.

In the context of PLUP several RRA/PRA tools are used in order to ascertain needs and analyse the present situation, to establish priorities for required changes, to study specific topics e.g. in forestry or fishery, to identify conflicting interests between groups and to conduct monitoring and evaluation exercises.

The following main PRA Tools commonly used in PLUP and already practiced in Cambodia will be briefly described in this annex:

- Semi-Structured Interviews
- Options for Wealth Ranking/Poverty Assessment
- Ranking Exercises
- Village Resource Maps
- Mobility and Conflict Maps
- Other Mapping Exercises
- Transect Walk
- Trend Analysis
- Venn Diagrams
- Dream Mapping

Current state of experience with PRA tools by some NRM Projects in Cambodia

<table>
<thead>
<tr>
<th>Project:</th>
<th>CONCERN World-wide</th>
<th>CB-NRM CARERE Rat.</th>
<th>PNRM FAO Siem Reap</th>
<th>PDP-KT GTZ Kg. Thom</th>
<th>CFRP IDRC</th>
<th>PMMR Koh Kong</th>
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1. Oral Histories

Oral histories are an excellent entry tool for village-level discussions, as people are often eager to share their history and elders are respected within Khmer culture. Although key informants in this activity are often village elders, younger people can listen, and often also have valuable information to contribute to these discussions.

Important notes to the facilitator:

- Allow the Elders to share their general story before asking specific details;
- Show respect to Elders;
- Gather a group of other community members around so that others can learn from these experiences (this information is often not shared).

2. Semi-Structured Interviews

Formal interviews, with a prescribed set of questions often allow for little flexibility and make both participants and facilitators uncomfortable; on the other hand, a completely informal discussion means that it is often difficult to compile information as facilitators only gather bits and pieces. It is useful to brainstorm with a team of facilitators prior to fieldwork about the types of information that is useful to the project and the types of information useful at the village level.

Semi-structured interviews (SSI) is one of the most important tools which could be used extensively at various stages of PRA exercises. The way it differs from the structured traditional interviewing is in its informality. Although no structured schedule or formal questionnaire is used in this kind of interviewing, a flexible outline of the discussion points are kept in mind. As the interview progresses the questions are formulated and asked by the interviewer keeping in view the central theme of discussion. A good SSI is more a discussion than an interview in which the interviewer steers the process without imposing.

The semi-structured interview could be of different types like individual interview, group interview, focus group discussion or interview of key informant(s).

Before the SSI:

- The topic of discussion and the specific areas of questions should be determined and discussed among the team members before the beginning of the interview.

During the SSI:

- Set the climate by asking some general questions like on any recent incident or the weather.
- Select a suitable place for a comfortable discussion.
- Gradually bring in the topic of discussion.
- Always ask open-ended questions and try to avoid closed, suggestive or leading questions.
- Avoid irrelevant and very sensitive questions.
- Listen carefully, be patient, try to understand various reasonings on any particular point.
- Use the 7 helpers: what?, when?, who?, why?, how?, which? and where?
- Do not interrupt or suggest or lecture and always be respectful.
- Do not ask more than one question at a time.
- No member of the team should leave abruptly during the process of interviewing.
- The interviewer and the interviewee(s) should sit in a mixed group in one place, and do not polarize the sitting arrangements of outsiders and insiders.
- Change gradually from one topic to the other.
- Take detailed notes of all information and record it as it has been said, without giving your own meaning.
- Head nodding in agreement or in disagreement should be avoided.
- Use local language or local dialect as much as possible.
- Make sure that the major information provided is probed and cross-checked.
- Thank the people for providing information.

3. Wealth Ranking and Poverty Assessment
Wealth ranking is a PRA technique that is used to understand the economic profile and well-being of the villagers. It is with this technique that the team learns more about different wealth and poverty groups in the community, about better-off, middle and poor farmers, landless people and female-headed households.

The main idea is that villagers use their own knowledge and criteria to do the ranking and outsiders can understand the way the villagers interpret the economic status of each family living in the village.

**a) Preparing a social map of the village**

One option is to ask villagers to draw a simple village map, showing some roads, paths and water courses for orientation, the Wat and then the location of all houses in the village as a small empty square. After discussion of the main poverty criteria applied by the local population, the villagers are asked to mark the houses of the better-off families in one colour, those of the poor in another colour and the remaining houses of the average or medium families in a third colour. It is useful to list all the criteria applied on the side of the map.

Furthermore, the social map can be used to mark those houses with people having a special function (e.g. village chief etc.), families having shops or rice mills etc. or families with relatives abroad etc. by the use of special symbols, which should then be explained in a legend.

**b) Wealth ranking exercise by the use of cards**

Wealth ranking can be done by using cards. Villagers write the names of all families living in the village on a card (one card for each family) and rank them. Then ask the villagers to group the families in the village in terms of their wealth. Villager would develop suitable criteria for this purpose.

In the end there will be three or four piles of cards representing different family groups. This information can be cross-checked by doing the same exercise with different groups of villagers at different locations.

**4. Ranking Exercises**

The PMMR Project in Koh Kong Province has used ranking exercises in a series of different manners. For example, after villagers have examined different issues pertaining to the environment, they are asked to rank these issues in order of importance. Ranking exercises help to prioritise goals and actions. It is essential that priorities are identified so that work can be begun to address relevant issues. For example, in the case of village-level management planning, a number of areas near the village were identified for mangrove replanting. These areas were then ranked according to a selected criteria (written by villagers) and a replanting and monitoring program began.

Important notes to the facilitator:

- In order for a ranking exercise to really be effective, issues must be first clearly identified and discussed. Only once participants have a clear understanding of the issue can something be ranked;
- Ranking is useful when helping a community begin working on an issue i.e. if a community is working on resource management and has identified three areas of interest (enforcement, replanting, water supply) then they can use a ranking exercise to decide on the area that is most important;
- Remember to ask WHY something was ranked the way it was (this is very useful information).

Example: Matrix ranking on useful tree species

<table>
<thead>
<tr>
<th>Criteria Tree Species</th>
<th>Quality for building houses</th>
<th>Quality as firewood</th>
<th>Usefulness of leaves for fodder</th>
<th>Usefulness for fruits</th>
<th>Usefulness for traditional medicine</th>
<th>Fast growth</th>
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<tr>
<td>Kohki</td>
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<td>Kangork Phadao</td>
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</table>
5. Village Resource Maps

This can be a very useful and central techniques for developing participatory land use plans or a plan for natural resources management. The map drawn by the villagers will help outsiders to understand the geographic and administrative boundaries, roads, settlement areas as well as forests, upland areas, rangeland, ponds/lakes, rivers/streams and their local names.

Before:

- Decide what sort of map will be drawn and for what purpose.
- Have sufficient discussion on the exercise amongst the facilitators before beginning.
- Try to involve a good number of villagers to prepare the map.
- Either use paper, colour markers or natural materials such as stones, wood, seeds etc.

During:

- Ask the villagers to draw the map of their own village area in a suitable place which is convenient for all villagers.
- Allow the villagers to draw the map in their own style indicating boundaries, roads, water resources, settlement areas, forests, grassland, flooded areas, crop land etc.
- Don't interrupt from outside. Don't take over and draw the map yourselves.
- There could be 5-6 or more villagers preparing the map of the village at the same time. The more participation of villagers the better the quality of the map would be. When the group of villagers finish their work of drawing the map, ask others if they would like to add something.

If a historical village map (see below) was prepared, compare the two maps: What has changed? Why?

6. Mobility and Conflict Maps

This is a very important tool to understand about outside users and use of resources by villagers outside their own area. Once again a map of the village area is drawn by villagers.

Then the facilitators ask: Which areas outside your village area do you use e.g. for firewood collection, construction wood, fishing, hunting etc.? Name all the natural resources used outside the village area and draw them on the village sketch map! Draw darts to indicate the direction! Ask: who is going there? (e.g. men or women, entire families etc.) And how many villagers go?

Which areas inside your village are also used by other villagers/outsiders? Describe these areas and their use and draw darts pointing from the outside to these areas! Ask: who is coming there? (e.g. men or women, entire families etc.) And how many villagers come?

In case this use of land and resources by outsiders is considered a problem and use conflicts have emerged, ask villagers to mark the areas with red flashes or other signs.

7. Other Mapping Exercises

a) Historical Mapping

Mapping work helps to identify and analyze the distribution of and the relationships between specific resources or features; sometimes it can be very useful to look back at the situation of land and resources use several years ago. Whoever is participating in this exercise is asked to think back to what village life was like "before" ("before" can be as far back as the group, collectively, can remember). Often it makes sense to begin with drawing a map of "now", identifying important land use patterns/features, and then drawing a second map of "then". Having two maps enables the groups to discuss changes in land use and resource use over time.

Important questions by the facilitator to all participants:
How is the village today different from before?
What lessons can be learned from resource use and management in the past?
What historical information needs to be taken into account for current land-use planning?

b) Dream mapping

A suitable participatory tool to identify the peoples' vision of their village area is called dream mapping. The PLUP team would in this case distribute paper and colour markers to representatives of several sub-groups in a village, some old people, men and women, children, different ethnic groups etc. Then the selected people are asked to draw a picture or a map of their village and the village area, as they would wish to have it in 5-10 years from now. After these "dream maps" have been presented by the "artists", the role of the PLUP team is to moderate a discussion on the pictures and to support villagers in developing a common vision on the future of their village area. Finally, the implications of their conclusions on land use within the area are summarized.

8. Transect Walks

A transect walk by a PLUP team across the village with villagers helps them to develop a clear idea on the natural resources, present land use, vegetation, changes in the physical features and cropping systems, etc. in the village area. They can share with the community a wide range of information and their indigenous practices. A transect walk is useful to the PRA team to have direct observations on the village resources and to triangulate data already collected through other tools.

Before:

- Select a group of villagers who have good knowledge on physical resources of the village and who are willing to participate in the transect walk.
- Discuss with these villagers on the basis of the village resources map which route they would like to follow in the walk. Think carefully and plan what you want to see during the walk.
- Distribute responsibilities for recording information among the members of the PLUP team, by topics. The members of the team can also share responsibilities for activities such as interviewing, collection of samples, time keeping, sketching and recording.

During:

- Observe and record in detail all important things that you come across and get as much information as possible from the villagers.
- When talking to the villagers feel free to use the six helpers: when, what, how, where, why and who.
- Make notes of all vital information you gather and draw sketches wherever necessary.
- You need not necessarily adhere to the original route of the transect. Deviate from the route from time to time to observe the surrounding area and gather any relevant and useful information.
- Travel slowly and patiently and try to understand the physical features in the village from different perspectives.

After:

- After the completion of a transect walk, sit down in a suitable place with the villagers to have a discussion and recording of information and data collected.
- Prepare an illustrative diagram of the transect walk using the information already gathered. Get the information cross-checked by other villagers.

9. Trend Analysis

A trend analysis matrix helps to analyse and discuss the changes of various parameters over time. Usually the parameters or "topics" should be proposed by the villagers themselves and the PLUP team can add their ideas.

The facilitating team should make sure that some old people are in the group and should start with easy topics, like population, rainfall or flooding, then move to the changes in natural resources.

Example: Changes and trends in village ...........
Discuss the changes and trends and draw conclusions. Then ask for the reasons for these changes and discuss what could be done to change the negative trends.

10. Venn Diagram

This PRA technique helps outsiders to understand the importance attached to different organisations inside and outside the village by the villagers. It reveals the impact of these organisations, the extent of overlap and the influence exerted in the village as perceived by the villagers.

While using this simple techniques villagers allot different sizes of paper discs for different organisations and also adjust the distance of the paper discs from the village depending upon its relative influence or closeness to the villagers needs.

During the preparation of the venn diagram the villagers often find it easier to concentrate on any particular type of organisation at a time, such as, all village organisations, all service providers, all projects or all credit organisations. It is often useful to prepare venn diagrams separately by women and by men groups.

Before:

- Cut paper discs of different sizes and keep them ready. Alternatively, villagers can draw the circles of different sizes directly onto large white paper sheets.
- Carry large paper sheets and markers.
- Select a suitable place and set the climate for a frank discussion.
- Invite people from all sections of the village to participate in the discussion, then separate them into a women and a men group.
- Decide the entry topic before, e.g. village organisations.

During:

- Ask the villagers to make a list of all the institutions functioning in the area according to the categories, e.g. government organizations, village organizations, NGO projects etc.
- Ask the villagers to draw a circle on the large paper sheet denoting their village.
- Ask them to choose or draw a large disc for an important and a smaller one for a less important institution (as they feel), write the name of the institution on the circles and position the paper discs or circles around that. The paper circles may or may not overlap. The distance of the paper circle from the centre will denote the intensity of involvement or importance of that particular institution in the village.
• Allow them to change the position of the paper discs if they want to, e.g. after a second round of discussion. A complex diagram will emerge.
• At the end of the participatory exercise ask the villagers to paste the discs on the paper sheet.

Note: the distance of a paper disc from the circle representing the village does not mean geographical distance.

After:

• Try to understand the relationship of these organisations with the villagers from the diagram.
• Record the findings. Record differences of views between men and women, rich and poor people in the village.
• Conflicts and frictions in the village amongst different inside organisations or with outside organisations will come to the surface and will be very valuable knowledge for the actual planning process and future work.

11. Modelling

An example from the PMMR Project Koh Kong: Modelling a coastal community

Mapping is a common tool used to illustrate the conditions in a coastal community. The facilitators introduce a "variation" of the mapping activity, which is the three-dimensional clay modelling.

This exercise can be made in place of mapping because the participants are given more room for creativity and expression of their thoughts on the conditions of coastal resources. Instead of clay, the participants could also use a mixture of sand, stones and wood to represent the various land units.

Important questions to the facilitator:

• What are the resources in the community that are perceived to be important?
• Are people regarded as resources? Why or why not?
• What are some of the emerging issues perceived to be important?
• Observe what the groups first model from clay i.e. coastline or fish or trees and discuss why/how groups came up with their coastal profiles.

Consult the following literature for more in-depth information on PRA (some of the examples mentioned above were taken from these publications):

Pretty, J.N.; Guijt, I; Scoones, I; and Thompson, J.: 

Schoenhuth, M.; Kievelitz, U.: 
Participatory Learning Approaches - An introductory guide, GTZ, Rossdorf, 1994

FARM Programme: 

Indo-German Changar Eco-Development Project: 
Guidelines, Guiding Questions for the Elaboration of Village Regulations and Example of a Village NRM Activity Plan

1. Village Regulations

The PLUP team should take a very flexible approach towards the elaboration of the VR and under no circumstances a prescribed format for village regulations should be used and presented to villagers. What follows are a few ideas how the team could formulate questions to the community, which would encourage them to draft their regulations:

Description of the village and its boundaries with neighbouring villages

Guiding questions, which could be asked by the NRM team: Could you start the village regulations by giving the name of your village, the number of households in the village, the commune and the district you belong to? Please describe the border of this village with all neighbouring villages! Please also mention any characteristic features in your village area, like famous mountains, big lakes, old pagodas, ancient settlements.

Description of any forest areas and regulations for their future use or protection

Questions: What kinds of forests do you have in the village area (e.g. spiritual forest, graveyard forest, protected areas, private production forests, communal production forests etc.)? Give a description of these forests by using local names! Then name for every forest the general management regulations to be followed! Should they be marked by small signs or colour markings? What is allowed and what is not allowed in these respective forest areas? What about fire, tree cutting, collection of fruits, hunting etc.? What happens if somebody does not respect these regulations? What are the fines or punishments? Who has the right to use communal forest areas e.g. for firewood extraction/charcoal making? Are any communal forest planting activities planned in future? If yes, in which area? What about private planting of fuelwood or ornamental trees e.g. in homegardens and around houses? What are the rules for this? How can people be encouraged to practice this?

Description of main fishing areas, aquatic animal resources (in lakes, ponds, swamps, river-banks, streambanks, canals, rice fields) and regulations for their future use and protection

For each fishing place in or near the village please name the people who have the right to fish there. Are there restricted times for fishing (closed seasons)? Are there restricted species (fishes or other aquatic animals)? Are there fish sanctuaries (reserves for reproduction)? What are the allowable catches? Are there any restrictions on fishing gear and fishing techniques to be used? For example: no electric shock fishing or use of explosives. Should there be any rules on the use of fertilizers, pesticides, insecticides and herbicides near fishing areas? What about cutting grass near ponds/lakes? What about the management of swamps?

What happens if somebody does not follow these regulations? Which fines/punishments need to be applied? Are there special rules for the management of any private ponds in the village?

Is it possible to provide additional incentives for good management of fish resources by the community, e.g. by providing free fish fingerlings for communal ponds one year after the clauses on fish management have been successfully enforced and monitored?

Description of wildlife and NTFP resources (e.g. fruits, mushrooms and plant materials from the forest) and regulations on their use and protection

Which hunting and collection activities in the forests and bushlands are allowed and which ones are not? Are there any protected animal species or NTFPs? What are the fines/punishments for any illegal activities?
Description of upland farm areas and regulations for their management

These upland farms do not exist in many villages, but they are important resource areas in some villages. What can be done to improve the use and protection of these areas? Is the use of fire allowed on these farms? Should they be fenced? Should some important trees be protected? Which species? Can the owners be encouraged to leave some areas for tree regeneration and firewood production? What about the cutting of firewood on these private farms by other villagers? Where can the others (not farm owners) cut wood for firewood, charcoal making, fencing, house construction or repair? Should there be any limitations on the sale of farmland to outsiders?

Some rules and regulations on the disposal of villagers' garbage, burning in the settlement area etc.

Do the villagers want to include any other rules in view of improving the village hygiene and reducing any environmental pollution or destruction?

At last: Do the villagers want to include anything else in the village regulations?

The village regulations should also mention who is responsible for supervising the implementation of these regulations (e.g. village NRM committee) and collecting any fines! What happens if offenders against the regulations do not obey?

