

National Agriculture and Forestry Extension Service
(Shifting Cultivation Stabilisation Division)

Department of Forestry

National Agriculture and Forestry Research Institute

National Land Management Authority
(Department of Land Planning and Development)

MANUAL

PARTICIPATORY AGRICULTURE AND FOREST LAND USE PLANNING AT VILLAGE AND VILLAGE CLUSTER LEVEL

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PARTICIPATORY AGRICULTURE AND FOREST LAND USE PLANNING AT VILLAGE AND VILLAGE CLUSTER LEVELS

Prepared by:

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National Agriculture and Forestry Extension Service

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Members of the Technical Advisory Group

1. Dr Silavanh Sawatvong: Director General, Department of Forestry
2. Mr Bouahong Phanthanousy: Former Deputy Director, National Agriculture and Forestry Extension Service; Deputy Director General, Department of Forestry
3. Mr Khamphay Manivong: Deputy Director, National Agriculture and Forestry Research Institute
4. Mr Vongdeuane Vongsiharath: Deputy Director, Department of Land Planning and Development, National Land Management Authority
5. Mr Somxay Sisanoth: Deputy Director, National Agriculture and Forestry Extension Service

Members of the Technical Working Team

1. Mr Boualy Phameuang: Director, Shifting Cultivation Stabilisation Division, National Agriculture and Forestry Extension Service
2. Mr Phokalaxy Alounsawath: Head, Technical Working Team, Shifting Cultivation Stabilisation Division, National Agriculture and Forestry Extension Service
3. Mr Phalakone Phabmixay: Member, Technical Working Team, Land Research Centre, National Agriculture and Forestry Research Institute
4. Mr Hongthong Amphaychith: Member, Technical Working Team, Forest Inventory and Planning Division, Department of Forestry
5. Mr Dhetkhamharn Intisone: Member, Technical Working Team, Department of Land Planning and Development, National Land Management Authority

Technical Staff Assisting the Technical Working Team

1. Mr Thongsavanh Phanthavong: Deputy Director, Shifting Cultivation Stabilisation Division, National Agriculture and Forestry Extension Service
2. Mr Bounmy Syvongxay: Staff member, Shifting Cultivation Stabilisation Division, National Agriculture and Forestry Extension Service
3. Mr Phonephanh Luangaphay: Staff member, Shifting Cultivation Stabilisation Division, National Agriculture and Forestry Extension Service
4. Ms Chanthone Nanthavong: Staff member, Shifting Cultivation Stabilisation Division, National Agriculture and Forestry Extension Service

Technical Advisory Group

1. Mr Noriyoshi Kitamura, Chief Technical Adviser, Forestry Strategy Implementation Pilot Project, DoF
2. Mr Florian Rock, Adviser, Land Policy Development Project, NLMA
3. Mr Peter Jones, Land Use Adviser

Stake-Holders

Numerous stake-holders representing government agencies, development programs projects and INGOs, provided valuable support and technical contributions.

FOREWORD (1 page)

Minister of Agriculture and Forestry

(To be inserted)

Statement of Commitment (Endorsement)

Head, Administration Office, National Land Management Authority

(to be inserted)

Purpose and Objectives of the Manual

The purpose, objectives of the manual as outlined in the inter-agency Memorandum of Understanding (MOU) are summarised below.

Purpose:

To document improved approaches and procedures that can be used for future participatory forest and agricultural land use planning (PLUP) at village and village cluster levels, and in a range of different situations in the Lao PDR.

Objectives:

- Explain the participatory approaches that should be adopted by practitioners when undertaking PLUP.
- Explain working stages, steps, methods, implementation standards, equipment needed, and outputs required.
- Train and prepare provincial and district staff for implementing PLUP at village and village cluster levels.
- To specify the roles and responsibilities of the respective line agencies contributing to PLUP activities at village and village cluster levels in Lao PDR.
- Describe the links between PLUP and land registration in rural areas.
- Define flexible methods that should be applied in specific situations at village and/or village development cluster levels.
- Provide guidance on procedures and methods that are required to enable villagers to register and title communal village forest areas and individual agricultural land parcels.
- To explain how linkages are developed between the relevant agencies in the process of village boundary delineation, agricultural and forest land use zoning, land parcel registration and the extension service.

End users:

Persons at various levels in relevant government agencies, donors, NGOs and the private sector.

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Authorisation and ownership was approved by the Minister of Agriculture and Forestry and the Administrative Office of the National Land Management Authority.

Abbreviations

ADB	Asian Development Bank
AF	Affected People
BZ	Buffer Zone
CES	Community Education Services
CUZ	Controlled Use Zone
CZ	Corridor Zone
DAFO	District Agriculture and Forestry Office
DLMA	District Land Management Authority
DoF	Department of Forestry
FAO	Food and Agriculture Organisation
FIPD	Forestry Inventory and Planning Division
FMA	Forest Management Area
FSIP	Forestry Strategy Implementation Pilot Project
FLUPAM	Forest and Land Use Planning, Allocation and Management
FLuZaP:	Forest Land Use Zoning and Planning
GIS	Geographic Information Systems
GoL	Government of Lao
GPS	Geographic Positioning System
INGOs	International Non-Government Organisations
LWU	Lao Women's Union
LNRRIC	Land and Natural Resources Research and Information Centre
LEA	Lao Extension Approach
LEAP	Lao Extension for Agriculture Project
LFMC	Land and Forest Management Committee
LLTP II	Lao Land Titling Program II
LSFP	Lao Swedish Forestry Programme
LSUAFRP	Lao Swedish Upland Agriculture and Forestry Research Programme
LUP	Land Use planning
LUP-LA	Land Use Planning and Land Allocation (former approach)
LUZ	Land Use Zoning
MAF	Ministry of Agriculture and Forestry
MOU	Memorandum of Understanding
NAFES	National Agriculture and Forestry Extension Service
NAFRI	National Agriculture and Forestry Research Institute
NPA	National Protected Area
NPF	National Protection Forest
NLMA	National Land Management Authority
NSC	National Statistics Centre
NSEDP	National Socio-economic Development Plan
NTFPs	Non Timber Forest Products
PAFO	Provincial Agriculture and Forestry Office
PBA	Participatory Biodiversity Assessment
PLMA	Provincial Land Management Authority
PLUP	Participatory Land Use Planning (future program)
PFA	Production Forest Area
SAT	Systematic Adjudication Team
SCSPP	Shifting Cultivation Stabilisation Pilot Project
SCSD	Shifting Cultivation Stabilisation Division
TAG	Technical Advisory Group
TLUC	Temporary Land Use Certificate
TPZ	Totally Protected Zone
TWT	Technical Working Team
VDP	Village Development Plan
WREA	Water Resources and Environmental Agency

Glossary of Terms

(As applied at village and village cluster levels)

Data Collection: Gathering essential socio-economic, land and forest data from village clusters, village, and families to undertake land use zoning and land management planning.

Boundary Delineation: Identifying, surveying and mapping village cluster and village management areas in consultation with village cluster officials, village authorities and villagers.

Participatory Land Use Zoning: A process of defining and mapping agricultural and forest land use zones within defined village and/or village cluster management areas, in consultation with village cluster officials, village authorities and villagers, i.e, agriculture, forest, grazing, and other land uses.

Participatory Land Management Planning: A process of defining development practices within defined village and/or village cluster land use zones in consultation with village cluster officials, village authorities and villagers.

Land Management Plans: Activity plans developed for each of the forest and agricultural land use zones defined within a village or a village cluster management area using the planning process explained above.

Village Managed Land Allocation: A system of equitable distribution and management of agricultural land parcels within the defined agricultural land use zone/s by Village Authorities, Village Land Unit and the Village Land and Forest Management Committee, which is officially recognised by the District Administration.

Village and Village Cluster Network: A mechanism recognised by the District Administration to enable the villages and village cluster to co-operatively manage and use natural resources within village and village cluster management areas.

Networking: Activities conducted by village representatives within villages and the village cluster to ensure co-operative management and use of natural resources.

Land Data Record Keeping: The systematic storage of PLUP information and maps at relevant district and provincial offices, using either manual or electronic methods depending on the capacities and capabilities of staff at these offices.

Digital Mapping: The use of GIS to produce various village cluster and village forest and agricultural land use maps produced from participatory land use zoning activities making use of satellite images, topographic maps, aerial photographs and GPS.

Rural Land Registration: A process of systematic adjudication, survey and mapping in rural villages to determine individual, communal or state ownership of forest, agricultural and residential land parcels to enable the registration and issue of land titles.

Collective or Communal Land: Land belonging to co-operatives, collective organisations, and village lands collectively used by groups of people or ethnic groups in a village, including: land allocated to households for undertaking seasonal agricultural production with no individual having definite ownership, village use forest, sacred forest and cemeteries, lands for organising traditional or religious rites, and common grazing land.

Individual or Private Land: Land where land use right is established by 1) having a complete set of land documents, or 2) peaceful occupancy and use of the land for ten years with some land documents, or 3) occupancy and use of the land after re-settlement, or 4), customary occupancy and use of the land without any land documents but verified by the village head and at least three neighbours, or 5) land use right from peaceful and lawful occupation and development for a period of 20 years.

State Land: Land administered by authorities at central, and local levels, public land, defence land, public security land, communication land, and other land that belongs to the state, land of Lao people who fled abroad, and land that the court has ruled is state land including village conservation and protection forest categories.

Monitoring: The systematic and continuous process of assessing the progress and changes caused by the implementation of an activity over a certain period of time, usually using pre-determined indicators.

Village Development Cluster (Kumban): A formal administrative grouping of villages within a District defined for the purpose of extending government policies and development programmes.

Village Re-location: The relocation of a village or villages by the District Administration from their former more isolated sites to merge with a host village/s in more accessible and suitable locations to facilitate socio-economic development and better community services.

Resettlement: The movement of communities from their former location to a selected location as a consequence of industrial, mining or hydro-power developments, including compensation for land and other assets and rights foregone at their former location.

TABLE OF CONTENTS

PART I

1 INTRODUCTION

2 LAND USE PLANNING IN THE LAO DEVELOPMENT CONTEXT

3 INTRODUCTION TO THE IMPROVED PLUP APPROACH

4 PARTICIPATORY LAND ZONING AND MAPPING TOOLS

PART II

5 STANDARD PARTICIPATORY LAND USE PLANNING PROCEDURES

5.1 PROCESSES IN CLUSTER LEVEL LAND USE ZONING AND PLANNING

5.2 SUMMARY OF PLUP STAGES

STAGE 1: PREPARATION FOR PARTICIPATORY LAND USE PLANNING

STAGE 2: SOCIO-ECONOMIC, LAND AND FOREST DATA COLLECTION

STAGE 3: DELINEATION OF VILLAGE AND VILLAGE CLUSTER BOUNDARIES

STAGE 4: VILLAGE AND VILLAGE CLUSTER FOREST AND AGRICULTURE LAND USE ZONING

STAGE 5: VILLAGE AND VILLAGE CLUSTER LAND MANAGEMENT PLANS

STAGE 6: LAND DATA RECORD KEEPING AND DIGITAL MAPPING

STAGE 7: LAND REGISTRATION AND TITLING IN RURAL VILLAGES

STAGE 8: VILLAGE AND VILLAGE CLUSTER NETWORKS & NETWORKING

STAGE 9: MONITORING AND EVALUATION

PART III

6 LAND USE PLANNING IN SPECIFIC SITUATIONS

6.1 LAND USE PLANNING IN PRODUCTION FOREST AREAS

6.2 LAND USE PLANNING IN NATIONAL PROTECTED AREAS (NPAs)

6.3 LAND USE PLANNING IN NATIONAL PROTECTION FORESTS

6.4 LAND USE PLANNING IN RELOCATION VILLAGES

6.5 LAND USE PLANNING IN AGRICULTURAL LAND CONCESSION AREAS

6.6 LAND USE PLANNING IN RE-SETTLEMENT VILLAGES

ANNEXES

PART I

BACKGROUND

TABLE OF CONTENTS

PART I

1 INTRODUCTION	1
2 LAND USE PLANNING IN THE LAO DEVELOPMENT CONTEXT	3
2.1 RELEVANT POLICIES, PROGRAMS AND LEGAL FRAMEWORK	3
2.1.1 POLICIES AND PROGRAMS	3
2.1.2 RELEVANT LEGAL DOCUMENTS	4
2.2 CHANGES AFFECTING RURAL AREAS	5
2.3 PAST ACHIEVEMENTS, DEFICIENCIES AND ISSUES	6
3 INTRODUCTION TO THE IMPROVED PLUP APPROACH	8
3.1 PRINCIPLES OF PARTICIPATORY LAND USE PLANNING	8
3.2 INTER-AGENCY LINKAGES AND CO-OPERATION	9
3.2.1 ROLES AND RESPONSIBILITIES OF DISTRICT AGENCIES	9
3.2.2 LINKING PLUP AND AGRICULTURAL EXTENSION	10
3.3 FLEXIBILITY IN LAND USE ZONING AND PLANNING	11
3.4 GENERAL RECOMMENDATIONS	12
4 PARTICIPATORY LAND USE ZONING AND MAPPING TOOLS	14
4.1 RATIONALE	14
4.2 TOPOGRAPHIC MAPS	14
4.2.1 SOURCE, AVAILABILITY AND COST OF MAPS AND MAP DATA	14
4.2.2 CONSIDERATIONS FOR USING TOPOGRAPHIC MAPS	16
4.2.3 PREPARATIONS FOR USING MAPS FOR FIELD WORK	16
4.2.4 IMPORTANT POINTS WHEN USING TOPOGRAPHIC MAPS	16
4.2.5 CONCLUSIONS REGARDING TOPOGRAPHIC MAPS	16
4.3 AERIAL PHOTOGRAPHY	17
4.3.1 SOURCE, AVAILABILITY AND COST OF AERIAL PHOTOS	17
4.3.2 CONSIDERATIONS FOR USING AERIAL PHOTOS AND PHOTO-MAPS	17
4.3.3 PREPARATIONS FOR USING PHOTO-MAPS FOR FIELD WORK	18
4.3.4 IMPORTANT POINTS WHEN USING AERIAL PHOTOS	18
4.3.5 AERIAL PHOTO-MAPPING OUTPUTS AND CONCLUSIONS	18
4.4 SATELLITE IMAGERY	19
4.4.1 SOURCE, AVAILABILITY AND COST OF SATELLITE IMAGERY	19
4.4.2 CONSIDERATIONS FOR USING SATELLITE IMAGERY AND IMAGE-MAPS	21
4.4.3 PREPARATIONS FOR USING IMAGE-MAPS FOR FIELD WORK	22
4.4.4 IMPORTANT POINTS WHEN USING THE AERIAL PHOTO-MAPS AND SATELLITE IMAGE-MAPS	22
4.4.5 SATELLITE IMAGE MAPPING OUTPUTS AND CONCLUSIONS	22
4.5 GLOBAL POSITIONING SYSTEM (GPS)	23
4.5.1 SOURCE, AVAILABILITY AND COST OF GPS	23
4.5.2 CONSIDERATIONS FOR USING GPS	24
4.5.3 PREPARATIONS FOR USING GPS FOR FIELD WORK	24
4.5.4 IMPORTANT POINTS FOR USING GPS	25
4.5.5 GPS OUTPUTS AND CONCLUSIONS	25