If the NRM committee collects fine money: how will the village use this money? (The current fining catalogue and the members of the NRM committee should be listed in the Annexes to the VR.) Yet, the regulations should not only contain a list of prohibitions and fines, but also incentives and encouragement to create peoples' motivation.

In which cases and how will higher authorities be involved in conflict solving? The general rule should be that as many problems as possible should be solved on the village level!

It should also be mentioned under which circumstances or in what time intervals the regulations can be amended or should be reviewed.

It should also be clear that these regulations are also valid for any outsider who uses the natural resources within the village area! Therefore any misuse by this outsider will also be punished, same as for any of the villagers.

At the end of the document there should be space for signatures and stamps by the village NRM committee, the commune chief, the district governor, the head of DAFF and the provincial governor. Copies of the signed regulations will have to be distributed to all neighbouring villages!

Quick reference table for checking the draft VR for completeness

<table>
<thead>
<tr>
<th>Land category</th>
<th>Local Name</th>
<th>Private</th>
<th>Communal</th>
<th>Who can use this area?</th>
<th>What is permitted?</th>
<th>What is not permitted?</th>
<th>What is the ideal use /protection in future?</th>
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2. Village NRM Activity Plan

<table>
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<tr>
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<th>Responsible</th>
<th>Inputs required/ Remark</th>
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In addition to the above columns, additional information on the overall estimated time needs for each activity, the differentiation between real self-help activities and those with external support and indicators/milestones could be included in such a workplan.

¹Do not forget training and monitoring activities by the PLUP team members!
Guidelines on Participatory Forest and Fishery Inventories (as part of the elaboration of communal management plans)

Participatory Forest Inventories

The following methodology on participatory forest inventory was tested in the PNRM-Project (FAO) Siem Reap and was presented by Mr. Prak Marina in the Fourth PLUP Workshop, Phnom Penh, 15-16 March 2001:

Assessment of the condition and productivity of natural resources is essential for management planning. In community forestry, a participatory resource assessment is used to generate the information required for management plan preparation. It is a descriptive inventory of forest condition and group consensus on sustainable annual productivity levels for timber and other non-timber forest products. Regular monitoring and evaluation of management activities is used to adjust harvest levels to ensure sustainable production.

1. Objective

The objective of a participatory forest inventory is to assess the quality and condition of the forest resources through the eyes of the users and to have the users reach consensus on how much of each forest product can be harvested on a sustainable basis. The information collected and recorded is only that which is required for management plan preparation and implementation.

2. Methodology

A trained facilitator works with the local community members and facilitates a discussion while walking through the resource.

2.1 Preparation for field work

- review existing information from previous studies, particularly case study for community forestry (resource utilization, land use, farming systems, conflict resolution...)
- identify total number of users (number of households)
- define users’ objectives for forest management (production forest, religious forest, income generation...)
- prepare forest boundary map, land use and land allocation map
- identify existing village organization structures
- review objective, process and steps of inventory, roles and responsibilities among field team members

2.2 Community preparation for inventory

- identify about 30 representatives including the community forestry committee, village chief, village development committee and villagers
- review the concept of community forestry with the group and the objectives and need for participatory forest inventory
- introduce/discuss the methodology of participatory forest inventory with the villagers
- select 12 representatives from community forestry committee, village chief, village development committee and villagers to participate in the forest inventory

2.3 Participatory mapping

- do a participatory sketch map to facilitate discussion on past, present and future resource use (what and where? who are the users?)
- identify the main locations and the name of locations (water source, school, road, pond, grass land...)

Annex 13
2.4 Blocks and sub-blocks division

Each forest is divided into homogenous blocks and sub-blocks based on forest type and productivity. This is done through discussion with community representatives and via sketch mapping. Aerial photos should be used if available as they simplify the process and improve the quality of the outcome.

- facilitate the community to divide the forest into blocks/sub-blocks on a sketch map
- assist community to define management objectives for each block and sub-blocks (which resources are most significant)
- identify local names for each block and sub-block

2.5 Field inventory

The facilitator and community representatives arrange a time to meet to conduct the inventory of the resource. The amount of time required depends on the size of the forest and the number of distinct blocks or forest types within. The inventory is conducted by walking as a group into each block and after selecting a representative location - sit and discuss what everyone sees. The facilitator facilitates the discussion and records the information along with the secretary of the management committee.

For each block describe:

- management objectives
- general description of the forest and history of use
- general description of soils/topography/aspect
- current uses (grazing, fishing, etc…)
- average height of trees by main species
- average of trees by main species
- average number of trees per hectare by species
- description of regeneration (species)
- list of all economic products extracted from the block
- list any other forest uses

For each block, the community members are asked to estimate how much of each product do they think can be harvested each year without hurting or degrading the forest.

Consensus should be reached and the estimates recorded for:

- fuelwood
- poles
- house support beams
- timber
- calamus sp. (rattan)
- bamboo
- medicinal plants (types)
- other NTFPs

For each block, the discussion may take one or two hours at a central location and this is followed by further walking and discussing what the people see to refine the descriptive inventory and to verify the actual block for mapping and future management.

2.6 Post field finalization

After the descriptive inventories are completed for each block, a general meeting should be organized with the forest management committee and other members of the community to discuss the results of the inventory, to reach consensus on the results and to initiate management plan preparation. The descriptive inventory for each block should be clearly written and included within the management plan. Through the descriptive inventory, the reader of the management plan should have a clear image of the forest - its condition and productive potential.

2.7 Refinement
Participatory monitoring and evaluation should be conducted on an annual basis and the level of harvest and forest condition closely monitored. The management plan should be reviewed annually and adjusted according to actual activities realized and experiences gained.

3. Training of Facilitators

The Forestry Department in each province should identify competent and motivated staff to become inventory specialists within the province. These staff should be trained in technical inventory techniques and should practice until they develop a "good eye" for estimating actual tree sizes and volumes. These inventory specialists should provide forest inventory training for all the facilitators working within each province. Actual plots should be established to provide the facilitators with a clear understanding of resource inventory and actual volumes within a given area. This is done to sharpen their eyes and senses for actually facilitating a descriptive inventory with a local community.

Another important issue in a forestry inventory is the estimation of a carrying capacity or sustainable yield level. It is important to have some information on the current relationship between supply and demand for wood and other forest products. Recent surveys carried out in the provinces of Cambodia have yielded some interesting data on fuel wood consumption and productivity of local forests (Degen, et al. 2000):

A survey among 815 sample households in Kampong Chhnang has shown the average firewood requirements to be of 5.27 tons per year and family.

Productivity measurements in forest areas have given the following results:

- Flooded forest - 4.4 t/ha/y
- Deciduous forest - 3.1 t/ha/y
- Secondary forest - 1.4 t/ha/y
- Wood shrublands - 1.2 t/ha/y
- Secondary flooded forest - 1.4 t/ha/y
- Evergreen forest - 5.7 t/ha/y

Participatory Fishery Inventories

This example on coastal community fisheries is provided by the Participatory Management of Mangrove Resources Project (MoE/IDRC) in Koh Kong Province:

In coastal communities, fisheries play an integral role in livelihood activities and in village life. Villages are actively involved in fishing activities, from small-scale fishers to larger-scale fishers to middle-persons. Although fisheries management is part of any land-use planning process, fisheries management is relatively new in Cambodia. Interestingly, a few models do exist of successful community fisheries (usually generated with the help of outside facilitators).

In Ream National Park, communities have formed village fishing groups, based on gear type, and then elected village fishing committees. Villagers designed regulations to be followed in the community fishing area of Ream National Park and are active in patrolling and enforcing these regulations, working with Park Rangers and other technical agencies to protect this area. Although this project is very successful, there is no legislation to support these activities i.e. technically, as community organization around resource management issues is not officially recognized.

Only when the new fisheries sub-decree is implemented, this will give communities legal recognition of their right to organize and protect their resources.

In Peam Krasaop Wildlife Sanctuary, natural resource management committees have been organized in two villages. Here villagers have come up with resource management guidelines, and are implementing a range of activities such as enforcement together with park rangers, mangrove replanting and charcoal reduction activities. Peer pressure is especially powerful, with communities sanctioning themselves with regard to fishing gear and net sizes.

For the Participatory Management of Mangrove Resources (PMMR) team, it has taken time to consider fisheries management issues (perhaps because fish are such a mobile resource and these are hard issues to tackle). Villagers and facilitators need to have basic information before beginning fisheries management.
When beginning fisheries management, PMMR asked what type of tools are involved in fisheries management? One useful activity, both for facilitators and for the community, is the Fishing Game.

This game clearly illustrates what happens when an area is over-fished and enables participants to start thinking about how to manage an area. This is a particularly useful way to introduce the idea of fisheries management in a community.

**Fishing Activities: the fishing game**

The fishing game is a simulation of a fishing activity. Participants are divided into three groups, and each group is provided with the following materials:

- Equal numbers of colour-coded rice grains i.e. orange, white and blue (depicting adult, young and juvenile fish)
- Green-coloured paper depicting the fishing ground
- Flip chart paper
- Calculator

The grains are spread out randomly on the green paper and then designated "fisher/s" set out to fish. The group agrees on how long fishing can be undertaken i.e. ten seconds, one minute.

The fisher/s are instructed to catch as much as possible within the time limit. Each fishing cycle is considered a one-year cycle. Once fishing stops i.e. time limit has been reached, the fisher/s recorded their catch in the flip chart paper and calculate the corresponding values of their catch.

For example, one group agrees on the following values:

- Orange grains = adult fish = P20
- White grains = juvenile fish = P10
- Blue grains = young fish = P5

For example:

Name of Fisher: Nin Nong

**Fish Catch:**

- Adult = 15 grains x P20 = 300
- Juvenile = 30 grains x P10 = 300
- Young = 17 grains x P5 = 85

TOTAL 685

This procedure is repeated thrice. At the end of three cycles, the participants are asked to record the catch and compute for the "fish population" using the table illustrated below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Starting Population</th>
<th>Total Catch</th>
<th>Population at Year End</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adult</td>
<td>Juvenile</td>
<td>Young</td>
</tr>
<tr>
<td>1</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>(10+35)</td>
<td>23**</td>
<td>35*</td>
</tr>
</tbody>
</table>

Computing for the fish population for year two, participants are guided by the following rules:
In the succeeding year, the remaining young fish have grown into juvenile fish. Record the remaining young fish population as the juvenile fish of the second year;

- All of the adult fish, which were not caught, reproduced i.e., their numbers are doubled. Record the number of new young fish in the second year as equal to the population of the remaining adult fish in the previous year;
- The uncaught juvenile fish have grown into adult fish. Add the remaining juvenile fish population to the remaining adult population of year one. Record the result as the number of adult fish population for the second year.

After the participants finished the fishing game activity, a representative of each group was asked to present the results.

Important Questions to the Facilitator:

- How will you describe the trend in the fish population?
- If there is a decreasing trend, what do you think are the reasons for this?
- How can a situation of decreasing fish population be solved?

Another important activity in beginning fisheries management is to undertake a Fish Catch Monitoring activity. Villagers can actively participate in this, and graphs can be drawn and left in the village to show the different species and amount that are caught along with the catch price. After several months of data collection, villagers will have a better idea of their resources and can then begin a planning process i.e. what areas should be protected, which species should be protected and eventually draft a community fisheries management plan.

Fish Catch Monitoring

Name of Researcher:

Full Moon or Dark Moon:

Fishers:

Fishing Gear Type:

Village:

Boat (row boat or engine):

Fishing Location:

Date:

<table>
<thead>
<tr>
<th>Fish Species</th>
<th>Weight</th>
<th>%</th>
<th>Catch Price</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Once again, some data on the relationship between supply and demand for fish is required for the drafting of any community fishery management plans. Recent surveys in Cambodia have yielded the following general figures (Degen, et al. 2000):

Approximate productivity of rice field fisheries: 25 - 62 kg/ha/y

Average fish consumption rate: 67 kg/capita/y (more than 75% of animal protein intake in rural areas)
Example for the Structure of a Community Forest Management Plan

This following example was elaborated and tested in the Participatory Natural Resources Management Project in the Tonle Sap Region (FAO)/Siem Reap:

Community Forest Management Plan

1. Forest profile
   - Name of community forest:
   - Location:
   - Social economic situation:
   - Boundaries (physical and natural):
     - East:
     - West:
     - North:
     - South:
   - Total area and zoning:
   - Forest condition:
   - Regeneration:

2. Forest map

3. Forest history and traditional management system

4. Block divisions and details of

   Block No. 1:                           Block No. 2:
   - Name:
   - Boundaries:
   - Area:
   - Objective:
   - Name:
   - ........
   - ........
   - ........

Type of forest:
   - Main species:
   - Regeneration condition:
   - Forest condition:
   - Soil condition:
   - Management activity:
   - Regulation and benefit sharing:

5. Protection arrangements

   - Hunting:
   - Encroachment:
   - Timber:
   - Fuel wood:
   - Wooden poles:

6. Forest development activities

   - Nursery operation:
7. Forest resources utilization and supply of forest products

<table>
<thead>
<tr>
<th>Type of forest product</th>
<th>Guidelines for harvesting</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mushroom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creeper</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>...........</td>
</tr>
</tbody>
</table>

8. Management activities

- Forest management committee:
- Demarcation of protected area:
- Post signs:
- Monitoring activities: monitoring what, how, when, where ?:

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Conflict Resolution Mechanisms

Conflict resolution is a process by which two or more parties improve their situation by cooperative action (informal or formal discussions, court) based on a mutual compromise.\(^2\)

Conflict resolution structures (in general)

- Traditional negotiation structures
- Facilitators (neutral position, ground rules, response of and respect for traditional authority)
- Traditional court
- Statutory court

Types of conflicts

In a PLUP situation in Cambodia several types of conflicts with regard to land and resources use could be possible conflicts among/between:

- Individual villagers
- Two or several groups within the same village
- Villagers and other villagers from neighbouring communities or seasonal migrants
- Villagers and local authorities or their leaders
- Villagers and other outsiders, such as demobilised or active soldiers, police officers, powerful businessmen or speculators

Under Cambodian conditions the most frequent conflicts emerge between villagers and outsiders and usually with powerful individuals or their companies.

The main conflict resolution mechanisms are discussions in front of a committee, compromises, compensations, benefit sharing, joint management, decentralization, transparency, mediation by neutral facilitators, law enforcement, a clear legal situation etc.

In the cases of 1) and 2) the conflict resolution mechanisms should be applied within the village itself and in the case of minor land or resource use conflicts this would involve the elected village (NRM) management committee and possibly some advisors (elders, abbot, monks etc.).

Conflicts between villages (case 3) within the same commune would be brought in front of the Commune NRM Sub-Committee (under the Commune Council) for discussion and conflict resolution. In case the conflict involves villagers from other communes, the Provincial Land Conflict Resolution Committee would be the responsible institution.

Cases of conflicts between villagers and local authorities or influential outsiders would have to be dealt with by the Provincial Land Conflict Resolution Committees and in case no satisfactory solution can be found, would be submitted to the local courts.

\(^2\) UNEP/FAO/GTZ, 1999
### Examples of a PLUP/LA Process from Lao P.D.R. + Vietnam

<table>
<thead>
<tr>
<th>Step 1</th>
<th>NAWACOP/LAO P.D.R.</th>
<th>National LUP/LA Program with support by LSFP/LOA P.D.R.</th>
<th>Proposed Principles of LUP and Forest Land Allocation (FLA) Vietnam</th>
<th>SFDP/Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Preparing Procedures</td>
<td>Preparation for implementing LUP and LA activities</td>
<td>Collection of information and secondary data</td>
<td>Preparation</td>
</tr>
<tr>
<td></td>
<td>- Team building, review of existing information on village, inform and invite neighbouring villages, equipment and aerial photos</td>
<td>- Staff preparation (teams, equipment, materials)</td>
<td></td>
<td>- Establish a steering com. on district level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Villager preparation (invite neighbours, explain LUP process to village committee, explain GoL policies, regulations and objectives)</td>
<td></td>
<td>- Working group on commune level</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Compilation of basic informat. (PRA) and second. data</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2</th>
<th>First village meeting on PLUP/LA: Collection of present land use data</th>
<th>Survey and mapping of village boundary and forest and agricultural land zones</th>
<th>Definition of the present land use situation</th>
<th>Village meeting for discussion and explanation of the land allocation process</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Legal aspects (land law, forest law) and concept of PLUP/LA, demarcation of village boundary, village base map, present land use and tenure system, identification of existing rules and regulations on NR use, socio-economic data</td>
<td>- Village boundaries and boundary agreement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Draw village base map</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Survey village landmarks and topographic features to establish reference points</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Identify present village forest and agricultural land use zones</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 3</th>
<th>Second village meeting on PLUP/LA: Initiation of discussion about Future Land Use</th>
<th>Data collection and analysis</th>
<th>Assessment of the present land capability</th>
<th>Mapping of present land use and village/commune boundaries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Present land use map, Creation of VLUP/LAC Committee, vision on future of village, explanation of land allocation process (temporary land certificates)</td>
<td>- Information on village land tenure, land use and claims</td>
<td></td>
<td>- Village resource maps, transects, 3-D modelling</td>
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<td></td>
<td></td>
<td>- Socio-economic conditions and villagers perceived problems/needs</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Summarise and analyse village information and determine agricultural land allocation criteria</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 4</th>
<th>Third village meeting on PLUP/LA: Future Land Use</th>
<th>Village land use planning and land allocation meeting</th>
<th>Preparation of the land use plan and proposed land use maps</th>
<th>Preparation of the land use plan during village meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- demarcation of additional land requirements, description of these areas, drafting of village regulations</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- On the basis of land use zoning map discuss land use management before allocating agricultural land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5</td>
<td>Discussion, survey and measurement of claimed land</td>
<td>Field measurement</td>
<td>Submission of the proposed land use plan to commune and district PC for approval</td>
<td>Allocation of land on the field</td>
</tr>
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<td>--------</td>
<td>--------------------------------------------------</td>
<td>-------------------</td>
<td>--------------------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td></td>
<td>- Future land use map, analysis of claimed land by each household together with VLUP/LAC, discussion with DLUP/LAC survey and measurement of claimed land</td>
<td>- Measurement of fields and recording of information concerning land use</td>
<td></td>
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<tr>
<td>Step 6</td>
<td>Preparation and hand over of temporary land transfer documents (certificates)</td>
<td>Preparing agricultural and forestry agreements and transferring rights to villagers</td>
<td>FLA according to the 1994 guidelines by the Ministry of Forestry</td>
<td>Administrative procedures for approval of LUP/LA results and issuing of LUC</td>
</tr>
<tr>
<td></td>
<td>- Printing of FLU map and distribution, temporary land certificates</td>
<td>- Prepare temporary agricultural land transfer forms and contracts for each family</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Confirm forest and agr. land use zones using 1:10.000 village map</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Prepare village forest and agricultural land management agreement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Summary with villagers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 7</td>
<td>Extension work (agriculture, forestry)</td>
<td>Land use manag. extension</td>
<td>Issuance of red book land use certificates</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Extension work plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Farmer and site selection for improved land use and conservation farming demonstrations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 8</td>
<td>Monitoring and evaluation (activities, compliance with VR, impact by VLUP/LAC with support by district staff)</td>
<td>Monitoring, Control and Evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Prepare monitoring and evaluation procedures, field tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Conduct field monitor. and report on results</td>
<td></td>
<td></td>
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</tbody>
</table>

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Case study on Community Forestry in Khna Por Commune

by PNRM (FAO) Siem Reap

1. Introduction

Rapid forest degradation has occurred over the past twenty years in most of the upland areas in Cambodia. The causes are the civil war, the overexploitation of the resources by logging concessions, the illegal logging activities, the forest clearing for permanent agriculture and shifting cultivation. Commercial fuel wood collection, charcoal production and hunting of wild life also contribute to the degradation of the resources near populated areas. Resource access and availability is becoming more difficult and expensive for many people. The lack of perceived ownership of forest resources by people local management results in their continual degradation and destruction. As the forests are being degraded, quality of life of the local people decreases. To conserve the forests in a productive condition, the local population must be involved in the planning process and must be given the legal rights to protect and manage local forest resources according to their traditions and share benefits flowing from these resources.