1 INTRODUCTION

In response to the PMO's Instruction No.03/PM, June 1996 on the Continuation and Expansion of Land Management and Land and Forest Allocation, and the MAF Guideline No. 822 of August 1996 on Land and Forest Allocation for Management and Use, a manual named the "Participatory Land Use Planning and Land Allocation Manual" was produced with support from the Lao Swedish Forestry Program in October 1997. It comprised a set of eight stages and 23 steps and had four objectives:

- Training members of the DoF central LUP-LA support teams
- Training provincial and district staff involved in LUP-LA
- To assist the development of curriculum on LUP-LA at the Xepon and Xieng Ngeun Forestry Training Schools
- To serve as a guide for agencies and projects implementing LUP-LA

During the period 2001 to 2006 LUP-LA continued in most provinces, after which there was a slow down of activity because it had been undertaken in the majority of rural villages in Lao PDR and there was a marked decrease in funds made available by the GoL for LUP-LA. In July 2006 the Eighth Party Congress introduced new development strategies covering 11 priority programs and 111 projects within which the Ministry of Agriculture and Forestry (MAF) elaborated a policy framework of 4 Key Goals and 13 Measures for the agriculture and forestry sector. The four goals are:

1. Production for guaranteed food security
2. Commodity production
3. Stabilisation of shifting cultivation
4. Sustainable forest management

Measure II, "the survey and allocation of agriculture and forestry zones", includes an activity named "completing forest and land allocation" for which three types of activities were specified; 1) improving land use planning in villages where it was not implemented properly in the past, 2) completing land use planning in villages where all the steps were not undertaken, and 3) undertaking it in villages where it was not previously undertaken.

Prime Minister's Instructions No.09/PB in 2004, and Instruction No/13 in May 2007 on "Building Villages and Village Development Clusters" required that: "land use planning and allocation instructions be given to provinces in order to ensure the continuity and sustainability of village and village cluster development based on the Land Law and the land and forest allocation policy. It stated further that the National Land Management Authority (NLMA) and MAF shall co-ordinate with local authorities to review and evaluate the implementation of land and forest allocation through-out the country, to improve the policy and process appropriate to new conditions, and to issue instructions and references for local authorities on appropriate land allocation. Sufficient land would be made available for village livelihoods, i.e., agriculture, grazing, fruit trees, and use forest, while conserving natural resources".

In response to the above government initiatives the Forestry Strategy Implementation Promotion Project (FSIP), being implemented by the DoF, defined a project titled Action 5-1: Development and Dissemination of New Land Use Planning and Land/forest Allocation (procedures). This program is regarded by the GoL as a measure to reduce shifting cultivation and poverty and is being implemented by a multi-stakeholder working group. The Shifting Cultivation Stabilisation Division (SCSD) of NAFES is playing the leading role, in co-operation with the DoF, the National Agriculture and Forestry Research Institute (NAFRI) and the National Land Management Authority (NLMA), with support from an international adviser. A Memorandum of Understanding (MOU) was prepared in early 2008 and a Technical Advisory Group was formed to develop new approaches and procedures and prepare an improved manual. The manual preparation activities commenced in April 2008 and were completed in August 2009.

The objective of the MOU is to formalize arrangements between MAF and NLMA regarding development, dissemination and use of the manual on participatory land use planning at village and village development cluster level (PLUP). The aim is that the parties work closely together in developing the procedures and methods, build a common understanding of the roles and responsibilities of each agency, and reduce duplication among the agencies. The MOU was

also signed by the three supporting donors, JICA, Sida and GTZ.

The intended result is to produce a manual that describes a revised and standardised approach for PLUP in villages and village clusters for use through-out the country regardless of whether funding is sourced from the government, donor projects, international non-government organisations (INGOs) or the private sector. Never-the-less, flexibility in applying the new approach has been incorporated in the document to guide land use planning staff working in different situations, e.g., protected forest areas, conservation areas, re-located villages etc.

The development of the improved approaches for PLUP are based on experiences, knowledge and information from several sources;

- The past government program of LUP-LA since it's inception in 1995-96
- Projects that have supported the GoL LUP-LA program in the last several years
- A series of pilot LUP exercises conducted by the SCSD Technical Working Group in different regions of Lao PDR
- Literature review of relevant studies, publications and references
- Stakeholder consultations (government, INGOs, investment companies)

2 LAND USE PLANNING IN THE LAO DEVELOPMENT CONTEXT

In the early 1990's the Lao PDR national economy was only just starting to develop in response to the GoL's new economic policy. At that time the government's priorities were directed at preventing further loss of forest cover and reducing shifting cultivation practices. The shifting cultivation stabilisation program was initiated in 1989 and the land and forest allocation program was introduced in the early 1990's to support the shifting cultivation program. The objectives of the LUP-LA program were:

- Efficient and sustainable management and use of land, forest, and water resources, including the maintenance of existing forest land and gradual expansion of the forest area
- To restrict and achieve full stabilisation of shifting cultivation
- Increased production of food crops and grain production
- Promote investment in commercial production and family income generation
- Preparation of plans for the allocation of all types of land so that land users across the country recognise themselves as long term managers and owners.
- Establish a national and unified agricultural and forest land management system to facilitate the monitoring and control of land use and to facilitate the collection of land taxes

The rural development program, including focal site development, commenced in 1995-96, and from that time onwards the shifting cultivation programme, the land and forest allocation programme and the rural development programme have been mutually supportive of the policy of reducing shifting cultivation.

2.1 Relevant Policies, Programs and Legal Framework

Several policies, programs and legal instruments were released over the last 20 years to direct and guide the former LUP-LA program. These are summarised in the table below:

2.1.1 Policies and Programs

Policies and Programs	Purpose
GoL, 1989: Shifting Cultivation Stabilisation and Arranging Permanent Occupations Program	Eliminate shifting cultivation practices by focussing on agriculture and livestock to reduce poverty in focal zones; environmental protection; forest and land allocation; promotion of "permanent occupations"; food self sufficiency.
GoL - MAF 1993: Village Land Use Planning and Land Allocation Program	Allocate forest and agricultural land for villager use; contain and reduce shifting cultivation; promote "permanent occupations" through LUP-LA.
GoL 1995-96: Rural Development Program (Focal Site Strategy)	Concentrate in Focal Development Areas in order to create small towns; food security, commercial agricultural production, eliminate shifting cultivation, foreign co-operation and services.
MAF, 1999: Strategic Vision for the Agriculture and Forestry Sector	The Vision document, Section 3.5.5, reinforced the importance of village level land use planning. The Vision Document reiterates the provisions of Article 17 concerning the Determination of Right Limits for Using Agricultural Land of the Land Law, 2003. It states that temporary land use certificates can be converted to permanent land certificates if the land was developed according to the plan.
GoL, 2004: (Directive No 09/PB on Establishment of Villages and Village Cluster Development	This directive, encourages the political grass roots committee to implement the policy of eliminating shifting cultivation, in order to improve rural development, address poverty and establish village cluster boundaries, village cluster development plans, and multi-sector staffing at Village Cluster Service Centres

GoL-MAF, 2005: Forestry Strategy to the Year 2020	The Forestry Strategy defined the following actions for village and village cluster land and forest management: review and improve agriculture land and forest allocation to impact positively on villager livelihoods by flexible implementation according to village and village cluster socio-economic conditions; introduce participatory land use planning (PLUP); and clarify the status of Temporary Land Use Certificates (TLUCs) issued more than three years ago
MAF, 2006: The Four Goals and Thirteen Measures for Agriculture and Forestry Development	These were specified to improve implementation of the agriculture and forestry sector policies under the 6th National Socio-economic Development Plan (NSED) and the 8th Party Congress Work Plan. The four central sector goals are: <ol style="list-style-type: none"> 1. Production to guarantee food security; 2. Commercialisation of agriculture and commodity production; 3. Stabilising shifting cultivation for poverty reduction; 4. Sustainable forest management.
MAF, 2006: Plan for Substituting Rice Based Shifting Cultivation Practices (2006-2010)	To achieve the policy directions of the 8th Party Congress and the MAF 6th five-year sector development plan; implement goal 3 of the 4 MAF goals; to change shifting cultivation occupations to more permanent occupations; increase family income; increase forest cover and improve the condition of forests
GoL, 2007: Instruction No. 13/PM on Building Villages and Village Development Clusters	To ensure the continuity and sustainability of village and village cluster development based on the Land Law and the participatory land use planning policy at the village and village cluster levels in order to re-evaluate the implementation process of land and forest allocation through-out the country, to improve the policy and process appropriate to new conditions, and to issue concrete instructions and references on balanced land allocation for local authorities.

2.1.2 Relevant Legal Documents

The most relevant legal documents for village and village cluster participatory agriculture and forest land use planning are indicated below.

No.	Title of Legal Document
1	O3/PM, June 1996: Instructions and Recommendations on the Continuation and Expansion of Land Management and Land and Forest Allocation
2	822/MAF, August 1996: Directives on Land and Forest Allocation for Management and Use
3	No. 0054/MAF, 1996: Ministerial Approval/Decision on Customary Use Rights of Forest Resources
4	The Land Law, October 2003
5	Decree No 192/PM, July 2005, on Compensation and Resettlement for Affected People by Development Projects
6	Forestry Law, (revised 2007)
7	Ministerial Direction No. 564/NLMA, August 2007 on Adjudication Pertaining to Land Use and Land Occupation Right for Registration and Land Titling
8	Draft Prime Ministerial Decree on State Land Leases and Concessions, 2007
9	Instruction No. 1668/NLMA. CAB, dated 29 April 2008: on the Use of New Formats of Land Titles and New Registration Book
10	Decree No. 88/PM on the Implementation of the Land Law, June 2008
11	Draft PM Decree ... on Protection Forests, 2009
12	DoF September, 2008: Handbook on Village Rights and Responsibilities to Manage and Use Forests, Forest Land, Aquatic Animals and Wildlife".

2.2 Changes Affecting Rural Areas

In recent years the situation in rural areas has changed rapidly because of the transition to a market economy and changes in government policy. Table 1 indicates some of the changes that have occurred and the adjustments in the approach to the former LUP-LA program at the village and village cluster levels that are required to meet the changing situation.

Table 1: Summary of the Changes Affecting Rural Areas

Changes Occurring	Appropriate Adjustments to LUP-LA
Commercial agriculture and large scale concessions are expanding rapidly causing pressure on agricultural land and forests	More accurate and appropriate land use planning is needed to guide commercial development by farmers and investors at village and village cluster levels
The village cluster development policy was introduced in 2004 (09/PB) and reinforced in 2007 (13/PM) and 2008. 1,168 kumban and 158 Technical Service Centres have been established by government authorities.	A “kumban approach” to land use planning needs to be introduced and staff capacity and capability improved so that land use planning can be implemented effectively from the Technical Service Centres established by MAF agencies
The GoL has recognised that a standard LUP-LA approach in all locations and situations is not feasible.	Several PLUP options or approaches are needed in different landscapes and situations, e.g., production forest areas, protected forests, conservation forests and other situations
Land use survey and mapping methods used in the past are becoming outdated and non-sustainable	There is a need to use accurate mapping tools for land use planning and land registration purposes
It is now recognised that monitoring land use on agricultural parcels to promote “permanent occupations” is not feasible because of limited staff resources and limited budget availability at district and kumban levels	There is a need to change the focus of land use monitoring from the “individual plot” level to “land use zone” level in villages and village clusters to produce information that can be used to plan agricultural and forestry investments
The recent re-organisation in MAF, NLMA and the Water Resources and Environmental Agency (WREA) has changed the responsibilities and roles of the agencies authorised to manage agriculture and natural resources	An adjustment in roles and responsibilities in the DAFO, DLMA is necessary to reduce duplication of PLUP efforts at the village and village cluster levels.
Rapid agricultural commercialisation by investors has become a problem for management and use of land at the village and village cluster levels.	Better co-operation and more staff are needed in DAFO and DLMA for planning the effective management and use of land at the village and village cluster levels.
The GoL has adopted the Lao Extension Approach (LEA), concentrating of group formation and production, however to date linkages to land use planning and the extension system have not been achieved	Land use planning and extension responsibilities need to be clearly allocated and work activities linked so that continuity is attained in the overall village development process
The expansion of concessions has increased pressure on village land, and increased food insecurity and family malnutrition..	PLUP is required in concession areas to ensure that adequate land is available for families, to address the alarming levels of mal-nutrition in rural areas
Natural population growth and re-location have led to a dramatic increase in population density in some villages causing negative impacts on forests and agricultural land	In re-location villages the number of migrants should be limited and PLUP should be deferred until population movement to host villages has stabilised.
DAFO staff members have not gained sufficient experience from past LUP-LA exercises, and the number of staff is inadequate	Increase the numbers and provide training for DAFO staff and village authorities, and the village forest and land management committees.