In the commune of Khna Por in Sort Ni Kum district, people recognize the need to protect and manage the remaining forested areas. They have requested assistance to organize effective control and management of the forest and the spring and to exploit forest products in a sustainable way.

2. Objective

- To analyse the commune forest damage situation through forest products utilization and land use patterns by local population;
- To identify problems and possibilities to improve forest resources management by the local community; and
- To analyse institutional and legal aspects of the forest resources and the possibility to initiate community forestry management.

3. Geographic location

The commune of Khna Por is situated in Sort Nikum district of Siem Reap Province, about 30km from the district headquarters. North, Khna Por commune is bordered by Kulen Mountain, south and east lies Chan Sar commune, and west BaLank commune. The total area of Khna Por commune is X hectares.

4. The communities

There are 8 villages in Khna Por commune: Chhouk, Bos, Damrey Chhlang, Sambat, Sam Rong, Bos Thom, Rom Deng and Chup. The total population of these villages is 4,413 (2071 males / 2342 females) for 819 families. Farming is the main occupation for the villagers of Khna Por. Most people conduct shifting cultivation and rainy season rice while others are active with forest product collection such as timber, fuel wood, and creepers... Vegetable gardening is also practiced on the home lots as well as cultivation of coconut and Areca catechu trees.

In the commune, there exist several community groups such as village/commune authority, parent association and pagoda committee. The village and commune authority is a government branch established to facilitate the administration and the dissemination of information from district authority and the management of other activities such as rural development, security. The District governor appoints the commune chief and the village chief is selected through election by the local population. The parent association and pagoda committee in this commune was created in 1995, thanks to local population initiative, with the agreement of the authorities (village chief and commune chief). The functions of these committees are the following: to gather funds from generous people for school and pagoda rehabilitation, to repair the school and pagoda furniture and help the authority to promote/encourage local population in development activities.
Population of Khna Por commune

<table>
<thead>
<tr>
<th>No</th>
<th>Name of village</th>
<th>No of family</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>1</td>
<td>Chhouk</td>
<td>81</td>
<td>240</td>
</tr>
<tr>
<td>2</td>
<td>Bos</td>
<td>172</td>
<td>435</td>
</tr>
<tr>
<td>3</td>
<td>Damrey Chhlong</td>
<td>62</td>
<td>139</td>
</tr>
<tr>
<td>4</td>
<td>Sam Bat</td>
<td>132</td>
<td>329</td>
</tr>
<tr>
<td>5</td>
<td>Som Rong</td>
<td>155</td>
<td>373</td>
</tr>
<tr>
<td>6</td>
<td>Bos Thom</td>
<td>73</td>
<td>180</td>
</tr>
<tr>
<td>7</td>
<td>Rom Deng</td>
<td>86</td>
<td>220</td>
</tr>
<tr>
<td>8</td>
<td>Chup</td>
<td>58</td>
<td>155</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>819</td>
<td>2071</td>
</tr>
</tbody>
</table>

5. History

According to the elderly who have been living in the commune for a long time, the historical background of the forest around their villages is as follows:

- Elephants are gradually disappearing.
- First activities of forest clearing for cultivation.
- Pol Pot troops order the people to clear forest to expand agricultural areas.
- 1975 The local people set up a dam, under the control of Pol Pot troops. The dam is used to keep water and irrigate dry and rainy season rice.
- Heavy forest clearing for cultivation restarted. Shifting cultivation in the spring area begins.
- Tra Peang Kroch pagoda, Sam Bat village, was built.
- The pagoda is completely finished.
- Exploitation of timber starts.
- Timber is overexploited by the local people, and also outsiders. 3 UN officers and a translator were arrested, but in the afternoon of the same day, they were freed.
- 1996 Shifting cultivation in the spring area is increasing. By the end of the year, a lot of timber had disappeared from the Laok forest. The local security is improving.
- 1997 Use of electro fishing gears in the river, especially by military, begins. Dry season rice starts to be planted and harvested. A flood destroys the dam.
- 1998 ACLEDA has launched a program to lend money to the local people. Most of the forest in the area of the biggest spring is destroyed by agricultural activities.

6. Land use and farming system

6.1 Permanent cultivation

The area of permanent cultivation is located along the northern boundary of Khna Por commune (see attached map). The total area about X ha is used for rice, mung bean, corn cultivation since 1979.

Before 1979, the area was covered by deciduous forest. After 1979, villagers of Khna Por started to claim the land. The ownership is now recognized by local authorities (village chief, commune chief) but villagers have not received the official land title yet because it is a forest area and it is managed by Provincial Forestry Department. The soil in this area is of excellent quality (red color). Each year, farmers can cultivate different kind of crops such as rice, mung bean, corn and grow fruit trees. Nevertheless it is mainly rice that is cultivated. Only a few farmers cultivate mung bean because it requires investment to hire labor and to buy insecticide. Rice yields between 700 kg-1500 kg per ha/year and is cultivated from June till October. Rice is grown without plowing. Mung bean produces between 600 kg-800 kg per ha/year and is cultivated from September till December. To increase productivity, the land is plowed once before mung beans are planted.

In the permanent cultivation area, outsiders from BaLang and RoLous commune, and Pra Sat Ba Kong district
come to cultivate rice and mung bean but they have no land ownership. Before they start working these fields, they need to request the authorization from landowners in Khna Por. Most of the outsiders are relatives of the landowners. The owner can sell the land to other people from or outside the commune at approximately 30 - 40 $ per ha (according to the quality of soil) without consulting village/commune authorities.

6.2 Shifting cultivation

The area of shifting cultivation is located between the area of permanent cultivation to the north and the forest area to the south (see attached map) but some parts are located in the forest spring area. A total area of about 250 ha is used for shifting cultivation. Local population has used it for a long time and only for rice cultivation. The production in this area is lower than the one of the permanent cultivation because the soil is very sandy. Rice production is between 600 kg- 800 kg per ha/year. Villagers start clearing the forest in March -April, burning the forest in May and growing in June-July. They can cultivate rice only for only two years in a row and then the land is abandoned and left for 3-5 years before it is cleared and cultivated again. When the land is abandoned, other people cannot cultivate it because the owner still has a right on it. If people from outside (BaLang and Rolous Commune, Prasat Bakong District) want to cultivate rice on this land, they have to request the owner.

Before 1979, the area was covered by dense forest and it has now become degraded forest. After 1979, villagers of Khna Por commune claimed the land. Village and commune authorities now recognize the ownership but villagers have not received official land title yet because Provincial Forestry Department manages the area.

6.3 Rainy season rice fields

There are 1,700 ha of rice-paddies in the commune. This land is a heritage of the ancestors of the villagers. It has been recognized several times by the government and in 1991, they have received the official land title from district agriculture of Sort Nikum. They start growing in June-July and harvesting in December-January. The production is between 500 kg-800 kg per ha/year.

6.4 Residential land for the villagers

There are 187 ha of residential land in the commune. This land is a heritage of the ancestors of the villagers. The ownership of the land has been recognized by the government. The villagers are using this land for growing vegetable and growing fruit trees such as coconut, Areca catechu, cucumber, and string bean. The vegetable growing of villagers is for auto-consumption only.

7. Forest utilization

This chapter is centered on the description of the forest in the spring area called Laok forest. Based on pre-existing map, direct observation and interview it is obvious that, in the past, the spring area had a lot of resources like timber and non-wood forest products (bee, wildlife, mushroom, firewood, small wooden post, creeper, spring water, fish).
7.1 Timber

In Prince Sihanuk time, big timber trees like Dipterocarpus alatus, Anisoptera glabra(phdeak), Diptercarpus intricatus, Hopea odorata, existed in the spring area. Cut by private companies, most of these trees disappeared by 1979. People also were cutting timber to construct their houses but the tree species were not as good quality as in Sihanuk time. In general the trees left were of the third quality: Atocarpus rigidus(used for pillar and wooden plank), Khti and Se moa (used for pillar only). People went to cut timbers freely in the spring area (Loak forest), but if they went to cut timbers in forest far away from the commune (near Kulen mountain), they had to pay about 2,000-3,000 Riels to the soldiers who were deployed there.

7.2 Firewood and fence posts

Up to now firewood collection does not cause any problem. Villagers can collect firewood everywhere in the forest around their villages. They mainly collect firewood during dry season because at that time it is dry. In the spring forest the local people can collect fresh firewood and dry firewood of small size and deliver it home by oxcart. Besides the spring area it is also possible to collect firewood in the upper forest near Kulen Mountain and in areas along the Sarm-Rong road. Sometimes farmers sell firewood to the middlemen for 10,000 Riels a truck.

Wooden fence posts are also cut in the spring area. Cutting of the fence posts has a negative impact on tree generation in the spring area and in upland forest because people cut timber species as well as fruit trees. In that sense, the people also need environmental education and forestry awareness to strengthen the local capacity building on community forestry and management of forest benefits.

7.3 Creepers

Creepers are an important non-wood forest product helping local people to earn extra money. They can collect creepers in the spring area near the villages and in upland forest about 3 km from the commune. There is a lot of creeper species for fishing gears and to be used in wooden construction in the spring area. Among these creepers, “voieur antung” nearly disappeared. Due to the increasing demand from the lowlands, the creepers are now slowly disappearing.

The markets for creepers are in the lowland area, especially Kompong Pluk, Kompong Kleang or Chhong Kneas commune. The amount, types, sizes and lengths of creeper is delivered according to the order of the middlemen. Creepers are sold in bunch, it means there are two different bunches on sale in the markets:

- Bunch of small creepers: There are 500 small mixed creepers in a bunch and it costs 5,000 Riels per bunch.
- Bunch of big creepers: The number of creepers is the same, but they are bigger and longer than creepers in the bunch above. It is worth 7,000 Riels a bunch.

In the future, if the local people can manage forest in the spring area, they would gain sustainable benefit from creepers.

7.4 Small wooden posts

In the past villagers could collect the posts from the spring area but now it is difficult because the availability of trees for such use is decreasing. This situation is mainly due to agricultural clearance.

If villagers now need small posts, they must go to collect them in the upland forest, about 5 km from the commune. The trees used for the posts are straight and at least 5 m long. They are used for fishing activities as poles to build fences. The markets for small post are in the same areas as for creepers. Generally, diameters of the posts are from 5 to 10 cm. The price of the poles will depend on the place where they are sold:

- In the forest: 200-300 Riels per pole
- In the villages: 300-500 Riels per pole
- On the lowland markets: 800-1,000 Riels per pole

According to people’s comments, if the forest in the spring area was protected, the tree species for the small wooden posts would regenerate over the next few years.
7.5 Mushroom collection

Normally, mushrooms are collected during the rainy season. People go in the early morning into the spring area and collect a medium basket of mushrooms per family. Mushroom harvests are used for home consumption, not for sale in the markets. Once, a person ate unknown mushrooms and had, not too serious, problems. In order to resolve the misuse of mushroom there should be an education program about edible mushroom.

7.6 Thatch harvest

When the spring area was covered by forest, villagers never saw thatch growing in it. But once the forest started to be degraded, the sandy soil that was covered by trees became poorer and thatching grass to grow. Thatch is now woven and used as thatch sheets to cover roofs. Villagers usually harvest thatching grass in early November until mid-January. In that period both men and women go to harvest, but after that it is the women's job to weave the thatch sheets. The thatch sheets woven in the villages are only sold within the area. The local price of thatch sheets is 150 Riels per sheet.

7.7 Herbal medicine

In the commune there are a lot of old physicians using traditional medicines to treat diseases. In general, the physicians treat specific diseases such as allergy, syphilis, venereal diseases, birth control chart, herpes simplex-2, fever, vaginal discharge. They also treat unspecified diseases for patients who believe in them, but the effects of traditional treatment are not always guaranteed. Sometimes the medicines are used to treat animal and poultry too. The traditional medicines are not only locally sold, but they are also distributed across Seam Reap province and other provinces like Battambang, Banteay Meanchay, Phnom Penh, Kompong Speu, Takeo. Some of the medicines are easily found in the spring area, but sometimes traditional physicians have to ask people to look for it on the mountains.

Below is a list of traditional medicine plants:

<table>
<thead>
<tr>
<th>No</th>
<th>Kinds of plant</th>
<th>Name of plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Woods</td>
<td>Dellenia ovata (PluThoum), Diospyros sylvestica (Kachas), Dipterocarpus alatus, Anisoptera glabra (Phdeak), Dipterocarpus intricatus, Terminalia cattapa, Adina ordofia (Kvao), Dalbergia lanceolaria (Khtum), Kor Mouy, Chhrouy, Lorleay, Kbav Thum, Chheu Phleung, Pengkong, Phlov Neang, Krorlabous, Kalato, Chhum Pung, AngKort Khmoa, Bat Phtel, Pornkhdor Kormbrok, Plu Thum.</td>
</tr>
<tr>
<td>2</td>
<td>Creepers</td>
<td>Tinospora crispa (Bandol Pech), Prismatomeris albidiflora (Madenh Meas), Tetracera sarmantosa (Dos Kun), Ichnocarpus frutescens (Trey), Derris trifolia (Breng), Tonting Sar-Krahorm, Kuy, Rameat Sar-Krahorm, Kandeng, Dors Krabay, Lygodium flexuosum (Dek).</td>
</tr>
<tr>
<td>3</td>
<td>Grasses</td>
<td>Chheung Kras, Bang Ktab, Sar Set, Sbov Kleang, Smoav Pluk, Smoav Ach Ses.</td>
</tr>
</tbody>
</table>

7.8 Wildlife

In the past decades, a lot of wildlife such as monkeys, bears, tigers, elephants, bear, cervulus meentiacus, sus cristatus, rabbit, wild birds, etc. lived in the forest. Animals were living quietly and peacefully as local people did not hunt to eat or sell them.

Now, most of the wildlife disappeared from the forest except for small species. According to local sources, the over - exploitation of the forest, civil war and excessive hunting by soldiers are the main causes of a dramatic reduction in wildlife near extinction.

7.9 Fruit trees

In the past years, local people had access to the forest to collect fruit trees for home consumption and sale, but now most of the fruit trees have been destroyed by agricultural activities or cut as construction materials. The fruit trees in the spring area were mainly Willugbeia cochinchinensis (Kuy), Litchi (Kulen), Wild Nephelium lappaceum (Savmav Pray), Se Moan, Mkak Pray.
8. Natural spring utilization

There are 7 natural springs located in the degraded forest area but only 3 springs (the biggest one is located near Preach Bat pagoda) have permanent water around year. There are 8 villages located around the spring area (see attached map). Six villages (Sam Rong, Rom Deng, Sam Bat, Bos, Chhouk, Chup) are using the water of the natural spring for shifting cultivation, rainy season rice, dry season rice, vegetable gardening and for livestock.

Two villages (Damrey Chhlong and Bos Thom) are located higher than the spring area. As the water cannot flow into these villages it causes problems for the farming system of the villagers (low productivity). The population depends on the irrigation system of the dam built in 1975 by population, but destroyed in 1997 by heavy floods. The living conditions of the population are becoming more and more difficult because of the lack of water for rainy season rice and dry season rice since then.

According to the old people in Khna Por commune, the water capacity of the spring is decreasing since 1979 because of the forest degradation. The phenomenon is due to logging concession activities to the north of spring area (near Kulen Mountain), permanent agriculture activity, shifting cultivation and over-exploitation of forest products.

9. Rivers for fishing

There is a small river, which has its sources in the Kulen Mountains, running across the spring area. It has been a fishing ground for people who are living in Khna Por, Chan Sar commune, but the fish resources in the river have been destroyed by military who are using illegal fishing gears such as electro fishing gear, grenades, artificial bombs. Now, as the fish resources have been overexploited, local people need to import fishes from the lowland areas.

10. Community forestry management

In the era of King Sihanouk, the forest was under regular control of provincial forest agents. At that time, the forest regulations were very strict and no one would have dared to violate the law because if somebody did so, he would have to pay a fine or would be sent to prison. From King Sihanouk times till now, due to insecurity, there has been no district or provincial forest agent to control the forest. Now the forest is nearly destroyed and no ministerial departments or other institutions are interested in or have admitted this degradation.

Most of the elderly who have been living in the commune for a long time have tried to protect the forest. They are in need of support by the FAO community forestry project.

11. Conflict in forest resources utilization

- Due to the lack of water, it is becoming more and more difficult to cultivate rainy season rice and dry season rice. Forest degradation caused by permanent cultivation, shifting cultivation, timber collection is the main reason for this situation.
- The logging concession in the north of spring area threatens the supply of spring water and the forest resources.
- The outsiders come from the commune of BaLank and RoLous, Prasat BaKong district to claim shifting cultivation land, but the land is already owned by the people of Khna Por commune. The owners of the land complained to village authority in order to stop outsiders claiming shifting cultivation land but sometimes the authority allowed outsider to cultivate for one year with the agreement from the owner of the land.
• About 10% of the total population in Khna Por commune received credit (5% interest rate per month) from ACLEDA organization. Each family received between 100,000 R-300,000 R according to the property that they have (the property survey was done by ACLEDA staff). Most of population is now using this money to hire labor to clear the forest and conduct shifting cultivation.

12. Recommendations

Forest resources of Khna Por commune have been degraded due to logging concession activities, shifting cultivation, permanent agriculture, and over-exploitation.

The living conditions of local population are almost exclusively based on agricultural activities and on the forest resources. The management and conservation of the degraded forest, especially the forest around the natural spring, has to be done with the active participation of local community in order to improve income generating activity that flows from the forest resources. Based on interviews, participatory land use mapping exercise with local population and direct observation of the forest area, recommendation are as follows:

1. Natural spring: The area of 1400 ha (see attached map) needs to be protected in order to improve and maintain degraded forest regeneration and water capacity for agriculture activities. Demarcation of protected area by opening up a transect and to post signs needs to be done with the participation of local population and the agreement of the authorities (village, commune and district). Some families are still conducting shifting cultivation in the protected area. Landowner agreed to stop this activity if they can plant Anacardium occidentale trees, benefits of the trees going then to the owner of the land.

2. Permanent agriculture and shifting cultivation area: Within this area agroforestry should be introduced. The demarcation of boundaries in this area would be useful in order to avoid encroachment. A plot should be selected for agroforestry demonstration.

3. Management aspects of forest resources: A workshop on protection of the natural spring needs to be organized with the participation of the representatives of all concerned villages, authorities (village chief, commune chief and district governor), pagoda committee, parent association and provincial forestry department. The workshop must focus on the establishment of a forest management committee, the roles of the committee, forest regulations, and benefits sharing. The agreement on spring protection needs to be established / recognized / signed by forest management committee, commune chief, district governor and provincial forestry department.

4. Seedling production: A nursery should be established. Timber and fruit trees seedlings will be produced as per community request. The seeds should be collected within Khna Por commune (the same eco-system). The reforestation program needs to be carried out in natural spring area on a voluntary participation basis.

5. Environmental awareness: An environmental education program is needed to encourage wise forest resources utilization and management such as shifting cultivation, spring protection, forest fire and wildlife hunting.

6. Irrigation system: The existing irrigation system was destroyed in 1997 by heavy floods and it should be rehabilitated to bring water from the natural spring for agricultural activities, especially rainy season rice, dry season rice and vegetable gardening. The improvement of the productivity would probably reduce activities involving the clearance of the forest around natural spring water (shifting cultivation, permanent cultivation).

7. Local capacity building: Training on seed collection, nursery operation, tree planting, agroforestry and community forest management needs to be provided to local community. The training should be designed and facilitated by FAO GCP/CMB/002/BEL in close collaboration with provincial forestry department.

8. Coordination activity: The FAO project (GCP/CMB/002/BEL) needs to work in close collaboration with ACLEDA in order to improve income-generating activities. Credit should focus on the improvement of productivity in rainy season and dry season rice (should not be focused on shifting cultivation and permanent cultivation).

9. Monitoring and evaluation: To improve the forest resources in the natural spring, the project GCP/CMB/002/BEL needs to work closely with the local community to establish activity plan and monitor all activities (community forestry activity).

** We have to bear in mind that any action aiming at preserving the natural spring ecosystem is also depending on external factor such as the existing up stream forest logging concession (Kulen Mountain).
Example of Community Forestry Management Plan of Kompong Pluk
by PNRM (FAO) Siem Reap

Duration of the Forest Management Plan

2000-2004

Certificate of Approved and
Registered Community Forest

His majesty's Government
Ministry of Agriculture, Forestry and Fisheries
Siam Reap Provincial Department of Agriculture, Forestry and Fisheries
Siem Reap Fisheries Office

Kompong Pluk forest user groups
Description of the community forest:
Name: Kompong Pluk community forest.
Boundary:
Area: 979 ha
Land Ownership: Forest community.

Office giving the certificate
Institution: Fisheries office of Siem Reap
Signature:
Date:

MANAGEMENT PLAN FOR KAMPONG PLUK COMMUNITY FOREST

1. Introduction

Community forestry of Kampung Pluk commune was established in May 1999, it comprises the villages Dey Kraham, Thnot Kambot and Kok Kdol. The community forestry site is divided into 5 blocks and jointly managed by local people of the 3 villages.
Forest in Kompong Pluk commune has unofficially been protected since 1945 by the people.

The indigenous forest management system was not very effective, but after intervention of the FAO project, GCP/CBM/002/BEL, in mid 1999 they now manage and protect the forest successfully, but also all other natural resources, such as fish, fish habitats, controlling illegal fishing and hunting activities in the protected area.

2. Kompong Pluk community

The Kompong Pluk community flooded forest is located approximately 12 Km south of Prasak Bakong district headquarters. The forest and area of the commune are flooded for the period of 6 months in the flooding season from July till late January.

2.1. Forest user groups

There are 2 interest groups with a total of 200 families within the community:

- Fishing groups
- Fuel wood group (fuel wood).

Remark: All members of the forestry community have registered as member of ....advantage groups.

2.2. Forest management committee

Kompong Pluk forestry comprises 9 members selected by election within entire commune and they have been allocated tasks separately (see organizational chart) in order to increase more effective management and self-confidence to local people etc.

Sub-forest management committees were established representing each of the village.

Management Structure of Kompong Pluk Forestry Community
3. Forest description

3.1 Time line for forest history:

1945  High density forest area with water melon farms.
1948  Kompong Pluk residents tried to protest, keep and protect the water melon farm for natural tree regeneration. Since this year the indigenous forest management has initiated. Now it becomes high density forest area of the community forest.
1994  Fire damaged several hundred hectares of flooded forest, caused by carelessness of fishermen coming from outside the area.
1996  Fifteen hectares of agricultural land was cleared and replanted by the local people with support of the FAO project.
1997  Forty five hectares of the burnt forest were re-planted by local people with support of the fisheries office and the FAO project.
1999  The community forest was officially established with technical support of the FAO project. At the end of that year, there was a provincial Workshop on mung bean and dry season rice cultivation in the flooded zone. As the result of the workshop, mung bean farms in the community forest were completely abolished.
2000  A workshop on conflict solution between the forestry community and the military on fishing
3.2 Area:

The community forest covers a total area of 979 hectares (see attached map).

3.3 Boundary

The community forest borders Tonle Sap lake in the South, flooded forest (public fishing ground) in the North, and flooded forest and mung bean farms (public fishing ground) in the East and West.

3.4 Forest conditions

- Tree species: Tree species in the protected area are Barringtonia acutangula, Diospyros cambodiana, Coccoceras anisopodum, Crataova volisiosa and Charlea (local name), but naturally Barringtonia acutangula species dominates in the area.
- Soil: The general soil type here is alluvial soil.

3.5 Forest block division:

Technically, the community forest is divided into 5 blocks on the basis of participatory forest classification and land use, aerial photo and income generation activities. The block division has been done by the local people and it makes it easy to control, manage and use properly the natural resources in the protected area.

**Block No.1 (high density)**

Area: 82 ha.
Soil condition: Alluvial soil (clay mixed with rotten grasses and leaves).
Main species: Barringtonia acutangula, Terminalia cambodiana; Croton caudatus, Hymenocardia wallichii and Tros (local name).
Forest density: high.
Regeneration: good, 1,250 natural tree seedlings/ha.

**Block No.2 (medium density)**

Area: 457 ha.
Soil condition: Alluvial soil (clay mixed with rotten grasses and leaves).
Main species: Barringtonia acutangula, Croton caudatus and Tros (local name).
Forest density: moderate.
Tree regeneration: very good, 2,000 natural tree seedlings/ha.

**Block No.3 (low density)**

Area: 239 ha.
Soil condition: Alluvial soil (clay mixed with rotten grasses and leaves).
Main species: Barringtonia acutangula, Tros (local name).
Forest density: moderate.
Tree regeneration: good, 750 natural tree seedlings/ha.

**Block No.4 (plantation)**

Area: 55 ha.
Soil condition: Alluvial soil (clay mixed with rotten grasses and leaves).
Main species: Barringtonia acutangula.
Forest density: poor.
Tree regeneration: poor, 400 natural tree seedlings/ha.
Grass land: it is covered by grass year round. It is the best place for fish spawning in flooded season, so 50% of the total area of this block, bank of the Prek-Sramoch lake, is the fish spawning reserve created by the FAO project in mid 1999.

encroachment at district level was held with a good result.
Block No.5 (former mung bean farms)

Area: 97 ha.
Soil condition: Alluvial soil (clay mixed with rotten grasses and leaves).
Natural regeneration: poor

Block No.6 (tree regeneration)

Area: 49 ha.
Soil condition: Alluvial soil (clay mixed with rotten grasses and leaves).
Natural regeneration: very good

4. Objectives of the forest management plan

The forest management plan is a practical plan, prepared and decided by the users of the community under facilitation of the FAO field coordinators. The management focuses on management, use and benefit sharing of natural resources existing in the protected area. The plan must be approved by the provincial fisheries office. Objectives of the plan are mentioned below:

Long term objectives:

- to conserve biodiversity in the area,
- to use natural resources in the area in sustainable manner,
- to help Fisheries Department in managing natural resources in Tonle Sap region.

Short term objectives:

- to strengthen local capacity for sustainable forest management,
- to obtain an approval from Fisheries Department to have right of access to natural resources in the community forestry site,
- to improve rural livelihood from community-based forest resources.

5. Management activities

Each member of the forest management committee has individually assigned specific tasks in community forestry, but the most important task of them is to help each other to control and manage all the 5 blocks in the protected area in close collaboration with the forest users and fisheries agent based in the commune.

5.1. Block 1

5.1.1. Objectives

- to improve forest condition in the block and other resources like aquatic animal and wild birds,
- to produce natural wall to protect against natural catastrophes, like winds, waves, that often destroy their homesteads every year and,
- to use the block as public fishing ground and tourism place during flooded season.

5.1.2. Distribution of benefits

Individual

- Fishing: all members of the community have access to the community forest fish freely (no fisheries taxation) in the forest during flooded season and in the channel in dry season with small scale fishing tools for household consumption and sale. But during closed fishing season they are allowed to fish only for local household consumption with small scale fishing gears. All illegal fishing gears are absolutely not allowed to be used in this area.
- Some NWFP such as fuel wood, creepers, medicinal plant, wild vegetables and fruit trees are allowed to be collected, but others that are not mentioned in this article are strictly prohibited.
Community

They have planned to improve an eco-tourism site to use income from tourists for developing the living conditions of the local people. The commitment for Kompong Pluk rural development will be made in the next rainy season with tour agencies that bring their tourists into the commune. It is the main financial source to encourage and proceed with fisheries and forestry management in a sustainable manner.

Management of forest resources utilization

<table>
<thead>
<tr>
<th>Type of forest resources</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Small construction wood</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>2. Dry and fresh fuel wood</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>3. Medicinal plants</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>4. Fishing</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>during flooded season</td>
</tr>
<tr>
<td>5. Wildlife hunting</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

Y: Have access to the forest resources.
N: Have no access to the forest resources.

5.2 Block 2

5.2.1 Objectives

- to reduce threats of natural catastrophe in flooded season,
- to improve forest condition and other resources like aquatic animals, wild birds,
- to produce fuel wood for local household consumption,
- to increase habitats of fish,
- to use the block as public fishing ground.

5.2.2 Distribution of benefits

Natural resources of this block can be harvested equally by members of the community following the management plan and the community regulation

- dry fuel wood is allowed to be collected for household consumption,
- commercial fishing activity is allowed with legal small scale fishing tools, but the period of the closed fishing season is prohibited except fishing for auto consumption,
- collection of herbal medicine is free year round,
- animals can be allowed to feed but not in new plantation areas.

Management of forest resources utilization

<table>
<thead>
<tr>
<th>Type of forest resources</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Small construction wood</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>2. Dry fuel wood</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>3. Fresh fuel wood</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>4. Medicinal plants</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
</tbody>
</table>
5.3. **Block No.3**

5.3.1. **Objective**

- to improve forest condition and other resources like aquatic animals, wild birds,
- to develop habitats of fish,
- to use as public fishing ground during flooded seasons.

5.3.2. **Responsibility**

This block is managed by the forest management committee

5.3.3. **Distribution of benefits**

Forest products and natural resources used in this block are shared equally by to all the members of the user groups as in the block 2.

**Management of forest resources utilization**

<table>
<thead>
<tr>
<th>Type of forest resources</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
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<tr>
<td></td>
<td>2000</td>
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<td>2002</td>
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<td>2004</td>
</tr>
<tr>
<td>1. Small construction wood</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>2. Dry fuel wood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Fresh fuel wood</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Medicinal plants</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Fishing</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Wild life hunting</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Grass cutting</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

5.4. **Block No.4 (plantation)**

Block 4 is part of the burnt forest which was mentioned in the history above and as replanted during 1996 and 1997.

5.4.1. **Objective**

- to improve forest condition and other resources like aquatic animal, wild birds,
- to develop habitats of fish,
- to fish during flooded and dry seasons.
- to diversify forest species by planting economic tree species.

5.4.2. **Distribution of benefits**

Every member of the user groups is allowed to fish sell legally caught with small scale fishing gear in the sub block, but during the closed fishing season they are allowed to fish for household consumption only.

**Management of forest resources utilization**
5.5. Block 5 (mung bean farms)

5.5.1. Objective

- to cut down agricultural activities that cause a negative impact on biological aspects in the Tonle Sap region,
- to improve forest condition and other resources like aquatic animals, wild birds,
- to develop habitats of fish,
- to use as public fishing ground during flooded seasons.

5.5.2. Responsibility

This block is managed by the forest management committee

5.5.3. Distribution of benefits

- Any kind of NWFP is prohibited to be collected except wild vegetables and medicine plants.
- All members of the community have access to the block for small business fishing.

Management of forest resources utilization

<table>
<thead>
<tr>
<th>Type of forest resources</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2000</td>
<td>2001</td>
<td>2002</td>
<td>2003</td>
<td>2004</td>
</tr>
<tr>
<td>1. Fishing</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>2. Wild life hunting</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>3. Fuel wood collection</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

5.6. Block No.6 (natural regeneration area)

Block 6 is located along side the lake shore. In the block there are a lot of good tree seedling of Barringtonia acutangula that will become a dense forest in the near future. Before establishing the community forest, the seedlings were under threat of illegal cutting for fishing gear production.

5.6.1. Objective

- natural wall to protect against winds, waves from the Tonle Sap during flooded season,
- to increase the size of eco-tourism area in the commune,
This block is managed by the forest management committee and the local people.

5.6.3. Distribution of benefits

- People can have access to the block for family scale fishing only during the flood season.
- Any collection of NWFP in the block is strictly prohibited.

Management of forest resources utilization

<table>
<thead>
<tr>
<th>Type of forest resources</th>
<th>Year</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2000</td>
<td>2001</td>
</tr>
<tr>
<td>1. NWFP collection</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>2. Family scale fishing</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>3. Wild life hunting</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>4. Eco tourism site</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Roles of forest management committee

Roles of the forest management committee are:

- identifying problems in the commune and joint solving of problems in close collaboration with the local authorities
- community forestry extension
- boundary demarcating of the protected area
- setting post signs around the sub protected areas
- preparing forestry-fisheries management plan
- monitoring and evaluating implementation of the plan as agreed in the forest regulation and the management plan
- coordinating with government officers and specialized institutions involved in community development
- contacting national and international organizations for raising support to rural development activities in the commune

7. Mandate and changes of the fisheries-forestry management plan

The mandate of the management plan is 5 years. During implementation of the plan, some articles of this plan may be reversed according to the real situation and in agreement among the forest users. The revised management plan will be investigated and supported by the project facilitators and handed on to the fisheries office for approval.

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Example of a Community Forest Management Plan in Bos Thom Village

by PNRM (FAO)


1. Forest description

1.1 Location

Bos Thom community forestry is located at the northern side of Khnar Po commune, Sotr Nikum district. Physical and natural boundary of Khnar Po commune is close to the northern watershed of Phnom Kulen in the North, Chan Sor commune; Popel commune in the East; southern side of Prasat Bakong commune in the South and Balang commune in the West.

1.2 Area

Bos Thom community forestry covers an area of 470 hectares.

1.3 Boundary

The community forestry is divided into four blocks, based on forest productivity and community objectives (see map in appendix 1). An outside boundary of the forest area borders in the North with Phnom Kulen National Park; Khnar Po commune's forest site to the South; Popel commune to the East and Bos Thorn village to the West.

1.4 Type/situation of the forest

The Community forest in Bos Thom village is a mixed forest which consists of various species like Anisoptera glabra, Dipterocarpus alatus, Dipterocarpus intricatus, Vatica astrotricha, Diospyros bejaudi, Tarrietia cochinchinensis and Irvingia malayana OLIV. The forest soil is red soil in the North and sandy soils in the South. A feature of this region is a water spring that is used for agricultural purposes and for various cropping activities. The forest cover is 20m high on average. Natural regeneration is high due to existing scattered mother trees.