Villagers have limited participation in activities to discuss and identify and make decisions on land for plantation concessions in villages areas	Procedures to identify land for agricultural concessions need to be incorporated in the PLUP approach.
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2.3 Past Achievements, Deficiencies and Issues

2.3.1 Achievements

It was reported by MAF in its 2007 Annual Progress Report on Shifting Cultivation Stabilisation that village level land use planning and land allocation programs had been completed in 7,130 villages and reached 443,523 families. In 2008 there remained 8,025 ha of pioneer shifting cultivation, and 10,160 families.

A total area of 10,860,000 hectares of land had been allocated, of which 4,210,000 hectares was agricultural land and 6,650,000 hectares was forest land of different categories. The MAF Rural Development Program Assessment Report (2005) suggests that the LUP-LA program and the permanent occupations strategy had facilitated the reduction of shifting cultivation from 118,900 hectares in 2001 to 29,400 hectares in 2005.

Despite these reported achievements, a range of deficiencies and issues in the past LUP-LA program have been reported, a summary of which is provided in the table below.

2.3.2 Deficiencies and Issues

Issue/Topic	Description of Issue
Village land use zoning	<ul style="list-style-type: none"> a) In the LUP-LA program, land use zoning was not completed in all of the country's villages because districts lacked funds, staff, and experience b) Insufficient agricultural production areas were zoned for villagers
Agricultural land allocation	<ul style="list-style-type: none"> a) Land allocation of family agricultural land parcels was actually undertaken in a small proportion of villages b) Small numbers of agricultural parcels were allocated to families in most villages in which land allocation was undertaken
Livelihoods and food security	<ul style="list-style-type: none"> a) Land allocation had marginal effect on improving rural livelihoods b) LUP-LA staff had limited awareness of the risks of allocating limited production land for livelihoods because they focussed on controlling shifting cultivation
LUP-LA process	<ul style="list-style-type: none"> a) Participatory LUP-LA approaches were inadequate b) After LUP-LA there was inadequate extension and monitoring activity c) LUP-LA information was not stored systematically
Land tenure	<ul style="list-style-type: none"> a) Villagers claim forest land for agricultural purposes b) In rural areas villagers did not receive permanent land use rights (land titles) c) Formal LUP-LA (land allocation) removed the flexibility of traditional agricultural land distribution systems
Village re-location and merging	In host villages re-location has the following effects; increasing land transactions, reducing village forest areas, increasing pressure on arable production land, and increasing land conflicts between villages
Inflexible land allocation criteria	Using a fixed criteria of allocating two, three and four parcels of agricultural land to families increased land use intensity and soil degradation

Increasing population	Calculating population trends was not usually incorporated in LUP-LA procedures when allocating agricultural land and village use forest areas, which results in insufficient production land and use forest in the future
Land tax	Farmers did not declare all the agricultural parcels they were using to avoid land tax.
Data storage	LUP-LA data and land use maps were inadequately stored resulting in the loss of a large proportion of the information and maps.
Resources	The effectiveness of the program was reduced by inadequate staff resources, limited equipment and materials, limited budget, and inadequate training of district staff.
Land concessions	Legal documents such as land use maps and village land and forest management agreements were rarely used for planning commercial land development activity

These assessments indicate the need to improve the purpose, objectives and procedures for village and village cluster land use planning. The most important issues to address are:

- Ensuring that land use zoning methods result in an equitable balance between forests and agricultural land categories, i.e., making sure villages have adequate agricultural land
- Reducing the emphasis on using PLUP as a mechanism for shifting cultivation reduction and increasing the focus on PLUP as a means of increasing land tenure security
- Ensuring increased participation of villagers in land use planning activity and land and forest management
- Increasing the opportunities of rural villagers to attain land titles for developed land parcels
- Targeting the program in critical areas, where there are significant impacts on land ownership and land use practices, e.g., commercial agricultural development areas relocation villages, etc
- Agreeing on the clear allocation of roles and responsibilities between MAF and NLMA for village and village cluster PLUP
- Utilising village and village cluster PLUP information effectively to facilitate the planning and management of commercial land development activity
- Developing storage and retrieval systems for PLUP information at central provincial and district levels, through the improvement of staff capacity in the application of Geographic Information Systems (GIS) tools

3 INTRODUCTION TO THE IMPROVED PLUP APPROACH

The overall approach described in this manual concentrates on land use zoning at the village and village cluster levels. This follows the trend of past years in most provinces and districts where effort was focussed on village boundary delineation and land use zoning. The Shifting Cultivation Stabilisation Pilot Project, (SCSPP, 2001-2006) implemented in Houa Phan Province developed alternate procedures and methods, summarised in Box 1, that focussed on land use zoning at village and village network levels.

Box 1: Alternate Procedures and Methods for Land Use Planning

The SCSPP approach to LUP/LA is based on the understanding that shifting cultivation of the 'pioneer' type (where undisturbed forest land is felled for cultivation), and that the cultivation of land for agriculture using forest fallow rotations in agreed agricultural zones is acceptable (MAF 2001). This approach, with some adaptations, is appropriate for the physical and socio-economic conditions found in mountainous upland and other areas, and can be implemented by district and provincial agencies with limited staff and financial resources. The aim was to contain shifting cultivation within agreed agricultural land use zones while providing villagers with agricultural and forest land-use entitlements and benefits. The first phase focuses on village boundary delineation and land-use zoning. A second phase concentrates on monitoring villager agriculture and forest land use and inter-village networking activity, while a third phase, land allocation, provided agricultural land tenure entitlements to families within the defined village agricultural zones.

On the 3rd June 2008 participants at a Technical Working Team (TWT) and Technical Advisory Group (TAG) meeting discussed and agreed that land use zoning was a preferred land use planning approach and should be the focus of the PLUP model. A meeting of PLUP stakeholders on 29th August 2008 formally adopted the land use zoning approach after viewing presentations made by stakeholders and discussing various models that the GOL, donors and companies have conducted in recent years.

3.1 Principles of Participatory Land Use Planning

The above stakeholder meeting agreed on several principles that should be adopted in a land use zoning approach at village and village cluster levels. A summary of these principles is provided in the table below.

Village cluster	The village cluster or "kumban" will be the unit adopted for PLUP. Village and village cluster PLUP procedures will be implemented so they contribute to the development of district development plans.
Participation and Gender	The procedures need to be more participatory to ensure that villagers are fully involved in decision making particularly in land zoning and preparing land use plans. In addition, attention needs to be paid to involving both men and women in all stages of the process, e.g., when considering agriculture and forest land use practices and land use rights.
Recognition of villager rights	The rights of villagers must be explained thoroughly before land use zoning and land use planning is initiated and be observed during the process of allocating forest and agricultural lands. In this respect the involvement of the Lao Women's Union in community education services as developed and practised by the Lao Land Titling Project should be incorporated in the procedures.

Relevance and benefits	The procedure needs to be implemented in such a way that villagers understand how the end results will benefit them, e.g., their rights to manage agricultural and forest lands will be ensured by provision of secure land use right certificates.
Ethnic land use	Various ethnic groups practice different land use systems and farming practices which necessitates a flexible approach to such activities as forest and land use zoning and the development of land management plans.
Agency roles and responsibilities	The roles and responsibilities of the of the key agencies involved in PLUP need to be clarified and adopted to ensure the process is implemented effectively
Land use zoning and land management plans	Land use zoning will ensure that land uses within the villages in a village cluster are appropriately delineated to provide for sustainable livelihoods for future populations. Land management plans will aim at a balance between the sustainable use of agriculture and forest land.
Land registration	Land registration in rural areas is required to ensure that the land tenure rights for both individual and communal lands are satisfied.
Monitoring	Monitoring of village land use zoning and land management plans must be integrated into the PLUP process so the effectiveness and impact of the PLUP process on natural resource management and use can be measured.
Inter-village networks and networking	Networks will be used as a tool to encourage inter-village co-operation in the management of land use zones and land management plans in villages and between villages in the village clusters.

3.2 Inter-agency Linkages and Co-operation

It is important that inter-agency linkages and co-operation are established between the relevant agencies in order that information from the PLUP processes is utilized to continue with the tasks of land registration and extension and development. The key agencies concerned with the process of PLUP and agriculture and forest land registration at the village and village cluster levels are MAF and NLMA.

3.2.1 Roles and Responsibilities of District Agencies

The formation of the NLMA and the establishment of provincial and district land management offices means that the roles and responsibilities of staff concerned with the management of natural resources has changed from the past. At the district level, the roles and responsibilities for village cluster and village agriculture and forestry land use planning activities are now shared and /or divided between the District Authorities or District Administration, the DAFO and the DLMA.

The District Authorities:

Delegating and assisting DAFO and DLMA with such tasks as:

- Mediating unresolved village boundary and land use disputes
- Submitting village boundary agreement to the Provincial Governor for approval
- Verifying and authorising agriculture and forest land management plans and forest and agricultural land management agreements prepared by DAFO and DLMA
- Rural land registration
- Approving agricultural land development proposals

(Note: Article 50 of the Law on Local Administration concerning the establishment of villages, states that boundaries will be approved by the Provincial Governor according to proposals from the District Governor.)

DAFO and DLMA:

These two agencies share responsibilities for:

- Gathering socio-economic, agriculture land and forest land data
- Village and village cluster boundary surveys and delineation
- Analysis of current land use, agriculture and forest land use zoning and mapping
- Village and village cluster agriculture and forest land management plans and agreements
- PLUP information and map storage
- Providing agriculture and forest land information to facilitate land registration by DLMA

DLMA:

- Preparing village and village cluster land use plans for all categories of land for submission to District Authorities (District Governor) for endorsement
- Receiving agriculture and forest land information from DAFO to use in individual and communal land registration activity
- Undertaking land adjudication and registration
- Recording and storage of land information.

DAFO:

- Village and village cluster networks and networking
- Monitoring the results and impacts of PLUP

Agricultural land and communal forest land registration are conducted following procedures explained in Part 2, Stage 8, titled “Land Registration in Rural Villages”.

3.2.2 Linking PLUP and Agricultural Extension

At present the linkages between land use planning (LUP) and extension at the village and village cluster levels are not well developed. Attempts were made to develop continuity between LUP and extension activities within the former LUP-LA procedures and steps adopted by the GOL.

These proposals were generally unsuccessful as it was later acknowledged that the extension activities should not be a part of village land use planning. The constraints to achieving continuity between LUP and extension at that time were:

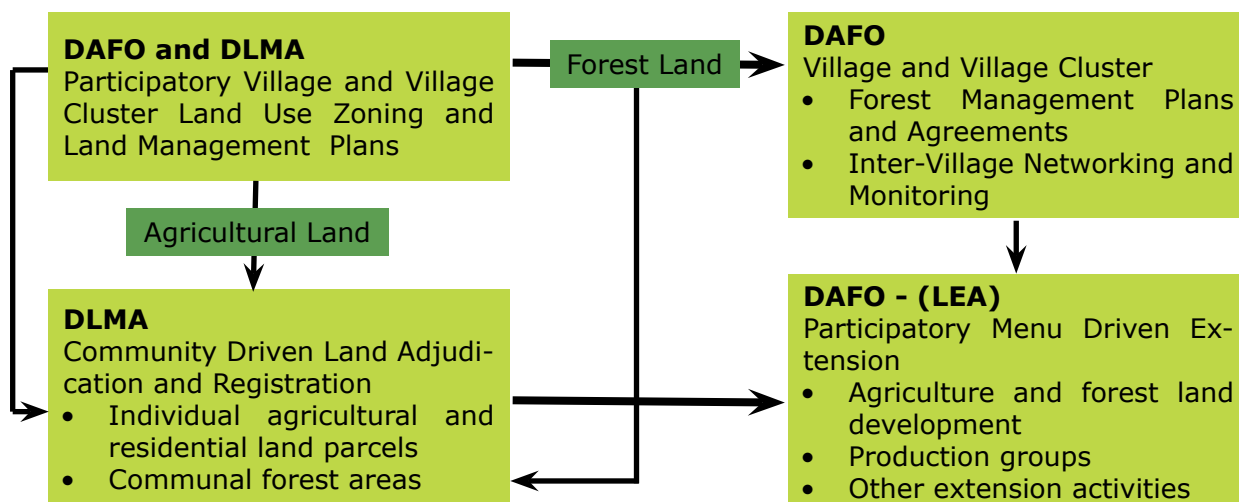
- There was no activity in the eight step procedure to prepare village land use and management plans
- ‘Extension’ could not be subsumed in the LUP-LA procedures because it is a process in itself

More recently the NAFES teams conducting PLUP pilot activity became engaged in production group formation activity after land use zoning and agricultural and forestry land management plans had been prepared with a view to linking PLUP and extension. This activity, however, is an extension function not a land use planning function. In addition, the Lao Extension Approach (LEA) has aligned its capacity building activities to strengthen extension activity at the village cluster level for which the DAFO extension staff are trained and responsible.

It is therefore preferable that extension activity, such as production group formation, is taken up by DAFO extension staff responsible for activities such as agriculture and livestock, and forestry development, using the socio-economic, land use and forest use data and maps prepared by land use planning staff. After land use zoning is completed and forest and agricultural land management plans are prepared, the PLUP staff should focus on continuing with the functions of village and inter-village networking within village clusters, including the proper storage of PLUP information and maps for land registration purposes, and monitoring of PLUP activities.