Prior to 1979, this area was covered by dense forest contribution of evergreen forest and deciduous forest). In the past 20 years, this forest has decreased and degraded by illegal logging and slash-and-burn agriculture activity, but the forest was also cut for security reasons and protection against forest fires.

Forest background

1955 It was a dense deciduous forest that sometimes caused flooding of farmlands and contained many species of wildlife.
1970 This forest was destroyed a little through land encroachment for farming purposes
1975 Small scale irrigation was built in the forest site so as to serve agricultural activities, but this irrigation system was later damaged by civil war.
1979 Begun clearing forest for farming activities
1992 Khmer rouge guerilla created military base in the forest
1995 This forest was lost by illegal clearing and forest encroachment for farming
Prior to 1997, the forest protection by local authorities was not a priority. After 1997, due to remarkable reduction of water flow from the natural spring areas, the local authorities took measures to protect forest sites by appealing to all village chiefs to help extend to their people the protection of forests in the spring areas and posting signs along the protected areas’ boundaries. During that time, the local population was still going into the forests to continue their exploitation of forest products and non-wood forest products and also to reclaim land for shifting cultivation.

In 1998, after recognition that the protection was useless due to lack of appropriate regulations, the village authority collaborated with the commune authority to create a community forest with facilitation by FAO project in Siem Reap province. In the year 2000, it was observed that there was a flood during the whole rainy season and the following dry season because of better protection of forest.

2. Site allotment

Bos Thom community forestry is divided into 4 individual sites according to forest productivity and users’ objectives.

2.1 First site: Timber and pole forests

- Total land area:
- Soil type: red soil and sandy soil
- Significant wood types: Dipterocarpus alatus, Dipterocarpus intricatus, Tarrietia cochinchinensis, Artocarpus integefolia, Lagerstroemia sp., Peltophorurn ferrugineum, and so on.
- Forest situation: medium
- Forest regeneration: good
- Inhabitant occupations: people in this area usually go into the forest to collect creepers, fuelwood, yams, tree fruits, cutting poles, fences, cucumber trellis

2.1.1 Objectives

- Enhance forest situation so as to conserve spring water quantity from the natural spring water areas for shifting cultivation and other cropping activities.
- Producing timber trees, poles and distinct forest products such as fuelwood, medicinal plants etc.
- Increasing income generation activities through utilizing forest products, non-wood forest products
- Protection of resources (fairly easy)

2.1.2 Responsibility

This area is managed by Bos Thom community forestry in the 3rd group.

2.1.3 Benefit sharing

Forest management committee in Bos Thom village, according to the regulations will manage the benefits from forest products.

Utilization and management of forest products (used only by community members)

<table>
<thead>
<tr>
<th>Resources</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber tree</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Poled</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Creepers</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Dead fuelwood</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>
2.2 Second site: Pole forest

- Total land area
- Soil type: alluvial soil, sandy soil
- Significant tree species: Nephelium xerospennum, Grewia paniculata TOXB, Popowia berrans, Cratoxylum formosum pruniflorum, Diospyros Sylvatica, Vatica astrotricha, Diospyros bejaudi, Albizzia sp, Syzygium etc.
- Forest situation: medium
- Forest regeneration: coppicing from stumps and seeds
- People occupation: collecting fuelwood, creepers, tree fruits, yams.

2.2.1 Objectives

- Improving degraded forest situation and conserving spring water source for agriculture and other activities
- Producing poles, timbers and various non-wood forest products: fuelwood, creepers and medicinal plants to fulfil peoples’ needs
- Increasing income generation activities for community

2.2.2 Responsibility

This area is managed by the first and second group of the community committee

2.2.3 Benefit sharing

Benefits coming from forest products will be managed and protected by community, for those used within the community and it will be done following the community forestry regulations.

Use and management of forest products (used only by community members)

<table>
<thead>
<tr>
<th>Resources</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber tree</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Poled</td>
<td>O</td>
<td>5000</td>
<td>6000</td>
<td>6000</td>
<td>8000</td>
</tr>
<tr>
<td>Dead fuelwood</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Live fuelwood</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Medicinal plants</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Fruits/mushrooms/vegetables</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>
Remark

- O: not allowed to cut
- A: allowed to collect freely
- X: allowed to cut but it needs to be requested from forest committee.

2.3 Third site: Mangrove forest

- Total land area:
- Soil types: sandy soil, wet ground
- Significant tree species: Dipterocarpus intricatus, Syzygium, mangrove, Melaleuca qumquenervia, ...
- Forest situation: medium
- Forest regeneration: good (coppicing from stumps and seeds)
- People occupations: collecting creepers, fuelwood, tree fruits, digging yams

2.3.1 Objectives

- Improving forest situation in order to protect water source and environment
- Producing timber trees and distinct forest products for home consumption and for wildlife habitat
- Increase income generating activities through using forest products and non-wood forest products.

2.3.2 Responsibility

This site is managed by the committee and by second and first groups of sub-central committee.

2.3.3 Benefits

Sharing benefits coming from forest products will be jointly used in the community, based on the regulations of the community.

Forest product utilization and management (used only by community members)

<table>
<thead>
<tr>
<th>Resources</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber tree</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Poles</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Dead fuelwood</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Medicinal plants</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Fruits/mushrooms/vegetables</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Creepers</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Yams</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Live fuelwood</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Fencing material</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Wildlife</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Mangroves</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Remark

- O: not allowed to cut
- A: allowed to collect freely
- X: allowed to cut but it needs to be requested from forest community committee

2.4 Fourth site: Area of thatching grass

- Total land area:
- Soil type: sandy clay
- Important species of trees: Syzygium, Nephelium xerospermum: Cratoxylum formosum pruniflorurn, Grewia paniculata etc.
- Forest situation: serious degraded forest and comprises a lot of thatching grass areas
- Forest regeneration: good (coppicing from stumps and seeds)
- Inhabitant occupations: collecting fuelwood, creepers, digging yams, cutting small poles for using as bars of thatch pieces, bean trellis. . .

2.4.1 Objectives

- Enhancing forest situation so as to conserve natural environment
- Producing timber trees, poles and other forest products such as fuelwood, medicinal plants
- Increasing income generating activities through using forest products and non-wood forest products
- Protection forest (easy to protect)

2.4.2 Responsibility

This site is managed by community forestry management committee in Bos Thom village and by first and second groups of sub-central committee.

2.4.3 Benefits sharing

Benefits from forest products will be managed by Bos Thorn community forestry management committee in accordance with community regulations

Forest product utilization and management (used only by community members)

<table>
<thead>
<tr>
<th>Resources</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber tree</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Poles</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Dead fuelwood</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Fruits/mushrooms/vegetables</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Medicinal plants</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Creepers</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Thatching grass</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Fencing material</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Live fuelwood</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>Wildlife</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

Remark:

- O: non cutting
- A: allowed to collect freely
3. Community description

3.1 User group

There is only one village called Bos Thom that has agreed to create community forestry. The village consists of 72 families that are assembled as a user group and take responsibility of protecting and conserving the whole community forest.

3.2 Forest management committee

Community forestry structure in Bos Thom village is formulated based on a collective voluntary principle and through agreement from village and commune authorities and local community. The community forestry structure is divided into a central committee and sub-committees:

- Central committee: is formed through an election process with participation from village chief group leaders, people and commune chiefs as advisors, and the chief and deputy chief, cashier, secretary and members of committee are also selected.
- Sub-committee: is formulated within each group. It comprises a chief together with two members coming from each group through selecting from central committee and with approval from the commune chief.

Sub-committee

The sub-committees are created for managing forest land in individual groups divided by the central committee, depending on traditional utilization and management system. Names of central committee and sub-committee are mentioned in the annex.

4. Laws and regulations

The roles of the forest management committee are:

- Extending and introducing the regulations on community forestry management
- Determine the size and boundary of protected forest areas
- Place signposts to demarcate the protected zones
- Guarding and protecting forest areas
- Dividing areas to be protected for the management and utilization
- Replanting of trees along the boundaries of protected areas and planting trees on the degraded lands
- Monitoring and enforcing regulations, management plan and agreement of community forestry
- Compromise with government officials and other institutions related to community

5. Committee membership

5.1 Central committee

1. Mr. Seung Gun, chief
2. Mr. Yeurn Sy, first deputy chief
3. Mr. Men Nam, second deputy chief
4. Mr. Phorm Horm, member in-charge of secretary
5. Mr. Chap Chuon, member
6. Mr. Chhay Chey, member
7. Mr. Luong Seng, member
8. Mr. Prom Prang, member
9. Mr. Moan Savou, member

- X: allowed to cut but it needs to be requested from forest community committee
6. Community regulations

Community forestry regulations were formulated in March 1999, with participation from forest user groups, forest committee and commune chief, with facilitation by FAO project. These regulations were signed by the forest committee, commune chief, district governor, provincial forestry office, provincial department of agriculture, forestry and fisheries and the provincial governor.
Case study on Participatory Monitoring and Evaluation and Social Impact Assessment

By PNRM (FAO) Siem Reap, Mr. Renaud Bailleux

Participatory natural resources management (PNRM) and community forestry is the core activity of the project and the project is currently active in more than 20 different sites. As some sites have been established for more than two years, it was agreed to assess the impact of PNRM on the daily life of villagers in 4 sites. Also, with the absence of a participatory monitoring and evaluation system, which has yet to be set up, we researched how people themselves were monitoring the evolutions of the sites they are protecting.

1. Methodology

The social impact assessment was done using participatory tools. The procedure was as follows:

- call a village meeting with respondents representing the population of the village
- as a village, draw a village map, produce a list according to the wealth indicators of the population and put a small sign for each wealth indicator next to each house
- conduct focus group discussions with people from each wealth category (better off, medium, poor, widows). Ask each group to draw a participatory map of the forest and list the products people were collecting before and after the establishment of PNRM. This can also be done with groups of men and women
- to have a comprehensive view of the impact of community forestry on the villagers’ livelihood, conduct random interviews in the village to validate the results found during the focus group discussions
- by using this method, allow project staff to identify any difference in the use of forest products according to the wealth ranking, and how community forestry has had an impact on the lives of villagers.

2. Results

The impact of PNRM is obvious. Before the establishment of PNRM, people were collecting more forest products and using the area for shifting cultivation. This result was to be expected as protection means restricted access to forest resources.

It is commonly agreed in the literature that it is the poorest people who rely the most on forest products. Generally speaking, and quite curiously, the results of our fieldwork did not confirm this assumption. People, no matter their wealth status or their gender situation, are affected equally by the introduction of PNRM because they use the same forest products. In some sites the introduction of PNRM has a strong impact on the villagers’ lives as they are deprived from the use of their shifting cultivation land, or they have to travel further than before to collect fuelwood. However all the interviewed villagers said they were satisfied with the introduction of PNRM “because it helps to protect the natural springs and there is more water now to irrigate the paddy”, “because we will have more benefits later”, or “because the children will get to know the forest”.

The villagers in the 4 sites investigated showed a great deal of enthusiasm and organisation concerning the monitoring of the situation in their newly protected forest.

In most sites, the interviewed villagers knew that whenever they witnessed illegal activities, they had to report them to the community forestry committee. Also, in most sites, the committee organized regular forest patrols. However, the FAO project is still needed to back up the communities when powerful outsiders encroach their forest areas.
3. Recommendations

Even though all social segments of the population are affected similarly by the establishment of PNRM, it has to be noted that proportionally, poor people will be affected more directly. Also, the survey was limited to focussing on the products people were collecting before and after PNRM, and not on the amount of each product collected. In order to ensure that the introduction of PNRM does not aggravate the situation of poor people, more in-depth research should be continued.

As the committees are not yet strong enough to defend their rights by themselves, it would be interesting to create a "federation" of PNRM committees at the district level to

a) reinforce the strength of PNRM activities,

b) act as a lobby at provincial level to defend their rights, and

c) act as a forum to discuss PNRM issues further.

Whenever the "federation" meets, district officials, police, military and senior provincial forestry staff could be invited.

With the introduction of PNRM, many families have moved their shifting cultivation plots to a location further away which not only demands more efforts on their part, but also shifts the problem of natural resources depletion to a different area. Perhaps, attempts should be made to allow people to continue practicing shifting cultivation in the vicinity or within the protected forest in the most degraded areas.

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Example of Village Regulations in Don Laor Village

By PDP Kampong Thom (GTZ)

VILLAGE REGULATIONS

Community Natural Resources Management
Don Laor Village
Samproach Commune
Stoung District
Kampong Thom Province

Prepared by:
Community Natural Resources Management Committee Don Laor Village

Supported by:
GTZ Provincial Development Programme
Natural Resource Management Team
April 2000

Chapter I

General By-laws

These are the village regulations of Don Laor Village, Samproach Commune, Stoung District, Kampong Thom Province. These regulations have been drafted by a group consisting of an elected Committee of 7 members and 3 advisors. After drafting, the committee has presented it to villagers in a village meeting of 80 participants in order to edit and reach agreement. For the next step, a committee member has submitted it to the Commune Administration.

Chapter II

Purpose of the By-law

Article 1: The aims of these by-laws are as below:

- To ensure sustainable use of the natural resources in the Don Laor Village community
- To participate in implementing Government policies on natural resource management
- To participate in stopping anarchic exploitation of natural resources
- To ensure that people in the community receive equal benefits from natural resources
- To help people in the community to increase their understanding of the benefits of natural resources
- To help communities to increase their income derived from natural resources
**Article 2:** The name of this community is the “Community Natural Resource Management in Don Laor Village”.

### Chapter III

**General Regulations**

**Article 3:** The community natural resources management Don Laor Village is an independent non-governmental Community that is established with the agreement of all people in Don Laor Village and does not serve any individual person or political party. This community conforms to Government Laws, which relate to community natural resource management and environmental activities.

**Article 4:** The community natural resources in Don Laor Village community include: land, forest, inundated forest, replanted forest, all types of wild animals, lakes, small rivers, old temples and Buddhist statues above and below the ground which are in the Don Laor community and belongs to the community and is managed, conserved and protected by Article 6: It is prohibited to sell or rent the natural resources described in Article 4 to any body.

**Article 5:** All intentions to use the natural resources in the community must be transparent and broadly open in order for the natural resources management committee to regularly control.

**Article 7:** The areas for replanting trees in deforested and conservation areas must be identified by the community natural resource management committee.

**Article 8:** The demarcation of the natural resource boundaries and the division of natural resource management areas to each group must be identified by the community natural resource management committee the community.

### Chapter IV

**Boundary Demarcation**

**Article 9:** The community natural resources management of Don Laor Village has the boundaries as below:

- To the East as far as the rice fields of Porplok Village
- To the West as far as the fishing lot boundary
- To the South as far as the rice fields of Pey Village and the fishing lots boundary

### Chapter V

**Community Organizational Structure, Roles and Rights**

**Article 10:** Community organizational structure of community natural resource management in Don Laor Village has been developed by the natural resources management committee as below:

- Accountant
- Finance
- Group 1: Prey Naka, Tvea, Brai, Bety
- Group 2: Lakes, ponds, creeks and marshes
- Group 3: Inundated forest, all type of wild animals
- Group 4: Responsible for stopping illegal activities

**Article 11:** The participating members in community natural resource management is open to all and not limited, but in reality all families in Don Laor village are members.
Family representatives of villagers from other villages also have the right to apply to be a member of the community through a group leader and by agreement of the community natural resources management committee.

**Article 12:** Establishment of a community group for natural resource management and protection:

- Interested members may volunteer to cooperate in establishing a community group for natural resource management and protection that has a membership from 1 to 15 families.
- Community groups for natural resource management and protection must have a leader that is selected by a vote by the group members.

**Article 13:** Establishment of the community natural resource management committee:

All groups must select a representative to be a committee member for the community. This committee must select a chief or a vice-chief who are elected by a vote of the committee members and receive more than two-thirds of their voices to be officially recognized.

**Article 14:** The supporters of the community group for natural resource management protection are volunteers from governmental institutions, local authorities, national and international organizations, monks or other charitable persons that are interested in community natural resource management protection activities.

**Article 15:** Mandate of the natural resource management protection committee:

a) The mandate of the natural resource management protection committee terminates and must be re-established every 3 years by selecting a new group representative. The chief and vice chief of the new committee must be re-selected by voting from committee members which has at least two third voices. In the case of the chief or any committee member that resigns, dies or leaves the committee, the group must select a new representative to replace this person. In case of conflicts among committee members or lack of trust among community members in this committee, a new vote can be made before the end of the mandate (3 years).

b) Group leader: Community members must select group leader every 3 years through an election and voting.

c) Meeting of community committee: The community committee must meet every month. If needed, the meeting can be held before the selected date. The group leader and vice group leader must request and invite members to participate in the meeting. When the group leader is absent, the vice group leader is responsible for leading the meeting.

d) Meeting of the community natural resource protection: Meetings of the community natural resource protection has the participation of all community members and must meet once every year or in any case of an emergency.

e) Group meetings: Group meetings are held every 3 months and should have the participation of group representatives who are also committee members. The aim of this meeting is to share information and to monitor the implementation of the by-laws. In case of need a group leader has the right to call the meeting before the identified date.

**Article 16:** Role and Rights

a) Community members must implement all the points as below:

- must obey the by-laws and regulations of the community
- must actively participate in all natural resource management work
- stand for election or participate in elections to select group leaders or the community committee

- have the right to apply to resign as a community member, but does not have the right for any other claims.