The linkages between the functions of PLUP, extension and land registration are illustrated in Diagram 1.

Diagram 1: Linkages between PLUP, Extension and Land Registration Functions

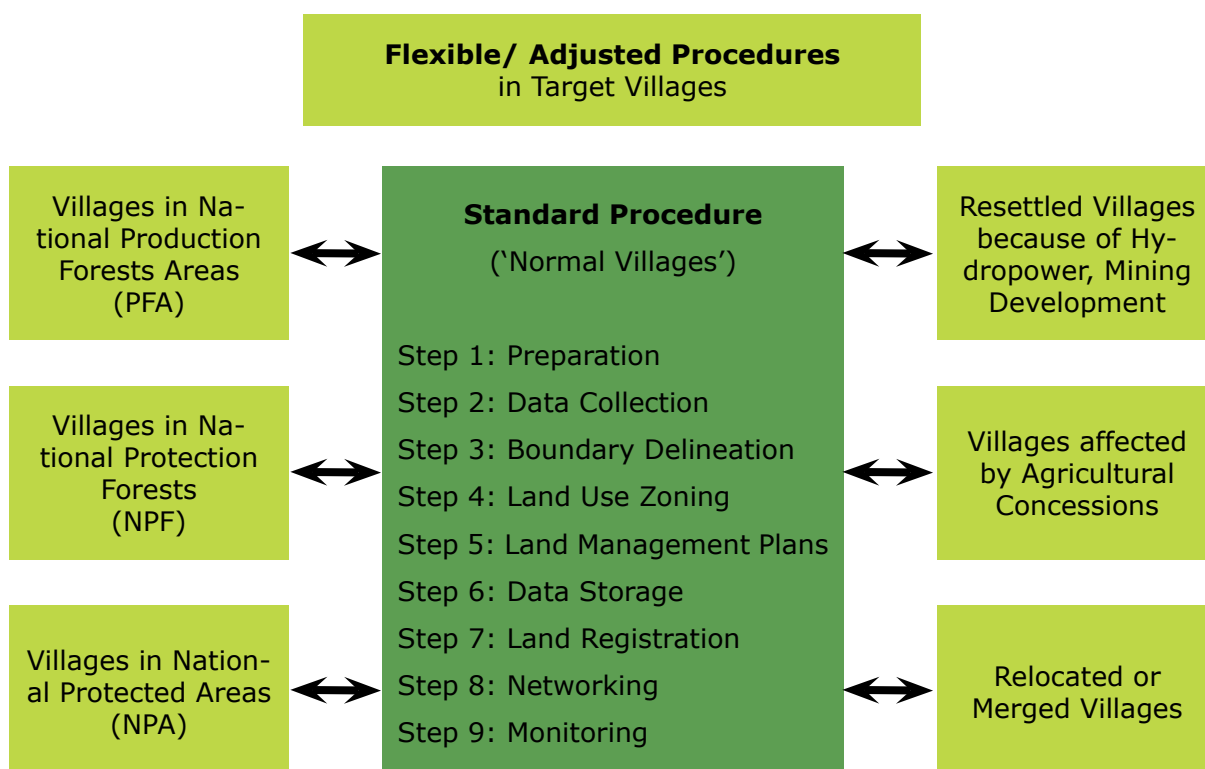


3.3 Flexibility in Land Use Zoning and Planning

While a set of general or standard PLUP procedures and steps is required in normal villages, “flexibility and adaption” needs to be built into these procedures to meet the particular requirements of different situations.

Diagram 2 illustrates the nine stages used in a standard approach to PLUP and the six different situations in which flexibility in the approach is required.

Diagram 2: Standard Stages and Flexible Procedures in PLUP



3.4 General Recommendations

The following key recommendations are proposed for consideration by the agencies concerned with PLUP activities in the implementing agencies of MAF and NLMA.

Approaches, Procedures and Methods

- The village and village land use zoning and land use planning approach as described in Part 1, Chapter 3 of this manual should be adopted by all government agencies and non-government organisations and end users to ensure consistency and continuity in field application
- In villages and village clusters, PLUP should be conducted simultaneously to ensure that there is continuity of land zoning and land planning across the village cluster. Similar principles and procedures should apply when PLUP is undertaken with adjoining village clusters
- PLUP implementers should increase their understanding of the procedures described in the manual by accessing information contained in documents recommended for further reading for each stage of the PLUP process, and the list of references provided
- Persons implementing PLUP at provincial and district levels need to be aware that they have the responsibility to use approaches, procedures and methods depending on the situation or conditions which they encounter (refer to Part 3, Section 6)
- It is recommended that PLUP implementers find ways to access satellite imagery, digital topographic maps, aerial photographs and GPS so that the standards and accuracy of PLUP are improved through-out the country

Roles and Staffing

- The clarification of the actual roles, responsibilities and functions of the concerned government agencies as described in various sections of this manual at village and village cluster levels is an urgent priority.
- Persons implementing PLUP at district, village cluster and village level should have participated in and passed a training course based on stages and procedures in this manual and a training manual, and have been officially appointed for the task.
- It is recommended that staff at these levels be well trained in participatory land use planning approaches incorporating the application of the land use planning tools described in Part 1 Chapter 4 to enable them to respond to the land use planning needs of villagers and investors. Capacity building in GIS and mapping for PAFO and PLMA staff should be given priority

Data Gathering and Use

- Only data that will be useful for land zoning, land use plans and rural land registration and titling should be gathered to reduce the quantity of unnecessary information collected (see explanation in Part II, Stage 2)
- In the former LUP-LA program a system of data storage and retrieval was not established which resulted in the loss of much of the valuable data produced. For this reason it is recommended that in the future program the tools discussed in Part 1, Chapter 4 be used so that effective information systems can be established for electronic and digital data

Land Rights and Registration

- A system of rural land registration and land titling of residential, individual and collective (communal) lands should be adopted and implemented to secure land tenure for the poor and needy in rural areas as described in Part 2, Stage 8.
- The recognition of land use rights has been slow to take effect in villages affected by development, conservation, relocation and resettlement. It is therefore recommended that the adoption of the procedures for implementing these measures as described in Part 2, Stage 8 of this manual be adopted as a matter of high priority
- In view of aggressive village land acquisitions being made by development investors, it is recommended that the GoL take measures to officially recognise and legalise village agriculture and forest land use zones delineated, and agriculture and forest land management agreements from PLUP, in order to protect the forest and land use rights of rural villagers. It is recommended that provincial and district authorities be bound to recognise village boundaries, village land use rights and land use zone maps when considering the allocation of land for agricultural development investors
- It is recommended that the issue of new TLUCs by DAFO be discontinued because the DLMA has the mandate to undertake land parcel adjudication, land parcel measurement, and registration of land parcels. Also, a village managed land allocation system should be established as described in Chapter 7.2, Part 2 of this manual to provide family and individual land rights.

Networking and Monitoring

- In the former LUP-LA program inter-village networking systems were not established. Therefore, it is recommended that networks and networking systems be established to facilitate natural resource management and use at village and village cluster levels. The village cluster Extension Service Centres should be utilised to promote networking systems.
- Monitoring activities as described in this manual should be adopted as an integral activity of PLUP. Monitoring should be implemented consistently following established schedules by provincial and district PLUP staff.

Co-ordination and Organisation

- Within the land and forestry sectors it is vital to improve linkages between the functions of land use planning, land administration and extension to ensure efficiency in the process of village and village cluster development (see proposals in Part 1, Chapter 3.2)
- It is recommended that a new “body” be established in the MAF that would take direct responsibility for overseeing the implementation of agriculture and forest land use planning activity at central, provincial and district levels. Consideration could be given to the following alternatives: 1) elevate the importance and prominence of land use planning in the current organisational structure, or 2) merge the present Shifting Cultivation Stabilisation Division into the new “body”

4 PARTICIPATORY LAND ZONING AND MAPPING TOOLS

Four land use zoning and mapping tools are discussed in this chapter; topographic maps, aerial photography, satellite imagery, and geographic positioning systems (GPS).

4.1 Rationale

The goal of surveying and mapping is to accurately record and represent the situation on the ground. The satellite imagery, aerial photography and GPS technology have greatly improved the ability to collect, record, analyse and share information. This will add significant value to the investment in time and funds made in the PLUP process.

The variety of inaccurate land use planning tools used previously has caused many mapping irregularities. For this reason it is proposed that improved land zoning and mapping tools be used in the future PLUP programme to facilitate village boundary delineation, land use zoning and land management planning.

This approach is preferable because:

- Satellite image prints and aerial photo maps are excellent tools for participatory village boundary delineation and land use zoning with villagers
- Map data can be systematically and properly stored in GIS
- Higher levels of accuracy are needed to facilitate land parcel registration
- The technology is readily available and can be accessed by end users either through government sources and/or with donor program support
- The levels of GIS expertise at central and provincial levels are progressively being improved to support field implementers
- Field staff can be trained in the practical use of the technology, i.e., they can use printed maps and aerial photographs under the supervision of GIS subject matter specialists
- The technology is affordable if the printed images of the areas of interest are provided to end users at reasonable cost by state, project, and private sector GIS units



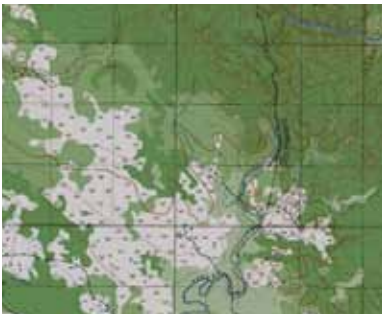
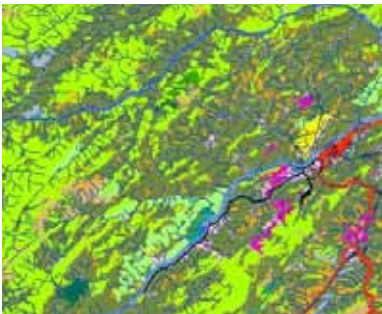
Imagery available in Lao PDR includes aerial photography and satellite imagery covering all of the country at different scale and resolution. In addition, there are 1:50,000 scale topographic maps from the 1960's, and 1:100,000 scale topographic maps from the early 1980's and early 2000's, and a range of GIS datasets that can be used to create maps from a number of different sources. Imagery and map prints are available from FIPD, NLMA and NGD.

4.2 Topographic Maps

Topographic maps contain a variety of information on a single sheet following a standard format that makes it easy for a wide range of people to understand the situation in any area.

4.2.1 Source, Availability and Cost of Maps and Map Data

There are 1:50,000 scale maps from the 1960's prepared by the United States Geological Survey (USGS), 1:100,000 scale maps from the early 1980's prepared with assistance from the Soviet Union and 1:100,000 scale maps from the early 2000's prepared with assistance from JICA. These maps are available both as hard copy prints (as shown in the figures below) and as digital scans.

 <p>1:50,000 USGS Topo Maps</p>	<p>NGD 1960 8,000 Kip/ Print</p>	<p>These maps are the most geographically accurate maps that have been produced for Lao PDR.</p> <p>The data is over 50 years old, and so will not be up-to-date for most places. It also provides a good historical reference for evaluating land use change over time.</p> <p>The maps are available for most areas from the NGD except along the country borders, but are variable in print quality.</p> <p>The full and high quality dataset exists but will take some time and effort to acquire.</p>
 <p>1:100,000 Russian Topo Maps</p>	<p>NGD 1982 7,000 Kip/ Print</p>	<p>These maps are significantly less accurate than 1:100,000 scale, and are perhaps approximately 1:400,000 scale.</p> <p>The data is over 25 years old, and so will not be up-to-date for most places. It also provides a good historical reference for evaluating land use change over time.</p> <p>Good print quality maps are available from the NGD for all areas including along the country borders.</p>
 <p>1:100,000 JICA Topo Maps</p>	<p>NGD 1997-2000 50,000 – 200,000 Kip/ print (A4 – A0)</p>	<p>These maps are significantly less accurate than 1:100,000 scale, and are sometimes 1:400,000 scale in places.</p> <p>The data is over 10 years old, and so will not be up-to-date for most places. It also provides a good historical reference for evaluating land use change over time.</p> <p>The maps are available for all areas from the NGD including along the country borders with good print quality.</p> <p>Custom maps with specific layers can be prepared on order.</p>
 <p>1:100,000 Custom Maps</p>	<p>NGD, FIPD, NLMA, NAFRI 1997-2000 50,000 – 200,000 Kip/ print (A4-A0)</p>	<p>A variety of GIS datasets (soils, land use, forest cover, PFAs, NPAs, up-to-date administrative boundaries and village locations) of different scale and date are available at 1:10,000 scale for some urban areas and up to 1:400,000 scale or less in most places.</p> <p>The GIS data is based on information ranging from over 25 years old to data that is being updated regularly.</p> <p>Good print quality maps are available for all areas including along the country borders from the different agencies.</p> <p>Custom maps with specific layers can be prepared on order.</p>

4.2.2 Considerations for Using Topographic Maps

Advantages	Disadvantages
The maps are easily obtainable for a very reasonable cost and cover all areas.	
The maps provide a clear and easily understood picture of overall topography, land cover and use, settlement, and infrastructure.	The maps are of small scale, so locations, distances and areas are approximate and won't match very closely with GPS readings.
The comparison of the maps at different times allows better understanding of land use and forest cover change and development patterns.	The land cover, administrative details and village locations have changed quite significantly since the date of the mapping in many if not all areas.
Having topographic maps over many locations is valuable for consistency and reduced training load.	If used by themselves topographic maps will not provide enough information for accurate and up-to-date PLUP because the level of detail is not very high.
Many staff at district and provincial levels have used these maps so are familiar with them.	