- have the right to file a complaint or request to remove the membership of anyone from the community that does not obey the community by-laws
• receive benefits from the community resources according to the by-laws or regulations of the community.
• contribute equally to the community
• in order to facilitate the community process through the by-laws each member family must contribute 200 Riels per month to the community at the end of each month.

b) The group leaders have the roles of:

• leading the implementation of work by the group
• monitoring and evaluation work
• communicating and act as a line of information between the community members and committee members
• on time collect contribution money form community members
• pay contributions to the committee members as well as members of the community

c) Community Natural Resource management protection committee is an organization

• responsible for all the points below:
• prepare all by-law internal rules and other regulations for the community
• ensure equity and fairness for the community
• monitor and solve all problems that occur in the community
• write reports to all related institutions
• ensure that plans are made, implemented and ensure good monitoring and evaluation

• ensure that the organization uses the budget received from member contribution, fines and from other charities.

d) Chief of the community committee has responsibilities in:

• leading the community natural resources management work
• making sure together with committee members that decisions for community planning are equitable and fair
• maintaining contacts with other institutions
• contributes money to the community as other community members

e) Vice chief of the community natural resources protection committee has responsibilities as follows:

• assist the chief
• act as chief when he/she is absent
• make and manage the list of income and expenditure and other documents of community natural resources protection
• contributes money to the community as other community members

f) Community natural resources management committee members:

• participate in work meetings according to the invitation of the chief or vice chief
• participate equally in making community decisions
• give information from the committee to the group and from the group to the committee
• assist group leaders in proper implementation of their work

• stand for election and participate in voting to select the chief and vice chief of the community natural resources management committee

g) Advisors to community natural resource management

• provide knowledge and experience information or budget to the community
• assist the community in making contact with other institutions or organizations (NGOs)
• help facilitate guidance in making other community natural resource management decisions
• involve in making any community natural resources management decision
assist in awareness creation and encouragement of community members to be active participants
help facilitate all work proposed by the community natural resources management committee.

Chapter VI

Income and Expenditure Budget

Article 17: Income and expenditure for community natural resources management is derived from:

- contributions from supporters
- income from community member’s contributions
- income from fines on all illegal activities in community protection areas

Article 18: Expenditure

- All expenditure must be spent on community natural resource management work
- All expenditure must have documentation agreed upon and approved by more than two thirds of the vote of the committee.

Chapter VII

Use of Natural Resources

Article 19: In the Neak Ta Forest, Tvea Bram Beiy Forest and Prey Mlob Baiy Torng Forest, it is permitted to harvest only:

- dead branches for firewood
- cut bark and gather seeds for traditional medicine
- collect vegetables such as green leaves, mushroom … etc.

For cutting the tree for community buildings such as a bridge, pagoda, school … etc, it will be done by agreement between the committee, villagers, Monks and local authorities as necessary.

Article 20: Transporting products from the community natural resources must be made by a group representative who will ensure that they obey the by-laws and regulations of the community.

Article 21: The group that is transporting out natural resources must make an application committee identifying the location, size, number, date and make an agreement that they are not violating the community by-laws. The committee must call a meeting in order to agree and approve it.

Article 22: The transport of natural resources out of the community must contribute 10% of total production for inclusion in the community budget.

Article 23: All illegal exploitation of the community natural resources of Don Laor Village such as:

- Fishing by using electricity, poisoning, carbide (Thmor so’oi), pumping, shelter trap or other methods that attract fish,
- Fishing by using gill net (Mornng), seine net (Oun), ? (Proyung) that has a mesh size less than 2 centimeters,
- Using bamboo fence (Proul) that has the space between the slats less than 1.5 centimeters.
- Growing lotus in the fisheries domain
- Fishing during the fish spawning season from 1 June to 30 September
- Making traps or modern instruments for hunting all types of animals
- Clearing forest including inundated forest, for farmland (chamkar) or firewood, agriculture benefit or for fish shelter traps (samras),
- Burning forest, burning forest to catch all types of animals, cutting down forest for other exploitation,
- Using an underwater mask (Kao Chlos) with a three pronged harpoon (chnok), spear (snor) or forked harpoon (sang) and an underwater mask (Kao Chlos) for catching animals.
- All types of fishing gears involving construction of dams,
- Fishing using modern fishing gears or new methods of fishing that villagers in Don Laor Village did not
use before,
  - Building dams across lakes, small rivers, creeks and streams, must be prohibited.

Chapter VIII

Fines and Punishment

Article 24: Any person who violates against these by-laws must be fined money or has the evidence confiscated according to the severity, heavy or small level of illegal fishing. Fining or confiscation of evidence is the role of the community committee. Money from fines and confiscation of evidence is for the benefit of the community.

Article 25: Fines must be applied from 1 to 5 times of the value of natural resources that were destroyed without permission.

Article 26: Any person who violates against community by-laws and does not stop, the community committee must write and file a complaint and send to the competent institution in order to punish according to the laws of the Government. If the violator is a community member, she/he must be expelled from the community.

Chapter IX

Final Provision

Article 27: The community committee must implement these by-laws.

Article 28: These by-laws can be changed according to the progress of the community in the future.

Article 29: Changing the by-laws requires the calling of a meeting with the community committee, group members and group leaders in the whole community by voting of more than two thirds of the voices.

Article 30: These by-laws are effective from the date of the announcement and signature.

Article 31: For the related neighbouring villages that also benefit from these natural resources, they must obey these by-laws and if they violate these by-laws, they will be fined or punished the same as community members of Don Laor Village.

Seen and approved,

announced and disseminated in the Community of Don Laor Village Date: 18 May 2000

Don Laor Village Chief

Yeim Yat

Don Laor Village, 12th April 2000

Community Natural Resource Committee Chief Don Laor Village

CC: Provincial Forestry Office

Provincial Fisheries Office

Provincial Agricultural Office

Provincial Environmental Office

GTZ Development Programme

Don Laor Village Chief

District Governor
Example of Community Forestry Statutes in Chamkar Phnom Kly, Preream Reansey Village

By CONCERN Worldwide

Statute of Chamkar Phnom Kly

Community Forestry, Preream Reansey Village

The forestland of around 378 ha, located behind the village over cut by the people form both inside and outside the village. Therefore, the Preream Rangsey villagers initiated ideas to establish community forestry. The objective is conservation and protection of natural resources for the coming generations. The CONCERN field facilitators and the Provincial Forestry Office in Kompong Chhnang supported the initiative.

This statute was formulated through the participation of villagers, chief and vice chief of the village, teachers, village elders and the village development committee. The statue acts as a law for protection and daily guidance of the community and can be used to stop illegal cutting and encroachment from people both inside and outside the village.

So, there should be a good relationship between villagers, government staff of Department of Forestry and Fisheries and the community forestry project of CONCERN Worldwide in Kompong Chhnang to order to implement this statute effectively and follow the legal instruments and technical guidelines of the Royal Government of Cambodia.

CHAPTER 1: Objectives

Article 1:

- Increase reforestation, conservation and wildlife protection in a sustainable way.
- Adopt royal government policy on forest protection and conservation.
- Secure forest benefits by family plots.

Article 2: The name of the community forest is "Chamkar Phnom Kly Community Forest, Preream Reansey Village".

CHAPTER 2: General Provision

Article 3:

- Chamkar Phnom Kly Community Forestry, Preram Reansey Village is an independent institution and not affiliated to any organisation/institution. It was established by participation and agreement of community members.
- The community shall be adopting any forestry legislations issued by the government.

Article 4: The resources in the community forest that are managed by the community:

- Replanted forest
- Native forest
- Wildlife
- Mine (Clay for producing pottery)
- Non-timber forest products

**Article 5:** Clearing the forest land in the community forest is prohibited.

**Article 6:** The planting of trees in the degraded forest land is determined by the Village Forest Management Committee (VFMC)

**Article 7:** The community forest is managed by VFMC.

**Article 8:** Selling or hiring the community forest to other people for any purpose is prohibited.

**CHAPTER 3: Structures, roles and rights**

**Article 9:** Structure of VFMC:

![VFMC Structure Diagram]

**Article 10:** A representative of each family in the village has a right to apply to be a community forestry member by filling an application through a user group leader and having it approved by the VFMC.

**Article 11:** A forest user group has 10-15 families as members. A forest user group leader is chosen by election.

**Article 12:** The community members shall elect the VFMC and more than 50% is required to pass the vote. The composition of VFMC:

1. Chairman
   - General management
2. Vice-chairman
   - Chairman Assistance
3. First member
   - Secretary
4. Second member
   - Assistant
5. Third member
   - Assistant
6. Fourth member
   - Assistant
7. Fifth member
   - Assistant

**Article 13:** Representatives of the key community leaders who will be invited to discuss on CF Development include:

- Village chief
- Representatives of interested groups
- Pagoda committees and other committees
Article 14: Community supporters:

- Government
- Local authorities
- National and international organizations
- Individuals interested in Chamkar Phnom Kly Community Forestry, Preream Reansey Village

Article 15: The Mandate

a) The members shall elect forest user group leaders every 2 years.

b) VFMC shall be electing by the forest user group leaders every 5 years. If any VFMC members resign they shall inform in a formal letter one-month in advance. VFMC members and forest user group leaders shall select a replacement.

c) The VFMC meeting:

- The meeting shall be held in every quarter
- In special cases the chairman and vice-chairman can hold the meeting before the quarter.

d) Forest user groups meeting:

- The meeting shall be held quarterly
- In special case the meeting can be held before the quarter.

e) Annual community meeting: Community meeting shall be held annually. The participants are:

- VFMC
- Forest user groups
- Members

Article 16: Roles and Rights

a) Members:

- Shall adopt the statute, regulations in community and government legislation and policies
- Actively to participate in community forestry activities
- Responsible for forest conservation
- The members have the rights to stand as a candidate for VFMC and group leaders election
- Have rights to resign from the member of CF by formal latter
- Have rights to complain and comment about any member who offends the statute

b) Forest user group leaders

- Lead and implement in-group working
- Monitoring and evaluation
- Communicate with VFMC
- Disseminate information and feedback from VFMC to the group members

c) VFMC chairman

- Revise statute, internal regulations and other legal instruments in community
- Ensure equality and justice for the community
- Be responsible to solve the conflicts in the community
- Establish good relationship with government institutions and their staff
- Develops planning, monitoring and evaluation
Leads the work in the community
Supports decision making of VFMC in equality and justice
Solves the problems faced within the community

d) Vice-chairman of VFMC

Assists the chairman
Replaces the chairman, when he/she is absent
Keeps a record of income and expenditure and documentation for the VFMC

e) VFMC members

Participate in the meetings
Assist chairman or vice-chairman
Participate in decision-making which equality and justice
Disseminate information to community
Present themselves as candidates for elections

f) Supporters

Provide knowledge, technical materials and information
Assist to communication between the community and relevant institutions
Do not involve in decision-making.
Facilitate community activities

CHAPTER 4: Funding, Income and Expenditures

Article 17: The funds obtained from outside and inside the community are kept as a community resource.

Article 18: The funds have to be used for community forestry activities and expenditure approved by VFMC.

CHAPTER 5: Timber and Non-timber harvesting

Article 19:

Harvesting of timber has to have the permit of the VFMC
Harvesting of non-timber products on a large scale has to have the permit of VFMC

Article 20: The harvesting of timber or non-timber products has to be monitored by technical institutions and has to be in accordance with the technical guidelines.

Article 21: The community forestry members should apply for permission a week before operations start and clarify location, type and quantity of exploitation.

Article 22: Harvesting of timber and non-timber products has to obey and follow the technical guidelines

Article 23: Those harvesting timber have to pay 5% of the harvesting value of the forest product and the contribution should be in wood or money to the community.

CHAPTER 6: Penalty or Punishments

Article 24: Any individual living inside or outside the community who break the statute has to pay a fine or has his material confiscated, according to the severity of the offence.
**Article 25:** Fines range from 1-3 times the damage for the illegal cutting, clearing the forestland and setting fire to the forest.

**Article 26:** The VFMC has to appeal to the competent institutions for punishing someone who repeated his offences after warnings.

**CHAPTER 7: Final Provisions**

**Article 27:** The VFMC Chamkar Phnom Kly Community Forestry, Preram Reansey Village shall be responsible for effectively implementing this statute.

**Article 28:** This statute shall become effective on the date of signature and are announced in Chamkar Phnom Kly Community Forestry area.

Date 19/09/00  
Chairman of VFMCs  
Chief village

Date 19/09/00  
Commune Chief

Date 15/11/00  
District Governor

Date 22/11/00  
Provincial Forestry Office Director  
Director of Department of Agriculture Forestry and Fisheries

**Back the Table of Contents**
Example of Community Forestry Statutes provided
By CARERE Battambang - Thmey Village

Statute of Thmey Community Forestry

(800 ha, 3 villages)

CHAPTER 1: Objectives

Article 1: Adopt Royal Government policy on forest managing, conservation and protection.

- Create awareness in the community on advantages of forestry
- Guarantee equal benefits for all community members
- Increase income from timber and non-timber products for community members
- To use forest resources in a sustainable way.

CHAPTER 2: General Provision

Article 2: The community forest is officially called “Thmey Community Forestry”.

Article 3: Thmey Community Forestry is an independent organization formed by agreement from Thmey villagers, but all community activities shall obey the laws and government policies.

Article 4: The forest resources of Thmey community forestry that are conserved and managed by the community include degraded forest land, mountains, planted forest, forest land, native forest, wildlife and non-timber products.

Article 5: The Community Forestry Committee (CFC) carries out demarcation and allocation of community forestry land to each group.

Article 6: Clearing the forest land in the community forestry area for any purpose is prohibited.

Article 7: Selling or hiring the community forest to other parties for any purpose is prohibited.

Article 8: CFC determines planting of trees in the degraded forest land.

CHAPTER 3: Demarcation

Article 9: The boundary of Thmey CF adjacent to:

- Thmey village in the East
- Andong Preang in the West
- Kirichhum in the North
- Ansae mountain in the South
CHAPTER 4: Community Structure

Article 10: Structure of CFC

![Diagram of CFC structure]

Article 11: Community forestry member

- A representative of each family in the Thmey village has the right to apply to be a community member through the group leader and approved by the CFC.

Article 12: Community group formulation

- The members of the community volunteer to set up the community groups, with 10-15 families, forming one group
- The community group is managed by a group leader, who is elected by the group members.

Article 13: CFC formulation

- All the groups have to select a representative to the CFC.
- The CFC has to be elected by the CFC members with more than 2:3 required to pass the vote. The composition of CFC include a Chairman, a Vice-chairman and a treasurer.

Article 14: Community supporters

Community supporters are volunteers to participate in community forestry development, including: government institutions, local authorities, national and international organisations, monks and interested individuals.

Article 15: The Mandate

a) CFC

- CFC has to complete the mandate and elections take place every 3 years. The Chairman, Vice-chairman and treasurer have to elected by all CFC members.
- If any CFC members withdraw or die, the CFC have to select a new member to replace him/her.

b) Group leader

The community members shall elect group leaders every 3 years.

Article 16: Meeting

a) The CFC meeting

- The meeting shall be held early each month
- In special cases, the chief and vice-chief of the group can propose a meeting, invite the community members and hold an exceptional meeting before the deadline.

b) Group

- The meeting shall be held every 2 months. In special cases, the group leader can request a meeting
before the deadline.

c) Community members

- The community members shall attend the annual meeting.

CHAPTER 5: Roles and Rights

Article 17: Roles and Rights of Thmey CF:

a) Members

- Shall adopt the statute, regulations of community.
- Participate actively in community forestry activities.
- Have the right to stand as a candidate and vote for a group chief and CFC members.
- Have the right to apply or resign as a member of CF, but cannot claim anything.
- Are responsible for forest conservation
- Have the right to complain to or dismiss someone who offends the statute or internal regulations.
- Have the right to gather CF benefits according to the statute or guidelines.
- Have to attend the meeting that invited to by the community leaders.

b) Group leaders

- Lead and implement the work of the group.
- Communicate with CFC and institutions.
- Carry out monitoring and evaluation activities.

c) CFC

- Formulates the statute, internal regulations and other legal instruments for the community
- Makes sure that equality and justice reign within the community.
- Solves the problems faced inside the community.
- Develops a workplan which applies to the community.
- Carries out monitoring and evaluation activities.

d) Chairman of CFC

- Leads CF activities
- Participates with CFC members to develop a workplan
- Liaises with relevant institutions

e) Vice-chairman of CFC

- Assists the chairman.
- Replaces the chairman, when he/she is absent.
- Provide ideas or involves himself in solving the problems faced in the community.

f) Treasurer

- Manages the community fund properly
- Reports on income and expenditure on time
- All expenditures shall be approved by CFC with more than 2:3 majority

g) CFC members

- Participate in the meetings, which they are invited to by the chairman or vice-chairman.
- Are equally involved in decision-making for the community.
- Maintain a good relationship between the community and the CFC.
• Present themselves as candidates for CFC elections and vote for CFC.

h) Supporters

• Provide technical knowledge, experiences and funds to the community.
• Assist in the communication between the community and the relevant institutions.
• Coordinate decision-making process in the community.
• Do not have the right to make decisions or lead any community activities.
• Facilitate all the work proposed by CFC.

CHAPTER 6: Funding, Income and Expenditures

Article 18: Income originates from

• Community supporters
• Selling timber and non-timber products
• Community contribution fee
• Fines
• Other income for the community

Article 19: Expenditures

• Expenditures have to have a clear budget
• Expenditures have to authorised by the CFC.
• A report on expenditures needs to be written and announce to the community periodically.

CHAPTER 7: Timber and Non-timber harvesting

Article 20: Harvesting of timber and non-timber products has to be authorised by CFCs and respect the forest law.

Article 21: The community forestry members should submit an application for timber harvesting including location, type, size and quantity of trees to be cut and specification of the data of operation. The CFC has to hold a meeting to take a decision.

Article 22: Harvesting of timber and non-timber products has to pay a royalty of 20% for forest products (Forest products or value of forest products):

• 10% is kept by the group
• 10% is kept by the community

CHAPTER 8: Fines or Punishments

Article 23: Any individual who violates this statute shall be fined or the evidence of materials con-fiscated, based on the degree of the offence. Collection of fines or to confiscate materials is the responsibility of the CFC. The fine or the confiscated materials are kept by the community.

Article 24: Any individual who has committed an offence shall be fined 1- 5 times the forest damage (e.g. value of trees or for setting fire to the forest).

Article 25: For any individual who violates this statute, the CFC shall appeal to the competent institutions to punish him/ her, following the law. In the community he/ she shall be dismissed from community member.

CHAPTER 9: Final Provisions
Article 26: The CFC shall be responsible to effectively implement this statute.

Article 27: The statute can be revised according to charges in the community and the laws.

Article 28: This statute shall become effective on the date of signature and will be announced in the community.

Date 10/09/99
Announced in the village
Chief village

Date 10/09/99
Chairman of CFC

Date 13/09/99
Announced in the commune
Commune Chief

Date 15/09/99
District Governor

Date 23/09/99
Director of Environment

Date 23/09/99
Director of Department of Agriculture, Forestry and Fisheries

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Example of Community Forestry Statutes, Ratanakiri - Sorm Thom Commune, Oyadav District

By CB - NRM (IDRC/ CARERE)

MEMORANDUM AND ARTICLES OF

COMMUNITY FOREST

Sorm Thom Commune
Oyadav District
Ratanakiri Province

Supported by:

IDRC/CARERE Organization VIA SEILA Program in Cooperation with the Office of Provincial Agriculture, Forestry & Fishery, Rural Development, Women's Affairs, Culture & Urbanization, Construction & Land Title
Map of Community Forest in Khoum Sorm Thom