Recommendation

Topographic maps will not be sufficient without additional higher detail imagery (aerial photography, satellite imagery), however they are a cheap, valuable and useful resource for PLUP.

4.2.3 Preparations for Using Maps for Field Work

1. Acquire large format prints (1:50,000 and/or 1:100,000 scale of the topographic maps from NGD;
2. Acquire large format 1:25,000 scale prints of custom maps with updated administrative information from either the NGD, FIPD, NLMA or NAFRI GIS Units;
3. Purchase sealable plastic cylinders for storing the maps during field work.

4.2.4 Important Points when Using Topographic Maps

- An advance team should go to the district and use the prints to verify village names, approximate village locations, village mergers, village and kumban areas to ensure the maps cover the target area prior to printing the 1:25,000 and 1:10,000 scale imagery;
- Use the maps to plan the field work with the district and kumban staff. This makes all staff familiar with the area and trains staff in using the maps;
- Use the maps in discussions with key informants by placing them on billboards in sequence so that changes that have occurred in the area over time can be seen;
- Higher resolution aerial photography or satellite imagery should be used in conjunction with these topographic maps because they are not large enough in scale and detail to be used for participatory planning and land use zoning;
- The maps should not be printed at higher than 1:25,000 scale unless they are of areas that have actually been mapped at a higher scale.

4.2.5 Conclusions Regarding Topographic Maps

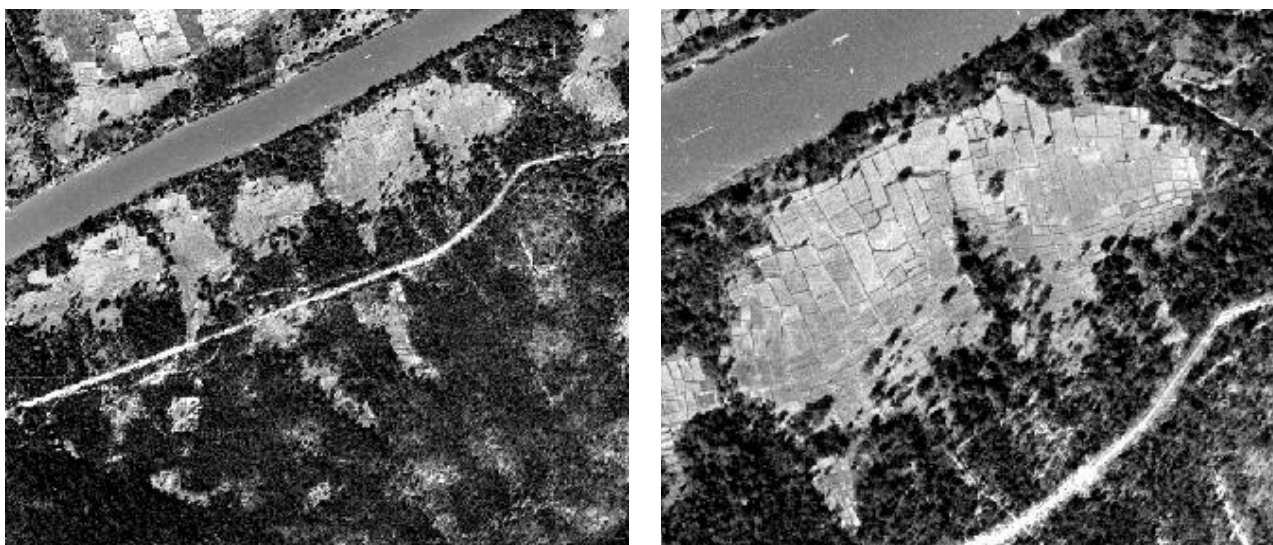
- The topographic and thematic maps are primarily tools used for planning, analysis and discussion rather than as a method for recording accurate information.
- The maps provide a basic and standard format for understanding the PLUP target areas and planning work activities.

4.3 Aerial Photography

Aerial photography provides high resolution, mostly black and white imagery, over most of the country for different time periods. These images are very clear when printed at 1:10,000 scale so can be used for land use planning and zoning if no more recent satellite imagery is available.

4.3.1 Source, Availability and Cost of Aerial Photos

Aerial photography has been acquired over different areas in Lao PDR since 1981 with the largest single coverage being the 1:50,000 scale black and white imagery in 1999 that covers most of the country. The areas available and their year of acquisition is shown on the following page.



Black and White (Pan-Chromatic) 1:50,000 scale aerial photography at 1:25,000 scale (left) and 1:10,000 scale (right).

4.3.2 Considerations for Using Aerial Photos and Photo-Maps

- Practically all of the aerial photography has not been geo-referenced, meaning that it is only an image and is not geographically corrected so that it corresponds to locations on the earth's surface.
- While the photo can still provide an interesting and useful reference for discussions and a print on which people can draw village boundaries, land uses and land zones, the value of the information is limited if it is not geo-referenced. This is because GPS cannot be used to verify information and boundary points and the data recorded cannot be translated into GIS information for incorporation into a database.
- The Aerial Photography Unit at the NGD has the facilities for scanning, mosaicking, geo-referencing and printing the aerial photos as photo-maps.
- NGD can prepare highly accurate maps and digital elevation models from the photographs, however the cost of these is significant and is not good value for PLUP when compared to recent high resolution satellite imagery.

The cost for a single scanned and geo-referenced photo sheet (12.5 x 12.5 km at 1:50,000 scale, 6.25 x 6.25 km at 1:25,000 scale) is 300,000 Kip.

Advantages	Disadvantages
The maps are obtainable for a reasonable cost, within a reasonable time and cover almost all areas	Distinguishing between different vegetation type is difficult with black and white imagery
The maps provide a very clear and easily understood picture of detailed topography, land cover and use, settlement, and infrastructure and enough detail for doing kumban and village boundary mapping	The photo-maps won't be prepared with ground control information so they will only be 1:50,000 scale accuracy and therefore won't match very closely with GPS readings
Photo-maps at different times allows better understanding of land use and cover change and development patterns	The land cover, administrative details and village locations have changed quite significantly since the date of the mapping in many if not all areas
Village, kumban and district staff can understand easily what is seen in the imagery	Forest areas are quite dark on prints so difficult to write on

Recommendations

- It is recommended aerial photo maps be used for PLUP only when no more recent high resolution (2.5m or 5m) satellite imagery is available unless it is being used as a supplementary data source.
- All photo-maps should be geo-referenced.
- When aerial photo-map are used, an additional lower resolution colour satellite image map (SPOT4 from 2001 at FIPD or LandSAT) should be printed as well for use in PLUP land use zoning and planning.

4.3.3 Preparations for Using Photo-Maps for Field Work

1. An advance team should go to the district and use the prints to verify village names, approximate village locations, village mergers, and extent of Kumban areas, to ensure map target area coverage prior to printing the 1:25,000 and 1:10,000 scale imagery;
2. Acquire large format prints (1:25,000 and 1:10,000 scale) of the aerial photo-maps available for the PLUP target area from NGD Aerial Photography Centre;
3. Acquire large format prints (1:25,000 scale) of 2001 SPOT4 colour satellite imagery of PLUP kumban target area from FIPD;
4. Purchase sealable plastic cylinders for storing the maps during field work.

4.3.4 Important Points when Using Aerial Photo Maps

Refer to section 4.4.4 below that explains the important points for using aerial photo-maps and satellite image-maps as the considerations are the same.

4.3.5 Aerial Photo-Mapping Outputs and Conclusions

- Aerial photo-maps are tools that can be used for participatory planning, analysis and discussion as well as recording information.
- The information from the GPS recorded on the aerial photo-map prints in the field needs to be sent to the NGD for re-georeferencing to make it as accurate as possible.
- GIS operators from NGD, FIPD, NAFRI or NLMA can use the better digital geo-referenced aerial photo-maps as a base-map to draw the village and kumban boundaries, and conduct land use zoning.
- These boundaries and zones are in digital GIS format, and can be stored in central databases, and maintained as a permanent record.

4.4 Satellite Imagery

Satellite imagery provides medium to high resolution colour and black and white images over large parts of the country for different time periods. Currently there are several national satellite image datasets covering almost all of Lao PDR and large areas covered by other satellite imagery at higher resolution.

Experience has shown that recent and good quality colour imagery at 2.5m or 5m resolution is the best option for participatory land use zoning and planning for most areas in Lao PDR. If not available, older aerial photography can be purchased from the NGD and used in combination with older and lower resolution satellite imagery from FIPD. More satellite images will be purchased in future so the availability of the data will continue to increase.

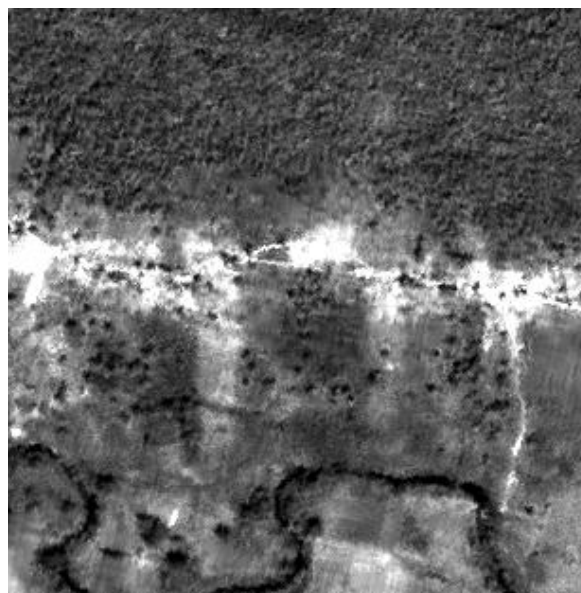
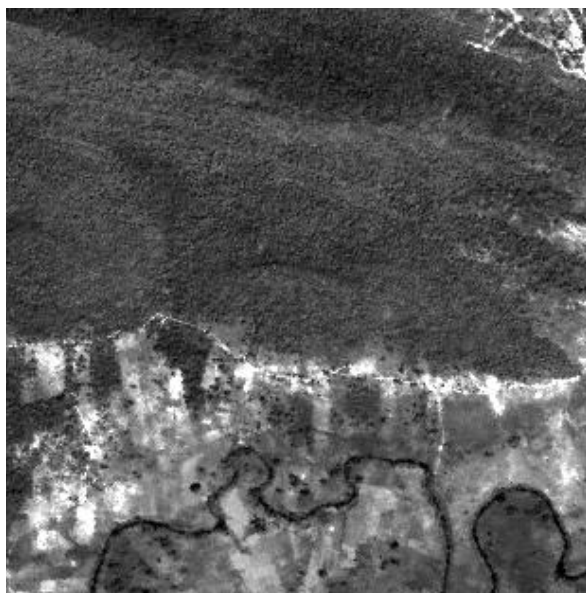
4.4.1 Source, Availability and Cost of Satellite Imagery

The sources recommended for use for PLUP for most areas are presented in order of preference.



SPOT5 "Natural" colour 2.5m imagery at 1:25,000 scale (left) and 1:10,000 scale (right).

FIPD 2006-2009	<p>The data is recent and of good quality suitable for boundary mapping and land use planning and zoning.</p> <p>These maps vary in accuracy from 10m to 30-50m – most of the existing imagery would benefit from geo-referencing to ground control GPS points.</p> <p>The data is suitable in most cases for 1:10,000 scale mapping with additional geo-referencing and for 1:25,000 scale mapping in all cases, but the images are available only for some areas.</p>	<p>Cost for A0 Prints = ~200,000 Kip per colour print</p>
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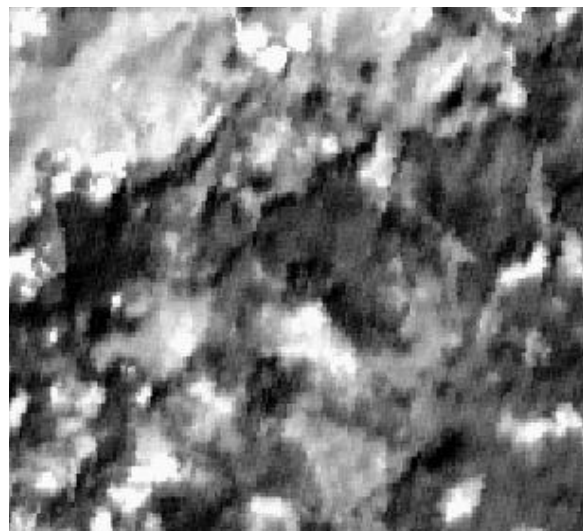
ALOS PRISM Pan-Chromatic 2.5m imagery at 1:25,000 scale (left) and 1:10,000 scale (right).

NLMA 2007-2008	<p>The data is recent and of good quality suitable for boundary mapping and land use planning and zoning.</p> <p>The images vary significantly in quality and are of unknown accuracy.</p> <p>These images will need to be further processed to be more usable for PLUP.</p> <p>The images are available only for some areas.</p>	<p>Cost for A0 Prints = ~200,000 Kip per colour print</p>
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AVNIR-2 Natural Colour 10m imagery at 1:25,000 scale (left) and 1:10,000 scale (right).

NLMA 2007-2008	<p>The data is recent and of good quality suitable for boundary mapping and land use planning and zoning.</p> <p>The images vary significantly in quality and are of unknown accuracy and will need to be further processed to be more usable for PLUP.</p> <p>To get the higher resolution required for 1:10,000 scale mapping, the colour imagery needs to be merged with the PRISM B&W, often not possible.</p> <p>The images are available only for some areas.</p>	<p>Cost for A0 Prints = ~200,000 Kip per colour Print</p>
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LandSAT Natural Colour 30m imagery at 1: 50,000 scale (left) and SPOT4 Pan-Chromatic 10m imagery at 1:10,000 scale (right).

FIPD NLMA NGD 1999 - 2001	<p>The LandSAT imagery covering all of Lao PDR during different time periods can be downloaded from the internet for free and is accurate to approximately 50m.</p> <p>The SPOT images are not highly accurate and would be improved by being geo-referenced again; but cover all of Lao PDR and are available at FIPD.</p> <p>The data is over 8 years old, and so will not be up-to-date for most places but is the best option for colour imagery available where more recent higher resolution imagery hasn't yet been acquired.</p> <p>It also provides a good historical reference for evaluating land use change over time.</p>	Cost for A0 Prints = ~200,000 Kip per colour Print
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4.4.2 Considerations for Using Satellite Imagery and Image-Maps

- All of the satellite imagery has been geo-referenced to a certain accuracy, but only those that were done using GPS for ground control are accurate to 10m and therefore sufficient for boundary mapping and land use zoning and planning and to link with GPS.
- As with the aerial photography, less accurate imagery needs to be re-geo-referenced using GPS data collected during field work to improve its accuracy.
- The FIPD GIS Unit has the facilities for processing, geo-referencing and printing the satellite imagery as image-maps and digitizing the resulting boundaries and land use zone data.

Advantages	Disadvantages
The maps are obtainable for a very reasonable cost and within a reasonable time for the covered areas.	Not all areas are covered by the higher resolution imagery which varies in quality.
The higher resolution image-maps provide a very clear and easily understood and detailed picture of topography, land cover and use, settlement, and infrastructure and enough detail for doing kumban and village boundary mapping.	Most image-maps were not prepared with ground control information so they will only be 1:50,000 scale accuracy and therefore won't match very closely with GPS readings.
The image-maps are relatively recent so are representative of the situation at the present time.	

Most imagery is colour, and village, kumban and district staff can understand what is seen in the imagery easily and use it to record data.	
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Recommendation

In all cases where aerial photo-maps are being used for PLUP, it is recommended that satellite image maps, preferably colour maps, be used.

4.4.3 Preparations for Using Image-Maps for Field Work

- An advance team should go to the district and use the map prints to verify village names, village mergers, approximate village locations and areas and kumban groupings to ensure maps cover the target area prior to printing of the 1:25,000 and 1:10,000 scale imagery;
- Acquire large format prints (1:25,000 and 1:10,000 scale) of the satellite image-maps available for the PLUP target area from the FIPD GIS Unit;
- Purchase sealable plastic cylinders for storing the maps during field work.

4.4.4 Important Points when Using the Aerial Photo-Maps and Satellite Image-Maps

- The information from the advance team must be used for printing the 1:25,000 and 1:10,000 scale imagery to ensure, that the printed imagery covers the village and kumban in one sheet;
- The prints should extend as far as possible around approximate village management areas because the location of boundaries can change considerably during PLUP discussions;
- The District should order aerial photo coverage for all kumban in the District at the one time to reduce costs;
- Prints larger than 1:10,000 should not be used because the village area will usually not fit within single sheet and higher resolution maps do not improve participatory planning;
- Make at least three 1:10,000 scale prints of each village and three 1:25,000 scale prints of the kumban area for use in participatory planning. After compilation of the data to send to FIPD, NGD or NLMA, at least one map print should be left with the village and kumban to use;
- GPS data should be acquired in the field and provided back to the NGD, FIPD or NLMA so that they can re-georeference the imagery more accurately which will improve the final map product significantly;
- The photo-maps can be used for participatory planning both in small group discussions and village meetings. Previous maps and current maps can be placed on billboards so changes can be compared over time in the area;

4.4.5 Satellite Image Mapping Outputs and Conclusions

- The recent high resolution satellite image-maps are the best tools that can be used for participatory planning, analysis and discussion as well as recording information.
- The information recorded in the field on the satellite image-map prints is sent back to the FIPD or NLMA for re-geo-referencing to improve accuracy as much as possible using the GPS information acquired from field work.
- GIS operators from NGD, FIPD or NLMA can use the better digital geo-referenced aerial photo-maps as base-maps to draw the village and kumban boundaries, land use zones and other information from the field map prints.
- The boundaries and zones are in digital GIS format, stored within a central database, and maintained as a permanent record.




4.5 Global Positioning System (GPS)


Global Positioning System (GPS) receivers provide a low-cost and higher accuracy (to 10m reliably) means of locating a position on the ground anywhere in Lao PDR. GPS are devices about the cost and size of mobile phones that receive a free signal from several satellites in space. By receiving 4 or more satellite signals, they are able to triangulate position on the ground and display the location in many coordinate formats (for example, latitude and longitude or UTM x and y positions) and map datums (for example, Indian, Thailand or WGS 1984).

In Lao PDR, most users are familiar with Garmin GPS receivers. The most recent models include higher sensitivity antennae and signal processing chips that allow signals to be received even under forest canopy and consistent horizontal position accuracies of 10m. GPS are not accurate for elevation.

4.5.1 Source, Availability and Cost of GPS

It should be emphasized that GPS should be used every time village boundaries and land use zones are being surveyed. The following recommendations provided below are for various GPS brands of Garmin GPS because they are commonly used in Lao PDR, however, other GPS brands can be used.

 <p>Map Capable Garmin GPSMAP60C-Sx and GPSMAP76Cx Receivers</p>	<p>Garmin and other Commercial GPS Brands \$700-\$900</p>	<p>These are the most recent handheld receivers appropriate for PLUP.</p> <p>The “S” in “CSx” stands for “sensors”, including an electronic compass, the best quality chips and a barometric altimeter.</p> <p>These receivers are preferred if budget is available because they provide larger screens, better quality, and high reliability.</p> <p>These receivers are “all map capable”, meaning a map of the area will be visible on screen as a tool to guide field work.</p>
 <p>Map Capable Garmin eTrex Vista and Legend Receivers</p>	<p>Garmin and other Commercial GPS Brands \$400-\$650</p>	<p>These are smaller units that have similar functionality but which are not as robust.</p> <p>Some are available with sensors.</p> <p>These are mostly for recreational use rather than professional use.</p> <p>If insufficient budget available for the best units, these are the next choice.</p>
 <p>Garmin eTrex and GPS76 Receivers</p>	<p>Garmin and other Commercial GPS Brands \$150-\$350</p>	<p>These are more basic receivers but attain the same accuracy.</p> <p>No map functionality and less storage of data points and information.</p> <p>Often require accessories to be purchased as well.</p> <p>This is the option only if budget is limited.</p>

 <p>Garmin eTrex and 12XL Receivers</p>	<p>Garmin and other Commercial GPS Brands</p> <p>\$150-\$350</p>	<p>These older generation receivers are outdated technology with lower accuracy.</p> <p>These GPS receivers will not be able to locate position under canopy and will take more time to lock position.</p> <p>These units would be at the end of their working life but if they still work, they should be used given the general lack of equipment available in the provinces.</p>
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GPS are available at a number of company retail outlets in Lao PDR and other countries.

4.5.2 Considerations for Using GPS

Advantages	Disadvantages
<p>GPS are widely available for a reasonable cost.</p> <p>GPS are the only easy and reliable means for relating satellite image and map information to field information.</p> <p>GPS allow geo-location of boundary points, land cover observations, and land use areas.</p> <p>Many staff are experienced in its use and all stakeholders accepted GPS information.</p> <p>Map capable GPS increase user satisfaction and amount of use.</p> <p>There is a high demand from staff for GPS equipment and training on GPS use.</p> <p>GPS locations can be used to geo-locate digital photos taken during field work.</p>	<p>GPS is not accurate for elevation; therefore the barometric altimeter is the preferred method.</p> <p>GPS without training and a consistent system to collect and record data will provide poor quality results.</p>

Recommendations

- It is recommended that at least three recent model GPS be purchased for all Districts implementing PLUP work.
- It is necessary that each PLUP field team has at least one GPS.

4.5.3 Preparations for Using GPS for Field Work

- The team should prepare and test the GPS receivers before going to the field. Wherever possible, use the newer GPS with high sensitivity antennae and take extra GPS receivers as a backup. Set all GPS to UTM projection WGS84 datum and check that all the GPS are working properly and are synchronized. Ensure that the data on the GPS has been saved to the computer network and clear the GPS tracklogs and waypoints.
- Undertake basic hands-on training of provincial and district staff in using GPS equipment, interpretation of imagery and maps, identifying locations from the map grids and relating them to GPS, collecting and recording data in survey forms and taking digital photos at locations where GPS readings are taken.
- Undertake daily planning, equipment testing, and data collection including checking that GPS are synchronized and that each camera has taken a photo of the date and time on the GPS screen.
- Always collect data and store it at the end of the day or whenever you can return to an office where there is a computer and, after ensuring it is saved, and can be accessed, clear the GPS to collect new information.
- The full set of data including the hard copies of the maps, notebooks and record forms, and digital

copies of the GPS information and photo data must be sent to FIPD, NLMA and/or NGD for digital mapping, after which completed map copies are returned to the province, district, kumban and villages.

4.5.4 Important Points When Using GPS

Sufficient, appropriate and good quality, hands-on training must be provided to staff. Equipment should be regularly tested and checked to ensure it is working properly. A consistent and user friendly system for data management must be put in place when equipment is procured. The following points should be considered when using GPS for field work:

- GPS accuracy is not constant, but depends on a number of different factors including obstacles such as trees or buildings, people standing around the GPS, and magnets;
- The GPS can be less accurate at different times of day and will give readings that vary;
- To avoid problems in downloading, storing, finding and sharing data, the data should be recorded on paper so that data is not lost;
- Downloading and storing all field data should be done every day after field work, and the GPS units cleared for the next day's work;
- Turn the GPS "tracklog" function on so that location is being recorded continuously.
- It is better to use two GPS than only one in case problems are experienced;
- The digital data needs to be copied either onto CD-ROM, a portable USB drive or a laptop computer for transmission to FIPD. An additional copy should be sent to the PAFO and PLMA offices for their records and use;
- Documents should be prepared recording who provided the data and who received it – a copy of the document should be kept with the DAFO, PAFO and FIPD staff involved and include contact mobile telephone numbers.

4.5.5 GPS Outputs and Conclusions

Handheld GPS receivers are critical tools to link satellite imagery and maps with field work. The GPS data recorded will provide an accurate record of village boundary points, locations of land use, geo-located photographs and ground control to allow more precise geo-referencing of satellite imagery. This improved information will feed back into PLUP work activities.

It is proposed that GPS data will be saved within a central database at FIPD and used as a background layer to assist in mapping the village boundaries and land use. It is important that any use of GPS includes sufficient dedicated hands-on training and that a procedure and process is in place for collection, storage and transmission of the data.

PART II

STANDARD PARTICIPATORY LAND USE PLANNING



TABLE OF CONTENTS

PART II

5	STANDARD PARTICIPATORY LAND USE PLANNING PROCEDURES	29
5.1	PROCESSES IN CLUSTER LEVEL LAND ZONING AND PLANNING	29
5.2	SUMMARY OF PLUP STAGES	30
STAGE 1	PREPARATION FOR PARTICIPATORY LAND USE PLANNING	31
STEP 1	CONDUCTING TECHNICAL AND SOCIAL TRAINING	31
STEP 2	PREPARING ACTIVITY PLAN, BUDGET PLAN AND TIME SCHEDULE	31
STEP 3	MAKING APPOINTMENTS WITH KUMBAN TARGET VILLAGES	31
STEP 4	PREPARATIONS IN THE OFFICE	31
STEP 5	KUMBAN AND VILLAGE ORIENTATION MEETINGS	32
STEP 6	FORM VILLAGE AGRICULTURE AND FOREST LAND MANAGEMENT COMMITTEE	32
STAGE 2	SOCIO-ECONOMIC, LAND AND FOREST DATA COLLECTION	34
STAGE 3	DELINEATION OF VILLAGE AND VILLAGE CLUSTER BOUNDARIES	36
STEP 1	PREPARING EQUIPMENT AND MATERIALS AND STAFF TRAINING	36
STEP 2	VILLAGE AND VILLAGE CLUSTER BOUNDARY DELINEATION	36
STEP 3	MAPPING VILLAGE CLUSTER (KUMBAN) BOUNDARIES	37
STEP 4	ENDORSEMENT AND APPROVAL OF VILLAGE AND VILLAGE CLUSTER BOUNDARIES	38
STAGE 4	VILLAGE AND VILLAGE CLUSTER AGRICULTURE AND FOREST LAND USE ZONING	39
STEP 1	VILLAGE CLUSTER AND VILLAGE LAND USE ZONING ORIENTATION MEETINGS	42
STEP 2	IDENTIFY LAND USE ZONES ON SATELLITE IMAGE OR TOPOGRAPHIC MAP	42
STEP 3	GROUND SURVEY	43
STEP 4	MEETING TO VERIFY LAND USE ZONES	43
STEP 5	DIGITAL MAPPING OF LAND USE ZONES	43
STEP 6	VILLAGE CLUSTER MEETING TO CONFIRM LAND USE ZONES	43
STEP 7	DISTRIBUTION OF LAND USE MAPS	43
STEP 8	VILLAGE AND VILLAGE CLUSTER SIGN-BOARDS	44
STAGE 5	VILLAGE AND VILLAGE CLUSTER AGRICULTURE AND FOREST LAND MANAGEMENT PLANS	45
STEP 1	UTILIZE AGRICULTURE AND FORESTRY DATA	45
STEP 2	UTILIZE SOCIO-ECONOMIC DATA	46
STEP 3	ASSESS VILLAGE LAND USE ISSUES AND POTENTIALS	46
STEP 4	PREPARE VILLAGE AGRICULTURE AND FOREST LAND MANAGEMENT PLANS	46
STEP 5	PREPARE LAND AND FOREST MANAGEMENT & USE AGREEMENT	47
STEP 6	PREPARE VILLAGE CLUSTER LAND AND FOREST MANAGEMENT PLANS	47
STAGE 6	PLUP DATA RECORD KEEPING AND DIGITAL MAPPING	49
PROCEDURE 1	VILLAGE, VILLAGE CLUSTER AND DISTRICT LEVEL DATA STORAGE	50
PROCEDURE 2	DIGITISING, STORING AND DISTRIBUTING LAND USE MAPS	51
PROCEDURE 3	ELECTRONIC DATA STORAGE AT PROVINCIAL LEVEL	52
STAGE 7	LAND REGISTRATION AND TITLING IN RURAL VILLAGES	54
7.1	LAND TENURE DATA COLLECTION AND ANALYSIS	55
7.2	ESTABLISH A VILLAGE LAND AND FOREST MANAGEMENT PROCEDURE	56
7.3	GENERAL PROCEDURES FOR REGISTRATION	56
7.4	REGISTRATION OF AGRICULTURAL LAND PARCELS	57
7.5	REGISTERING VILLAGE COLLECTIVE OR COMMUNAL LAND PARCELS	58
STAGE 8	VILLAGE AND VILLAGE CLUSTER NETWORKS & NETWORKING	60
STEP 1	INITIATING AND ESTABLISHING VILLAGE CLUSTER NETWORKS	61
STEP 2	OPERATING VILLAGE NETWORKS	62
STEP 3	MONITORING NETWORKING ACTIVITY	64
STAGE 9	MONITORING AND EVALUATION	66
9.1	MONITORING INDICATORS	66
9.2	MONITORING STEPS AND METHODS	68