KINGDOM OF CAMBODIA
NATION RELIGION KING

~~~~~~~~~~~~

REQUEST FOR PROMOTION OF A COMMUNITY FOREST IN KHOUM SORM THOM

Attn: his Excellency the Governor and the Chairman of the Rural Development in Ratanakiri Province

From: The people living in Phoum Sorm Kaninh, Sorm Thom Commune, Oyadav District, Ratanakiri Province

Thru:

- Chief of Sorm Thom Commune
- Chief Administrator of Oyadav District
- Chief of Provincial Forestry Office
Ref:

- The request letter of the people in Sorm Thom Commune
- The commune development planning for the year 1999-2000 (long term).
- The workshop for justification and amendment of the memorandum and articles drafted regarding the natural resources management at provincial level, held on 18-19 November 1999.

**Subject:** Request to form Community Based Natural Resources Management in Sorm Thom Commune.

We refer to the above-mentioned subject and references.

Kindly be informed that our community is known as the “COMMUNITY BASED NATURAL RESOURCES MANAGEMENT” in the forest boundary of Sorm Thom. Our community forest has commenced a process since March, 1997, funded by IDRC/CAREERE through the SEILA PROGRAM in order to take care, to protect and to control the growth of natural forests on a total land area of 3,684 hectare and hereby these are divided into three (3) zones:

- Multi-use forest zone: 2,844 hectares
- Wildlife Sanctuary Zone: 270 hectares
- Forest protection zone: 570 hectares

Each zone is controlled in a different way. Please see the AGREEMENT which is attached.

With assurance of our highest consideration.

Read and ........................................ Read and ........................................

Date: ........................................ Date: ........................................

Chief of Sorm Thom Management

Chairman of Natural Resources in Sorm Thom

Read and ........................................ Read and ........................................

Date: ........................................ Date: ........................................

Office Manager of Provincial Forest

District Chief of Oyadav

Read and ........................................ Read and ........................................

Date: ........................................ Date: ........................................

Office Manger of Agriculture, Forest & Fishery

Office Manager of Provincial Environment

Read and ........................................

........................................

Date: ........................................

His Excellency the Governor and the Chairman of the Rural Development Committee in Ratanakiri Province
DRAFT OF STATUTE OF SORM THOM COMMUNITY FOREST

SORM THOM COMMUNITY FOREST is the community forest formed according to the request of three (3) communities:

1. Phoum Sorm Kaninh
2. Phoum Sorm Kul
3. Phoum Sormm (Chah & Thmei)

This community forest is established in a natural forest area with species of sparse forest growing on mixed land, graven and rock. The land area of 3,684 ha is divided into 3 zones:

- Diversified zone: 2,844 ha
- Forest protection zone: 570 ha located on mountains (Phnom go, Chakkwa, Ha and Bokbal and Bang Mount)
- Khamm Khlang protection zone as a wildlife sanctuary: 270 ha.

These forests were destroyed by illegal activities from 1993 to 1998. To satisfy the community's request, the provincial authority formed a support team which includes the provincial environment office, rural development, women's affairs and provincial culture office on order to help the community in coordination and preparation of the process.

The preparation of Sorm Thom Community Forest started in March 1998, supported by IDRC/ CARERE through the SEILA Program.

To make the community forest management effective, the community is required to prepare the memorandum and articles recognized by the concerned departments and all local authorities.

CHAPTER 1: PURPOSE

Article 1:

- To participate in protection, maintenance and growth of forest in agreement with the Royal Government to satisfy the daily use of forest resources and to ensure sustainability.
- To take care of the ethnic minority's tradition/culture, existing since the ancestors.
- To explain to the population the advantages of the forest, to know how to manage/control, use, maintain, protect and to grow in accordance with the proper nature.
- To ensure the sustainability in development in order to raise the people's living standard.

CHAPTER 2: REASON

Article 2:

- The number growth of people has gradually increased.
- Economic development has been forcefully expanded.
- This increased the need for forest resources.
- Seeing the loss of natural resources from day to day and natural catastrophes.
- Planning of natural resources management and full forest protection was done with participation from the local community as well as the support of the concerned department and local authorities.
- This process is in conformity with the law.

CHAPTER 3: HOW TO CONTROL/MANAGE

Article 3:
• The community is called the "SORM THOM FOREST COMMUNITY".

Article 4:

Sorm Thom community forest joins in the control and maintenance of the forest with the Royal Government to satisfy the local community's needs and to ensure the development according to the proper technical characteristics.

Article 5:

All natural resources existing with the community forest boundaries will be under the joint control, protection, care and reforestation by the community and supported by the concerned departments.

Article 6:

• Sorm Thom community forest is under direct management/control of the Community Forestry Committee and the villagers assisted by the local authority and concerned department.

Article 7:

• Boundary demarcation of conservation forests, protected forests and the forests important in the ecological system will be made by the commune and village community forestry committee with approval by the local authorities and concerned departments.

Article 8:

• Making business with any kind of natural resources within the community forestry boundary without a permit or land clearing for agriculture, shall be strictly prohibited.

Article 9:

• Absolutely NO income generation or handling of explosives or chemical item(s) is allowed in the protected forest area for cultural reasons and in the virgin forest, which is important for the ecological system and as a place where animals reproduce.

Article 10:

• Any legal activities can be carried out in the diversified area only after discussion and agreement by the community.

CHAPTER 4: STRUCTURE, FUNCTION AND RIGHTS

Article 11: STRUCTURE

SELECTION OF COMMITTEE

• Selection of the Village Community Forestry Committee will be done by vote in open and free elections by simple majority (more than one (1) voice).
• Selection of the Commune Community Forestry Committee will be done by vote among those three (3) Village Committees in the Commune by a supporting majority (more than one (1) voice). Commune Committee Members will be selected from representatives of the Village Community Forestry Committees.

STRUCTURE OF VILLAGE LEVEL COMMUNITY FORESTRY COMMITTEE’
The village community forestry committee has six (6) members (2 women), 1 senior person, 1 chairman, 1 vice chairman, 1 announcer/teacher, 1 cashier, 1 patrol supervisor and one representative of patrol groups of useable areas at each village like Sorm Kaninth (Klo and Baang), Sorm Kul village (Eis, Po and Langeang), Sorm Trak Chah and Sorm Trak Thmei (Langeang, Laviel, Haning, Pann Klak Chakkva, Malu).

**STRUCTURE OF COMMUNE LEVEL FOREST COMMUNITY COMMITTEE**

- The commune community forest committee has fourteen 14 members, 4 seniors (1 woman), 1 senior person, 1 chairman, 2 persons from the community insider group, 3 vice chairmen, 1 secretary, 1 cashier, 1 advertiser/teacher, 1 patrol.

**FUNCTION AND RIGHT**

**Article 12: MEMBERSHIP IN THE COMMUNITY**

- The male and female persons having permanent and legal residence in the villages/commune and over 18 years of age, have the right to vote as well as to giving their ideas for choosing their own representative.
- The people, both male and female, who participate in the community activity are entitled to the benefits of the community forestry.

**Article 13: RIGHT TO STAND FOR AN ELECTION IN THE COMMUNITY FORESTRY COMMITTEE**

- All members of the community, who may be elected as the commune/village community forestry committee should be over 25 years old.

**Article 14: MANDATE OF COMMUNITY FORESTRY COMMITTEE**

- The mandate of the community forestry committee shall be two (2) years by voting every February compatible with the month of Neang Norng 2 (Khae Chaaray).
- A member of CF committee may be changed before term if requested by the community or the
committee and supported by a clear reason.

**Article 15: FUNCTION OF VILLAGE COMMUNITY FOREST COMMITTEE ADVISORS**

- The advisors of the village committee have to instruct and advise the members of the village committee and the people about the natural resource management at the village level.
- To facilitate and settle any difficulties in the community.

**CHAIRMAN**

- He is a leader and the person in-charge of the village forest community.
- He/she advertises and gives the villagers instructions on the natural resources management.
- He/she prepares and makes working plans with villagers and investigates the reports on any trouble(s) occurring in the community forest area.
- He/she solves difficulties happening to the people in the village community as a coordinator.
- Before making any decision(s), it is required to discuss these with the village committee members on natural resources management, with the advisors and all the villagers.

**VICE CHAIRMAN**

- Replaces the chairman during his absence,
- Assists the chairman.

**EDUCATION/ ADVERTISING**

- Acts as an educator and advertiser for his own people and the neighbours.
- He/she prepares documents, labels and pictures for advertising

**PATROL TEAM**

- These are persons directly in charge of each useable area.
- They report to the village committee.
- They prevent illegal forest activities and if necessary, report to the village committee.
- They prepare meetings at their own location to educate/explain and to create awareness among the people.
- They investigate and control illegal activities.

**Article 16: FUNCTION OF COMMUNE COMMUNITY FOREST COMMITTEE ADVISORS**

- Are representatives of senior people from the three villages in the commune.
- Are educators and advertiser pertaining to the natural resource management involving the traditions and culture.
- Act as advisors and consultants and help to solve any conflict with community forestry committee.

**CHAIRMAN**

- He/she is in-charge of activities in community forestry in the whole commune.
- He/she prepares as a leader planking and coordinates resolution of difficulties occurring in the community forestry area.
- He/she acts as a liaison officer with regard to activities relevant to the community forest land with the neighbouring communities, the concerned departments and local authorities
- For solving any trouble(s), a meeting shall be conducted for discussion with the commune committee members in advance before making a decision.
- Prepar.es monthly reports regarding job activities in the community forest area and send them to local authorities and concerned departments.
- Prepares a voting process to elect the forestry committee in the village and the commune level, one (1) month before the existing committee mandate expires.

**COMMUNITY INSIDER GROUP**

- Acts as an advisor group to the commune community forestry committee like giving experience and consultation or other tasks involving activities of the community forest.
VICE CHAIRMAN

- Replaces the chairman during his absence.
- Supervises a responsible person directly at each village.

SECRETARY

- Reports to the chairman of community forestry committee.
- Prepares and keeps the documents/files and assures all administrative activities for the chairman and the vice chairman.

EDUCATION / PUBLIC RELATIONS

- Creates awareness concerning the community forest at the village committee and the neighbours to increase prevention, protection and control of the forest management.

ACCOUNTANT

- Controls income and expenditure.

PATROL

- Perform joint duties/responsibilities for prevention, protection, making reports, prohibition or capture of offenders.

Article 17: VILLAGER'S DUTIES

- To pay great attention and to protect forests as his/her own property.
- To know how to use forest products/by-products sustainably.
- To report illegal activities encountered by themselves in the community forest to the patrol team or the village committee or the commune committee.
- To join as a voluntary laborer in the protection of their own forest when and as requested by the committee such as for protection, prevention, fire-fighting, planting of forest trees, etc.
- To participate in a meeting called by the committee to prepare planning of community forest activities.
- To continue creating awareness on the importance of community forest protection, prevention by the community and the neighbours.
- To have full rights of protection or to propose any changes and to choose a new representative for a community forest committee who is committed to the memorandum and the articles of the community forest.

Article 18: CONFLICT RESOLUTION

- The village committee can convene a meeting with villagers to discuss and to solve issues based on the memorandum and articles.
- If any cases cannot be settled, the village community forestry committee shall make notes and then report to the commune community forestry committee for assistance in the resolution of the conflict.
- The commune forestry committee will settle conflicts based upon the statute of community forestry, but if any urgent case cannot be settled, the commune committee shall make a report and submit it to the local authority at all levels (commune, district, province) and the concerned provincial departments for action.

FINANCIAL MANAGEMENT

Article 19: REVENUES

All funds derived from the Government, organization, generous persons, penalties, withdrawal of forest products or other resources in forest community boundaries, shall be allocated for the process of prevention, protection and development of villages/communes.
Article 20: EXPENSES

- All expenses are only for the process of forestry community activities or just for development of the village/commune.
- Before paying, it is required to have a prior discuss and approval of the donor like the Government, organizations, generous person, village/commune forest community committees and the people.

CHAPTER 5
MANAGEMENT AND WITHDRAWAL OF RESOURCES
HISTORIC SUMMARY OF TRADITIONAL/CUSTOM
OF PROTECTED FORESTS (PREY ARAK):

The ethnic minority "CHARAI" observes their tradition and firm workshop to guardian spirits, forests, mountains, stones and CHROB. Protected forest areas where the community makes their worships/rock and as deep slope areas where there are protected forests, Go mountain, Chakkwa Mount, and Haning Mount around 150 hectares. Bok Mpong, Bal Mount, Khi Mount is 150 hectares and Baang Mount is 270 hectares. According to the belief of the ethnic minority "CHARAI", those highland areas are their worship places and are the areas characterized by particular natures of diverse biology, full of forest by-products for the daily living support and important for protection of slope areas.

These protected forest areas strongly affect the worship for the villagers since the primitive time until the present such as unable to clear land for plantation, making much noise, cutting big trees, rolling of stones down to or frequent hunting in those areas. Hereby if villagers or outsiders commits anything wrong therein, the guardian spirits in the areas will be angry with the villagers, subject to their belief, and will make villagers touch with various difficulties/problems like diseases, droughts, animals or insects destroying farming products and making several villagers sick and dead. But the community can collect forest by-products from these areas in the tradition manner such as fruit, secondary construction materials and vegetables ...

But they much pray toward guardian spirits of the forest/mountains, who take care and protect the areas for request for a prior approval before collecting of forest by-products or hunting.

WILDLIFE SANCTUARY BOUNDARY

With respect to 270 hectares of Kham Klorng forest area, the community has jointly controlled with another two villages like Phoum Le and Phoum Chakkrieng. These areas have the particular nature of diverse biology for wildlife sanctuary (with water source during both fry season and rainy season), full of forest by-products for daily living and important for protection of slope areas.

Article 21: MANAGEMENT OF PROTECTED FOREST AND SANCTUARY

- Kham Klorng forest that has special nature for the wildlife sanctuary. So logging operation/business and hunting of all species of wildlife for a trade shall be strictly prohibited.
- No business of all kinds in protected forest areas worshiped by the community.
- Certain resources such as scarce species of trees, Kravanh, Meum Cheung Kangork Phadao... the community will study and cultivate in addition.
- No cutting trees for fruit, No firing or tree cutting for capture of wildlife.
- Never use weapon, explosives and speakers in these areas.

Article 22: MANAGEMENT OF DIVERSELY SUED AREAS

- No land clearing for plantation in the forest community area.
- No illegal cutting trees of all species in the forest community area.
- Never install a manufacturing factory in the forest community area.
- The community that owns former plantations near the forest community areas, can preserve and cultivate on, but they must ensure safety relevant to fire in the forest community boundary and cannot expand plantations.
- Never hole a tree more than two holes for resin or NEVER use the machine "Transitory" to hole tree for resin. While burning for resin, it is required to ensure fire safety in the forest community boundary.
- Never catch fish by using modern tools like electric device, poisonous chemical, weapon, explosives,
The community can catch fish following the tradition characteristic.

- No hunting of all species of wildlife by using weapon, explosives, poisonous resin, large trap, kind of bow and tape recorder in the forest community area.
- No cutting trees for fruit, no firing or tree cutting for catching wildlife.

**Article 23: UTILIZATION AND WITHDRAWAL**

- The community can utilize forest by-products according to the tradition manner like construction materials, coffins, creepers, rattans, forest fruit, vegetables, hunting of small wildlife such as kind of large squirrels, rats, kind of turtle-doves, parrots, wild pigs, snails, wild chickens, and fishing ... or collection of various forest by-products for support of daily living by following the memorandum and articles of the forest community.
- The neighbor community can use the forest by-products in the forest community boundary with a prior approval of the commune/village forest community committee and must follow the memorandum and articles of the forest community.
- The neighbor community can use the forest products for different construction materials with a prior approval of the commune/village forest community committee and that of the local authorities.
- Every operation/business of all kinds of natural resources in forest community areas is required to properly supervise in accordant with the technical nature by the concerned expert department.
- Before an operation/business of natural resources in the forest community area it is required to discuss with the community, commune/village committee and it is required to hold a proper permit issued by the concerned expert department and the local authority.
- Issuance of a permit, license for any business in the forest community, it is required to inform and discuss in advance with the community, concerned department and local authority.
- Any business/operation in the forest community area, it is required to have a community representative to participate in investigation and in watching.
- Withdrawal of forest product or natural resources in the forest community area, contribution shall be paid for presentation/protection of forest and development of the community at an amount of 20% total business profit by paying in cash.

**CHAPTER 6**

**PENALTY AND PUNISHMENT**

**Article 24:** Any offender against Article 21, 22, 23 of the above statute, the commune forest community reserves the right to find from 10,000 Riel-500, 000 Riel (Riel ten thousand up to Riel five hundred thousand).

**Article 25:**

- In the case that the fine is over 10,000 Riel-500, 000 Riel, the commune forestry community committee and prepare dossier/files to send to the concerned department for resolution.
- Incentive fund derived from the fine of 40% be equal distributed to participant parties.

**CHAPTER 7**

**Article 26:**

- The forest community committee of Khoum Sorm Thom shall carry out and circulate the above maintained memorandum and article.

**Article 27:**

- The above maintained memorandum and articles is to be implemented and takes its effect right after the date of formal promulgation in the forest community committee in the Khoum Sorm Thom

**Article 28:**
• The above maintained memorandum and articles in flounce every person who goes in to the Sorm Thom forest community; not just only the people living in Khoum Sorm Thom.

Article 29:

• The draft of forest community's above-mentioned memorandum and articles may be amended as and when required and what with a request of Sorm Thom community. Amendment of the statute shall be required to have a discuss and approval of the community, the forest community committee and concerned department.

SUGGESTIONS:

• The concerned expert departments and local authorities of all levels are kindly required to hand over technical skills or to help intervene according the request of the natural resource management committee.

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Example of PLUP in Minority Areas of North-Eastern Cambodia and Experiences made in Kro Lah Village

by Mr. Gordon Paterson, NTFP Project Ratanakir

Introduction

The NE of Cambodia includes Mondulkiri, Ratanakiri, and Stung Treng Provinces and parts of Kratie and Preah Vihear. The region is characterized by hilly terrain with relatively high forest cover compared with the lowland provinces. Land speculation and concessions (land and forest) granted from the national level, are serious threats to forest cover and stable land use in the NE watersheds. The volcanic red soils of the central plateau are highly sought after by immigrant settlers and agribusiness concessionaires, for plantation and cash crops. Most of the 150-km length of national highway 19 in Ratanakiri has been deforested and converted to cash crop plantations since 1998. This has serious consequences for local communities who rely on maintaining forest fallows as part of their cyclical swidden cultivation system. Loss of their fallow agricultural lands to speculators and developers is placing more and more pressure on the old growth forests.

Studies on indigenous livelihoods and land security have indicated that sustainable use of natural resources in Ratanakiri requires that indigenous communities receive secure tenure or user rights to their agricultural land. Whilst there is much interest from indigenous communities in developing perennial agricultural systems, these systems are as yet unproven for the upland areas. Their food security for the foreseeable future still remains in the cyclical swidden cultivation that they have practiced for generations. For this reason it is necessary that alternative options for land security be explored, appropriate to the current situation of indigenous people.

Options for land security under the existing laws were assessed in 1997. The new draft land law, currently with the Council of Ministers and yet to be passed, gives increased space for traditional management systems and communal titling. In practice the present context for land titling for communities in the NE remains somewhat problematic.

- Laws have provisions for obtaining land title, but most people lack the know-how and can not afford the standard fees for obtaining rights
- The complex procedures are prohibiting and since January 1995, all applications must be approved by the central office in Phnom Penh
- Individual land ownership - the type of title most easily obtained under the land law - is not a familiar concept to many indigenous communities
- The isolation of most of the ethnic minority communities from Banlung and Phnom Penh, and the fact that many of the indigenous groups are not fluent or literate in Khmer, hampers their access to administrative structures
- Lack of familiarity with the Land Law and limited access to courts or legal assistance in Banlung or Phnom Penh makes indigenous communities more vulnerable to administrative corruption or manipulation by speculators and companies seeking to confiscate their land
- The complex procedures for land titling such as the need to secure approval of eight or more levels of administrative hierarchy creates obstacles for applicants seeking legal title
- A lack of clarity in land titling fees and the time needed to complete the process makes it difficult for applicants to plan a budget for land titling
- A lack of technical expertise, equipment and funding to facilitate the land title process at the provincial and central land title offices lengthens the process, or blocks the process altogether

Indigenous livelihood systems - the case for different Land Use Planning policies

Minority groups in Ratanakiri have an intense relationship with their natural surroundings. This is revealed and maintained through their animist beliefs. Belief in spirits of the forest, land and water bodies, contributes to the protection of important watershed areas and plays a significant role in dictating the processes of practicing
rotational agriculture.

Strong taboos mean that certain activities such as cutting of trees and use of guns for hunting wildlife, cannot take place within areas where spirits may be angered. If spirits are angered, villagers may die or suffer illness and the community will need to hold a ceremony at which they sacrifice a buffalo (or other livestock) and drink rice wine to appease them.

**Traditional Resource Management**

Research in the past has shown indigenous communities to be 95% self sufficient from what they grow and collect from nature. Their livelihood system may be divided into three components:

- Land (swidden/slash and burn cultivation)
- Forest (collection of NTFPs and building materials, spirit forest)
- Natural fisheries and water resources

**Land Management**

Swidden cultivation is the most important economic activity of indigenous people. This is a form of agriculture rotation, which uses fallows of regenerating natural forest to restore soil fertility. On the red soils of the Central plateau, each family may have 3-5 plots on which they rotate. Fallow periods of 10-15 years are observed, after which the forest re-growth is cleared and burned. While this practice appears visually destructive, it is a stable and sustainable form of food production at low population levels.

Swidden cultivation takes place within boundaries recognized between adjacent communities. These have been set by elders in the past and are marked by streams, trees and paths. Members of a village may cultivate anywhere within their own village boundaries, but will not cross into the territory of a neighbouring village, as they fear retribution from the spirits. Membership in the community is the primary pre-requisite for rights to cultivate land within the communal boundary.

A study by Dr Jefferson Fox of East West Centre, in Poey Commune (1996) found that, regardless of the size of a village, the ratio of population to area (within traditional boundaries) was more or less uniform (at around 30p/km²). This indicates a level of equitability in the way the traditional system shares land between communities. Within the village boundary, around 8% of the land may be under cultivation at any one time. The rest will be under fallow, which appears as a mosaic of secondary forest at different stages of regeneration. Analysis of satellite images for Poey commune indicate that under this system, Old growth forest remains at 50% cover, secondary forest is 40% and open fields (current cultivation) is 5% of the total land area. [The rest is roads, residential area, streams and lakes etc]. The sustainability of this system depends on maintaining a low population density and the traditional (communal) tenure system. In order to accommodate increasing populations, the traditional tenure system may be used as the basis for land use planning for agriculture development

**Watershed Protection**

Traditional cultivation is zero or minimum tillage, which helps to protect the soil from erosion. Runoff is also protected by dense secondary forest that surrounds the small plots cleared for cultivation. The close proximity of surrounding forest to cleared plots supplies seed for regeneration of fallowed land. This fast regeneration again secures soil from erosion.

Though the swidden system is labour intensive, production requires no other external inputs such as pesticides and fertilizers. This way the watershed is kept free from chemical contamination.

**Primary Forest Protection**

As the case study below reveals, of twelve micro-zones identified by the community, six are forest types for protection. The forests are of high subsistence and spiritual value to the communities, which reveals a need for sustainable forest management. Traditional systems protect primary forest by:

- Sacred Forests: These are areas of protected forest, believed to be inhabited by powerful spirits, as are burial grounds. Many stories of deaths and sickness maintain beliefs in the spirits and in this way spirit forests are heavily protected from cultivation due to fear of angering the spirits.
- Large areas of old growth forest (around 50% of the total land area in Poey Commune) are maintained
for collection of forest products, outside the village cultivation boundaries. Collection forests may be 1 or 2 days walk from the village but are essential for existence supplying construction materials, medicine, fruit, animals and vegetables to supplement diets.

Internal Leadership and Social Structures

The history and relative autonomy of indigenous groups in highland areas has required strong internal leadership developed over time by the communities, appropriate to their situation, and rules that govern the society. A village chief has traditionally led highland communities and a group of elders form a body for community decision-making. In addition each community has a spiritual leader of great importance for communicating with the spirits through ceremonies and dreams. While systems and roles differ between groups many decision-making structures are traditionally consensus orientated (most upland Kreung and Tampuen villages), and leaders are chosen on the basis of capacity to carry the weight of the required role. This leadership role requires knowledge of their society, initiative to solve problems and ability to act as a mediator in the community. These systems of leadership are an integral part of indigenous cultures as are the processes of decision-making and mediation through discussion and debate. All systems serve to maintained strong community cohesion required for managing and protecting communal resources.

The villagers perceive the traditional circular arrangement of houses, with the village meeting hall in the middle, as being conducive to community life and solidarity. Conversely, if they adopted private titles, they would have to re-organize into a linear or roadside layout. Sociologists and anthropologists have indeed reported an adverse impact on the cultural identity and cohesiveness of indigenous peoples after reorganizing traditional layouts to conform to mainstream norms. (Rifa, H. unpublished report 2000).

Indigenous communities are currently marginalized by no or low levels of Khmer and formal education (literacy and numeracy). This has been significant in the rapid and often fraudulent buying of indigenous people's land by outsiders as communities may be unaware of what they are signing. Promises made to communities of assistance by government or non-government agencies are irrelevant if they have lost their land. Development agencies alike are responsible for using Khmer and written documents with disregard for the communities understanding. Community led Land Use Planning through practical and aural techniques can increase communities' capacity and involvement in the future management and use of their land.

Observing traditional resource management and community organisation reveal the close relationship between the two; community solidarity is and integral part of communal tenure systems, that previous to present-day pressures were efficient as a means of subsistence living.

A range of factors are already impacting on some communities where solidarity is more easily broken down by outside influences. A spirit of individualism amongst some younger generations who have more experience from outside the community is already showing a breakdown of traditional leadership as they show less respect for the decisions of the elders. Other recent development structures have also disrupted traditional leadership, sometimes causing internal conflict or leading to a gradual breakdown in solidarity crucial to protecting adequate land for survival and protection. More appropriate Land Use planning efforts stand to benefit the whole community as a unit, but to avoid these benefits being at the cost of community cohesion or cultural integrity activities need to be carried out with the consent and agreement of the entire community. The effective forming of new committees is paramount in this, through elections and careful addressing of their roles in relation to those of existing committees and decision-making bodies.

Attention to the social make-up, cultural beliefs and language and the close link with resource management systems in communities are essential to developing appropriate Land Use Planning policies. Such policies may be key to slowing the rapid transition to unsustainable land use and preventing ecological disaster for those within and downstream of this important watershed of NE Cambodia.

Appropriate Land Tenure

What kind of tenure are local people asking for?

Research commissioned by the Council of Ministers in May 1999 on the type of land tenure favoured by indigenous communities showed a strong preference for a communal type of tenure. The main reasons given were that this would protect the food security potential of the village for present and future generations: as any land sales would necessarily need to be approved by (at least) two thirds majority of the adult members. Proceeds from any sale would be communally used. Villagers agreed that such a system will protect the common good of the community from temptation or greed of individuals.
Communal tenure can thus be seen to be one mechanism, acceptable to indigenous communities, that would buffer them against the excesses of the land markets.

**Advantages and disadvantages of Community Tenure (Usufruct rights) through LUP**

**Advantages of Community Tenure**

- Local people can easily adapt to this approach
- Rapid mapping is possible (whole community at a time, as compared to surveying individual titles), therefore a level of protection can be delivered quickly for local people.
- The LUP process describes actual de-facto tenure (current use and occupation) which are recognized as possession rights under the 1992 land law. Article 70 accepts "fallowing land for the purpose of restoring soil fertility" as being a legitimate use of land. Thus active fields and fallow swidden areas can be described as part of the community possession.
- Participation of all stakeholders is an effective way of conflict prevention. Neighbouring villagers, local authorities etc are all involved in the process. Reduction of civil conflicts is a major priority of the ministry of Interior. PLUP will greatly reduce the time that local authorities have to spend on resolving conflicts.
- The productive potential (and thereby food security) of the village is protected for present and future generations.
- Encourages gradual conversion of swidden land to more productive uses (such as fruit trees, perennial crops), by individual families, which is consistent with Government priorities. Conversion to sedentary agriculture is able to take place at a pace that the community can handle. (This may take up 15 years).
- Utilizes labour force for agriculture development that is already existing in the community. Local community are not marginalized or disadvantaged by the development (as with the oil palm example) - they can participate and benefit.
- Allows for private investment, through entering into joint agreements with the local community.
- Important forests are conserved; watershed is protected.

**Obstacle and disadvantages of Community Tenure**

- The land Titles Department (and some local authorities) are resistant to communal forms of land tenure, as it has the potential to effectively lock up large areas of land from the speculators market and therefore from the titling/land transfer process.
- There is not yet any clear policy framework: The policy on highland people's development has been stuck for nearly 3 years. A chapter on indigenous community land rights has been recently drafted into the land law, but not yet approved.
- The type of tenure provided under a community LUP is as yet unclear: is it usufruct? Is it a long term/ perpetual lease? Is it a special zone/indigenous reservation for customary users?
- Because there is no policy framework, each LUP application must go through an expensive and time-consuming process of consultation/workshops at every level.

**Type of agriculture investment to be encouraged on community land**

- Highly bio-diverse - based on the existing agriculture systems and incorporating native varieties. In this way, the watershed/ ecological/ environmental advantages of the traditional system can be maintained.
- Perennial tree crops will be a major component (stabilize the system and replace some of the ecological functions of the secondary forest)
- Family food production would be first priority. Marketing of surplus products (diversity of products) will be second priority.
- Would be labour intensive, rather than capital and inputs intensive. Labour is one of the main limiting factors for the highland family in implementing agriculture change, therefore appropriate ways of saving labour will need to be found.

**Example of Kro Lah Land Use Planning Exercise (LUP Committee and Impact after three years)**

**Transparency and accountability of the Village Land Use Planning Committee**

The LUP committee has a key role in negotiating boundaries, preparing and amending regulations and facilitating village consensus in decisions regarding use and development of the community land. In the future, this role could expand to negotiating agreements with potential investors. Obviously there is the danger
that committee members may be tempted to use their position for personal gain, at the expense of the community benefit. From their experience of the last three years, Kro Lah Village members had some advice about the working relationship between the committee and their constituency.

- The committee member should be people who the villagers trust. They must be elected by all the village members together.
- The committee must report on their work to a meeting of all the village members at least once per month.
- Decision making and planning by the committee must have participation from other members or the community.
- The committee is the conduit for information from the outside (e.g. NGOs and Government). The committee must be diligent to disseminate this information to all the villagers. They also have the role of reporting regularly to the authorities.
- The committee must be sure that they also receive all relevant information from the community members. For instance if someone in the village wants to sell some land. It is important for the committee to maintain good relations and participatory discussion with all the community members in order for the villagers to feel comfortable to pass on information and share their opinions.
- It is important that poor people in the community (such as single parent families) have equal rights to give their opinion regarding the land use plan, as influential people.
- Committee members should be people with a reasonable standard of living. If they are too poor, they will have no time to work voluntarily and may be tempted to use their position for personal benefit.
- If the committee are found to be corrupt, the community will call a meeting and disband them.

Remuneration for the Committee

VDCs and NRM committees spend a lot of voluntary time working for the benefit of their community. Kro Lah LUP committee is no exception. NGO researchers explored with villagers, their perceptions of the motivating factors for the committee and how (if at all) the committee should be rewarded by the community.

"The village members very much appreciate the voluntary work of the NRM (and other) committees. They consider them as "Local Heros" and reward them with moral support and respect".

In fact there are many committees in Kro Lah Village; the VDC, rice bank committee, well committee, rice mill committee, health committee etc. Nearly half of the villagers are involved in a committee of some sort. The villagers expressed that it would be impossible to support all of the voluntary committee members, or provide livelihood supplements for them.

"The villagers are all poor. We are subsistence farmers and not yet proficient at income generating activities. It is difficult to find contributions for the committee members".

It appears that the LUP committee members are happy to work voluntarily for the community. An important aspect of the work was that they set the pace themselves, and determined how much time they have to spend on LUP/NRM work in the beginning, so as not to interfere too much with their livelihood activities.

Benefits of Land use Planning

After three years of implementation, the Kro Lah community perceive a number of benefits of the land use planning approach.

1. The village is able to maintain their traditional village layout. This is significant in maintaining community solidarity and continuing cultural practices.
2. The village community land is secure. Land cannot be sold by any individual members unless there is agreement by the whole community. In this way, the villagers feel that the food security of future generations can be maintained. The process of land use planning, by involving the local authorities, provides protection against their land being alienated.
3. The planning process has caused villagers to become interested in growing perennial cash crops. The land use regulations allow village members to develop up to five hectares of land (per nuclear family) for permanent uses. These crops and their produce are the perpetual property of that family, although the land still cannot be sold outside the village without community agreement. This arrangement has provided incentive for village members to develop land in a more intensively productive manner, in accordance with the Government's economic development policies. The transition from rotational swidden cultivation to permanent land use can take place gradually, according to the ability of each family to expand their area of perennial crops over a number of years.
4. There is a clear boundary for the village land which is recognized by neighbouring villages and the local authorities. Due to the intensive stakeholder discussion process during the land use planning, the likelihood of future conflicts with neighbouring villagers or land investors has been greatly reduced.

Conclusion

As population and pressure on the land grows, local communities in Ratanakiri will be forced to develop more intensive forms of cultivation. It is essential that these evolving systems can be ecologically sustainable and adapted to the local social, ecological and cultural conditions. While indigenous communities in Ratanakiri have demonstrated much interest in growing perennial cash crops, they concede that they are not ready to convert to stabilized systems. Indeed, those who have made the break to paddy farming in Kok Lak Commune (Ratanakiri), Siem Pang District (Stung Treng) and neighbouring Attapeu province in Lao PDR (for example) are reporting food security crises compared with their counterparts who have continued the traditional swidden. Farmers who invested in growing coffee and cashews are now finding the market prices cannot compensate their investment. Clearly, conversion to stabilized and more intensive systems must take place slowly and carefully, with much adaptive research. Land Use planning, which takes into consideration all of the issues discussed in this paper, is a tool which provides the space and incentive for local communities to begin proactively developing their land at a pace that can allow innovative experimentation and adaptation of their existing systems.