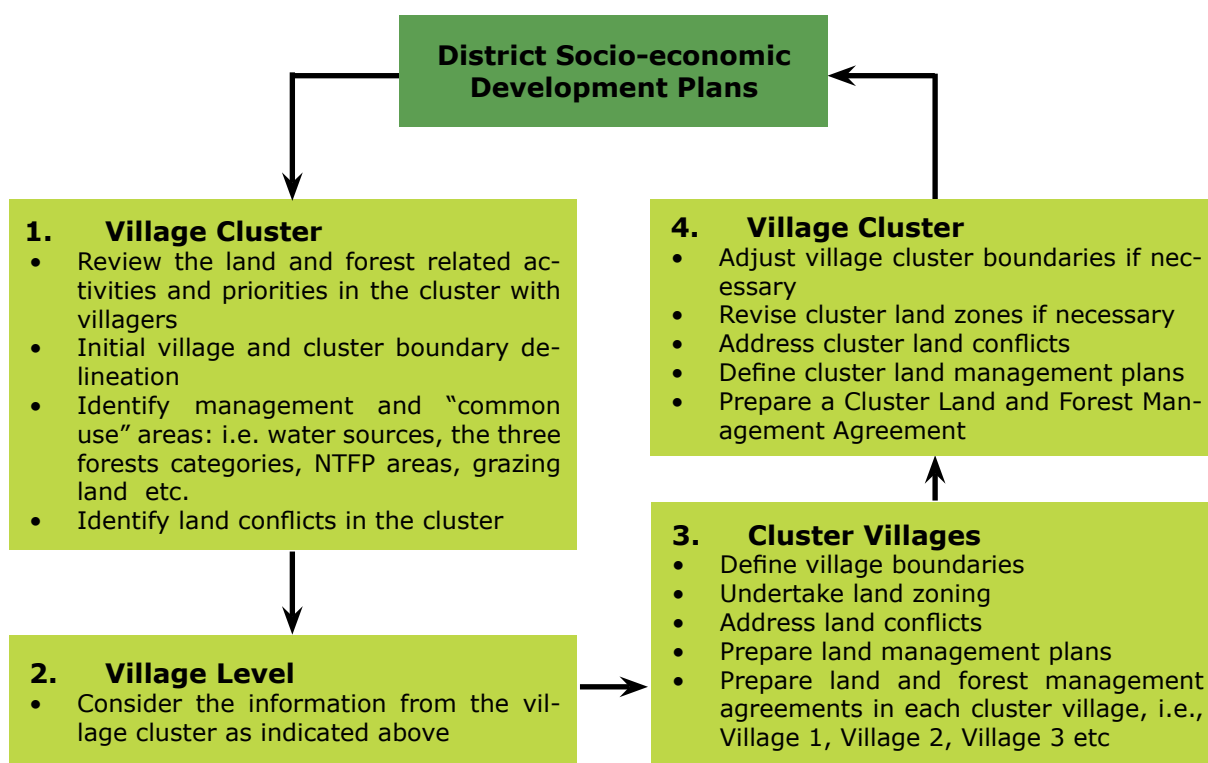
5 STANDARD PARTICIPATORY LAND USE PLANNING PROCEDURES

This part describes standard participatory land use planning procedures at village and village cluster (kumban) level. “Standard land use planning” is an expression used to indicate that the procedures described are appropriate in permanent or well established villages that are not affected by specific situations such as production forest areas, national protected areas, resettlement etc..

5.1 Processes in Cluster Level Land Zoning and Planning

Village cluster and village land zoning and planning should not be done in isolation from socio-economic development planning at the district level. It is implemented within the framework of the “village cluster” not in independent village “units”. The land and forest activities and priorities in district plans for various village clusters and villages need to be known prior to undertaking PLUP at the village cluster and village level. Common use areas (water sources, grazing lands, NTFP areas) and land conflicts within village management areas and between villages within the village cluster network need to be considered.

Diagram 3: Processes for Cluster Level Land Zoning and Planning



5.2 Summary of PLUP Stages

A summary of the nine participatory land use zoning and planning stages is provided in the table below.

Table 2: Summary of Participatory Land Use Planning Stages

Stage	Description	Responsibility	Approx. Duration
1	Preparation for land use planning	DAFO, DLMA, KBO and VA	2 days
2	Socio-economic, land and forest data collection	DAFO, DLMA, KBO and VA	1-2 days
3	Delineation of village and village cluster boundaries (management areas)	DAFO, DLMA, KBO and VA	2 days
4	Village and village cluster land use zoning	DAFO, DLMA, KBO and VA	2-3days
5	Village and village cluster land management plans	DAFO, DLMA, KBO and VA	2-3 days
6	Land data and digital map record keeping (Duration for this activity is difficult to quantify; a duration of 5 days is estimated for actual map production)	Data: DAFO, PAFO, DLMA and PLMA Maps: FIPD and NLMA GIS Units, (Provincial GIS Units if present)	5 days
7	Land registration in rural villages	DLMA, KBO and VA	15 -20 days
8	Village and village cluster networks and networking	DAFO, KBO and VA	2 days
9	Monitoring and evaluation	DAFO, KBO and VA	Continuous process

Notes

- Durations are indicative only and will vary depending on the size of the village/s and the number of villages in the kumban.
- The approximate duration for Stages 1 to 6 assumes a team of 5 to 6 district staff working at village and village cluster levels.
- It is very important to work very closely with the Kumban Organisation (KBO) and the Village Authorities (VA) during all Stages of PLUP.

For each of the nine PLUP stages, definitions, objectives, criteria, procedures and steps are explained in the following chapters. In the future, various tools such as GIS, survey satellite imagery maps, aerial photography, geographic maps and GPS will be used for village and village cluster mapping.

Stage 1 Preparation for Participatory Land Use Planning

Step 1 Conducting technical and social training

Training is an important activity prior to field implementation, by the PLUP team from DAFO and DLMA and other staff who may be assigned from, provincial and district sectors and agencies.

This training is undertaken at the District prior to the field exercise activity followed by on-the-job training in the villages. DAFO and DLMA should be the main actors.

Training aims at providing implementing staff with adequate technical knowledge, social interaction and problem solving skills, gender mainstreaming in the PLUP process, human rights principles, a participatory working approach. Staff will perform a facilitatory and advisory role during the PLUP stages.

Note

The preparation of a Training Manual and training programme is proposed which will contain modules for a variety of technical and social aspects required for PLUP. This manual will be available for master trainers who will train staff to implement PLUP, and will also be available to assist field staff when they are working in the field.

Step 2 Preparing activity plan, budget plan and time schedule

Before carrying out the work an activity plan needs to be made in accordance with the expected purpose and targets. The plan should be made in consultation with the village people in the target areas, while the budget plan needs to be calculated based on the time schedule, the various activities to be conducted and the number of participants involved in the activity.

Step 3 Making appointments with kumban target villages

Appointments need to be made with both kumban and village authorities in writing at least three days before the PLUP activity starts to allow villagers time to prepare and to reduce inconveniences for them. This is done simultaneously so that all villages within the kumban are aware of the forth-coming PLUP activity. The appointments need to indicate the approximate times when each village and the village representatives will be involved in the overall kumban PLUP activity. Staff attached to the kumban organization should co-ordinate these appointments. Some of the stages, such as village and kumban boundary delineation, will involve representatives of all kumban villages at the same time.

In each village an appointment for an orientation meeting is made with the Village Head or Deputy Head to which villagers, both men and women are invited.

Step 4 Preparations in the office

The following documents and materials are prepared by the PLUP team:

Documents and Data

- Data from previous LUP-LA if it was done in the village previously
- A copy of the Participatory Agriculture and Forest Land Use Planning Manual
- Copies of other relevant PLUP guides and documents
- A copy of the Amended Forestry Law, revised 2007
- A copy of the Land Law, 2003
- A copy of Decree No. 88/PM on the Implementation of the Land Law, June 2008
- A copy of the Manual on Village Rights and Responsibilities to Manage and Use Forests Forest Land and Aquatic-Wildlife Animals, DoF, September , 2008
- A summary of the stages and steps in land use zoning
- Examples of various PLUP documents including:

- Village boundary agreement
- Village Agriculture and Forest Land Management Committee Formation Form
- Data collection forms
- Village Agriculture and Forest Land Management Agreement

Maps and Equipment

- If LUP-LA was done in the village previously, a copy of the village boundary and land use zoning map. If a map is not available, use a photograph of the village LUP-LA sign-board instead
- An example of a village boundary and land use zone map
- AO size print-out maps of satellite images of the kumban area and target villages,
- Topographic map sheets at scale 1:50,000 or 1:100,000 of the kumban area and target villages
- Enlarged print-outs of digital topographic maps of the kumban area and target villages; scale of 1: 25,000.
- Aerial photographs, minimum scale of 1:25,000, but preferably 1:10,000, of the kumban area and target villages (optional)
- Field equipment including compasses, GPS, digital camera, measuring tapes, and rulers, etc.
- Office equipment including whyboard, transparent paper, erasers, scotch tape, felt marker pens, and five or six sets of coloured mapping pens
- Poster paper for recording various information
- Materials to construct a village land use zone sign board

Step 5 Kumban and village orientation meetings

It is desirable to organise a meeting of representatives of all villages comprising members of the Village Committee, (Village Front, Lao Women's Union etc). This can be arranged in a central location in the kumban, perhaps the Kumban Organisation Office or Technical Service Centre if one exists, to confirm the sequence of activities that will take place. At this meeting initial discussions are held on the location of village boundaries and management areas using the satellite image prints and topographic maps.

Subsequent to this, orientation meetings are held in each village in the kumban. The PLUP team will conduct a village orientation meeting with all members of the community, including men and women.

Various inter-active techniques, such as group discussions, role plays, posters, photographs etc, should be used to make these orientation sessions interesting and valuable for villagers. If electricity is available, prepared Power Point and CD presentations can be made. In addition, the appropriate documents, materials and aids listed in 1.4 above should be used through-out the orientation presentations and discussions to increase villager understanding of the PLUP process.

The activities in village orientation are as follows:

Activity	Person Responsible
General explanation of the program of PLUP; purpose, objectives, activities etc	D/District Governor or representatives
Explanation of important clauses in the Laws and Regulations relevant to PLUP	DAFO and DLMA
Explanation of the rights, roles and responsibilities of the Village Authorities and villagers in PLUP	DAFO and DLMA
Explanation of all the stages and steps in the PLUP process	DAFO and DLMA
General discussion to clarify issues raised by villagers	D/District Governor, DAFO and DLMA
Arrangements for the PLUP work in the village	DAFO and DLMA

Step 6 Form village forest and agricultural land management committee

In the past the village agriculture and forest land management committee (LFMC) was formed before the villagers understood the functions of the LFMC. It is therefore recommended that the "village orientation" activity described above, be undertaken first.

In villages where LUP committees were formed in the past it should be verified if the committee is still functioning, if it should be abandoned or if the membership needs to be changed.

Land use planning staff and the villagers may wish to defer the formation of the LFMC until after discussions and agreement on the village boundaries are made, at which time it will be known which individuals in the community are knowledgeable and active in land and forest management activities.

The Committee should be comprised of representatives of the Village Administrative Authority, the Village Development Committee and a cross-section of villagers, both men and women, and including a Lao Women's Union member. It should include the Village Head or Deputy Village Head and consist of a small uneven number of members, preferably 3 or 5 people. The formation of the LFMC is acknowledged by the District Authorities using a "Village Land and Forest Management Committee Formation Agreement"

The LFMC assists the Village Authorities and District with the following tasks:

- Disseminating village regulations on the management and use of forest and agricultural land to farmers in the village.
- Investigating, consulting and solving village forest and agricultural land problems
- Survey and follow up on land use changes in the village area
- Establishing sustainable participatory agricultural and forest and land management and use rules with the village community.
- Managing the implementation of village rules and government decrees and regulations on forest and agricultural land.
- Assisting and advising village authorities with land allocation decisions for new families
- Keeping records of forest and agricultural land parcels allocated in the village
- Providing forest land zoning, land use planning and land allocation data to district authorities
- Assist the village conflict mediation committee with land conflict cases within the village or with neighbouring villages
- Participating in inter-village networking activities within the village cluster

A minimum of three representatives from each village LFMC are nominated to a village cluster land-forest management committee, to represent the village cluster (kumban) regarding natural resource management activities and issues in the village cluster.

Further Reading

SCSPP: Forming Village LUP/LA Committees. Technical Guide 2

Stage 2 Socio-economic, Land and Forest Data Collection

Village data collection and analysis are essential parts of the process of PLUP. The collection and analysis of village and village cluster data with villagers enables appropriate land use decision-making and planning.

It is important to distinguish between data that will be used for land zoning and data that will later be used for natural resources management planning so only appropriate data for zoning purposes is collected at this stage. For example, information on the location/s of important NTFPs, sketched on a map is valuable for land zoning, while detailed surveys and inventories of all NTFP species is not necessary for land use zoning, but it is important for planning future extension programs concerning the management of NTFPs.

Similarly, information on large livestock and large livestock grazing areas or family grazing areas is valuable information for land zoning, but information on poultry and pig populations is not used for land zoning because small livestock are managed within the village residential area. Thus it is important to define the objectives and types of data to collect as indicated below.

Objectives:

Village and village cluster data collection has the following objectives:

- To understand traditional land use patterns, practices and trends
- To facilitate agriculture and forest land use zoning
- To estimate land, forest and housing use requirements for future populations
- To facilitate preparation of land management plans for each land use zone
- To help prepare village land and forest management agreements and rules for the various land use zones
- To facilitate future forest and agricultural land registration activities

Principles:

Some simple principles for collecting data are applied:

- Land use planning staff should only collect data that will respond to the objectives listed above;
- Existing data sources that are available from the Village Authorities and the Village Cluster or kumban administration office should be accessed first; data that is not available from these sources should then be acquired at household level, as explained below:

Type of Data	Source
General S-E data	Village and Village cluster authorities
Agricultural land systems, land tenure and land claims	Household and village committee
Forest use systems	Household and village committee
Land tax data	Village committee, with help from “pasi ban” and “tee din ban”

Methods:

Data is collected in two ways: 1) Numeric data using prepared data collection forms, 2) Spatial data using community sketch maps

Data forms provide quantitative information that can be analysed and used for, e.g., calculation of population trends and registration of land parcels. Sketch maps are very useful for village boundary delineation, identifying boundary disputes, land use zoning, and preparing land management plans.

Types of Data:

Essential numeric and spatial data necessary to achieve the objectives listed above are summarised in Table 3.

Table 3: Types and Methods of Data Collection

Type of Data	Details	How Collected
Socio-economic	Population	Data form
	Births, deaths & population trends	Data form
	Family occupations and labour availability	Data form
	Poverty status (three levels)	Data form
	Rice production, needs and lack	Data form
	Main annual crops	Data form
	Fruit trees and commercial tree plantings	Data form
	Large livestock populations (buffalo, cattle, goats)	Data form
Family and Communal Agricultural Land Use	Agricultural land use systems	Sketch map
	Agricultural land parcel use	Data form
	Agricultural land parcel claims	Data form
	Land documents available and not available	Data form
	Household grazing areas	Sketch map and data form
	Communal grazing areas	Sketch map
Family and Communal Forest Use	Forest use practices	Sketch map
	Locations of important NTFPs	Sketch map
	Domesticated NTFP plantings	Sketch map and data form
	Timber for housing and other construction purposes	Sketch map and data form
	Small timber and other forest products for domestic use	Sketch map and data form
Problems and opportunities	Gender disaggregated problems/needs information	Data form
	Problem causes, impacts, and proposals for addressing problems and capitalising on opportunities	Data form

Examples of the socio-economic, agricultural land, and forest land data collection forms are provided in Annex XX.

Stage 3 Delineate Village and Village Cluster Boundaries

Definition:

The village boundary is the administrative line that defines the village management area. In Lao the word village boundary is not normally used; instead it is referred to as the “korp khet ban” (village area). The village cluster boundary is the line formed by the outer boundaries of the villages located on the extremities of the village cluster. The village boundary line usually follows the line of the traditional boundary that is recognised by the village and its neighbours which most commonly follows streams, rivers, mountain ridges or roads.

Objective:

The objective of delineating village and village cluster boundaries is to formally recognise and accurately map the village and village cluster boundaries and management areas that villagers recognise traditionally to facilitate land use zoning, the preparation of land management plans. A key objective of village and village boundary delineation is to resolve inter-village boundary conflicts.

Criteria:

- The activity should be undertaken with the active participation of villagers.
- Since the kumban development policy was introduced in 2004 it is necessary to delineate both village and village cluster boundaries simultaneously.
- As far as possible natural and permanent features such as streams, mountain peaks and ridges, roads, large trees are used to denote the boundary line
- It is normally accepted that within a particular landscape there is no “vacant land” between village management areas, meaning that village boundaries and village cluster boundaries cover the whole landscape.

Procedures:

The procedures include staff training and preparation of equipment and materials, the selection of a conveniently located village for a village cluster boundary meeting, the approximate delineation of the boundaries of each of the cluster villages, verification of each cluster village boundary, resolution of village boundary disputes, village and village cluster boundary mapping, and the preparation of village and inter-village boundary agreements.

Step 1 Preparing equipment and materials and staff training

- Assemble equipment including, enlarged 1:100,000 or 1:50,000 scale topographic maps, AO size satellite image maps prints of the village cluster area, aerial photographs (if available), GPS, and digital cameras
- Assemble materials required (see list in Step 4 of Stage 1)
- Undertake re-inforcement training of PLUP staff in use of GPS, satellite image print interpretation, topographic map interpretation, participatory mapping, field data collection and recording.
- Prepare an example of a completed village agreement and village boundary and village cluster boundary agreement forms.

Step 2 Village and village cluster boundary delineation

As illustrated in Diagram 3 the activity starts at the village cluster level to identify initial cluster boundaries, common use areas and any land and natural resources conflicts

- If old village boundary maps and village boundary agreements are still available prepare them for reference during village boundary meetings
- Select a convenient central village within the village cluster in which to conduct a village cluster boundary meeting representatives of all villages in the cluster
- Arrange and hold a joint meeting with representatives of all the villages in the village cluster

- Using satellite image maps, topographic maps, and aerial photographs, request village representatives to identify and mark important points or features along village boundaries with neighbouring villages, including roads, streams, rivers, cliffs, and mountain ridges
- Using these important points or features, locate preliminary village boundaries of all villages in the cluster and sketch these on a satellite image or topographic base map
- Identify any village boundary conflict areas, inter-village common use areas (water sources, protection forests, NTFP areas, grazing areas) and mark them on the satellite image map or topographic base map
- In cases where village representatives agree that village boundaries are correctly indicated on the base map, prepare the village boundary agreement forms for those villages straight away
- Prepare copies of the village boundary maps for each village to be used during boundary verification surveys in each of the other villages
- Mark the locations of boundary conflict areas on copies of the village base maps concerned so they can be investigated and mediated during field boundary surveys
- Divide the PLUP team into small groups to carry out the verification of village boundaries in each village, and to investigate and mediate boundary conflict areas
- Inspect and survey the preliminary village boundaries of each village with village representatives to verify and record strategic boundary points with the GPS, and photograph the locations at which GPS readings are taken
- Investigate and mediate boundary disputes that were previously identified at the village cluster meeting
- When all village boundary disputes have been completed, complete a Village Boundary Agreement Form and a Village Boundary Conflict Agreement Form for all the villages
- If boundary disputes can not be resolved during boundary surveys arrange for the villages to discuss and mediate the disputes
- Should that process not resolve the dispute it should be referred to the District Authorities for consideration
- Prepare a Village Cluster Boundary Agreement Form for Village Heads and District Authorities to sign.

Step 3 Mapping village cluster (kumban) boundaries

- When the village boundary delineation and boundary dispute processes have been completed to the satisfaction of all parties in all villages the digital mapping of the village and village cluster boundary is undertaken
- If GIS capability exists in the field team, digitise the boundaries while in the field or at the District Centre
- If GIS capability does not exist in the PLUP field team, draw the boundary information on the satellite image print or the enlarged topographic map so it can be digitised at a central GIS Unit after work is completed in the field.
- When digitising the maps, GPS boundary point data, boundary information recorded on survey forms, and the digital photographs of strategic boundary points must be used.
- An alternate method of mapping the boundaries is to directly digitise the boundary line from the satellite image sketch map or the topographic sketch map using on-screen digital methods. however it must be understood that the results will be less accurate than using GPS data.
- The boundaries of the outer-most villages in the village cluster become the village cluster boundary
- Later, indicate the village and cluster village boundaries with strategically positioned sign boards or boundary markers.

Step 4 Endorsement and Approval of Village and Village Cluster Boundaries

The District Governor, will endorse the village and kumban boundary maps and agreements and submit them to the provincial governor for official approval in accord with Article 50 of the Local Administration Law.

Stage 4 Village and Village Cluster Agriculture and Forest Land Use Zoning

Definition:

Agricultural and forest land use zoning means the identification and mapping of forest agricultural and forest land uses within village management areas after boundaries have been agreed and mapped. This is an inter-active process in which both men and women participate.

The land use zones defined are “future land use zones” derived from existing or current land use areas identified on recent satellite image prints. The present land uses displayed on recent satellite images permits discussions to proceed directly to the identification of future land use zones. This approach requires less time than a two step process of “current land zoning” and “future land zoning” is less confusing for villagers, and decreases the time required by GIS units to map land use zones.

The land use zones identified are those that villagers agree will be followed and managed in the future five to ten years. Some degree of flexibility may be needed to accommodate changing land use circumstances.

Land use zoning is different from forest classification. Forest classification describes the type and composition of the forest or vegetation in a particular area. Forest and land use zoning indicates the uses and management practices that are appropriate in different agricultural land and forest areas.

Importance of Land Use Zoning:

Land use zoning at village and village cluster levels is important for the following reasons:

- It enables villagers to participate in defining and understanding the future boundaries of each land use type within the village management area and to prepare land and forest management rules, agreements or plans
- Villagers can be encouraged to limit future agricultural activity to the agricultural zones that are delineated.
- Villagers have the opportunity to consider if there are lands within their village boundary that could be allocated to future commercial plantations by local and foreign investors
- The boundaries of the forest zones for management and use are clearly understood by villagers leading to land registration
- Land use zoning provides a framework for preparing village and village cluster land management plans

Objectives:

- To define the extent and boundaries of future land use types and their areas within village and village cluster boundaries
- To achieve consistency of land use zones between villages within the village cluster, i.e., a) protection forest areas in one village should as much as possible adjoin protection forest areas in other villages, b) if possible agricultural farming land in one village should not be adjacent to protection or conservation forest in a neighbouring village.
- To improve past management of natural resources and retain forest areas within village management areas and within the village cluster
- To facilitate the preparation of village and village cluster agricultural and forest agreements and land management and use plans
- To assign agricultural production areas large enough for food security and commercial crops and self sufficiency as a means towards poverty alleviation
- To facilitate effective management and use of forest and agricultural land resources within villages and the village cluster.
- To understand agricultural and forest land use zones between neighbouring villages
- To guarantee small watershed are protected in villages and village clusters
- To identifying lands that are potentially available for investment in commercial plantations and

industrial crops

- To provide District and Provincial Authorities with information and land use maps for making decisions regarding the allocation of land for local and foreign investment

Criteria:

The following criteria have to be considered collectively when zoning is being done. Consideration of only one or two criteria is likely to result in inappropriate zoning.

- Consider if forest categories described in the Forestry Law, i.e., protection forest, production forest and conservation forest exist within the villages of the village cluster
- The uses of the existing forests in the village management area; this indicates how villagers currently utilize the natural resources, the potentials for zoning and current inappropriate land uses
- The type and condition of forests along the boundaries of neighbouring villages; this indicates how neighbouring villages currently utilize the natural resources, potentials, and inappropriate land use
- Bio-diversity that must be conserved, i.e., flora and wildlife types and locations
- Land use “trends”, forest clearance, land development, roads and village settlement
- Identify areas of degraded land areas that have potential for agricultural or agro-forestry development
- The current fallow lands, areas paddy land, upland, grazing, and population growth trends to help ascertain future agricultural land needs of villagers
- The watershed protection needs to guarantee irrigation, fish pond and domestic water requirements

The various land use are described in the following table:

Table 4: Criteria for Distinguishing Village Land Use Zones

Land Use Zone	Factors and Principles	Purpose/Use
Village Residential Area	The area set aside for village settlement with provision for an expanding population	Housing, temple, school, health centre, shops, rice mills etc
Conservation Forest Zone	Areas where plant and animal bio-diversity is sufficient in quantity, variation and natural value to justify delineation as “conservation” Has eco-tourism potential (This will remain State land)	Fauna and flora conservation Species collection Eco-tourism Recreation Scientific research Non-prohibited NTFP collection
Spirit or Sacred Forests	Cemetery (“Pa sa”), “Huang harm”, Maehasak” (These areas may later be registered as communal lands)	Sacred or spiritual forest conservation (Note: These areas are zoned on the land use map separately because they may later qualify for registration as village communal lands)

Protection Forest Zone	<p>Areas with steep slopes</p> <p>Areas with fragile soils</p> <p>Areas near river, stream banks and roads</p> <p>Areas which should not be used for construction and industry</p> <p>Areas which should not be used for production</p> <p>Areas which can regenerated to protection status</p> <p>Has potential to revert naturally to a protection forest category (This will remain State land)</p>	<p>Steeply sloping land protection</p> <p>Soil erosion reduction</p> <p>Watershed and stream protection</p> <p>Regeneration of partially degraded forests</p> <p>Non prohibited NTFP collection</p> <p>Tree seed collection</p>
Forest Use Zone	<p>Forest areas for sustainable village use</p>	<p>Village NTFP collection</p> <p>Village housing and roof thatching</p> <p>Fuel wood</p> <p>Fencing</p> <p>Medicinal purposes</p> <p>Domestic purposes</p> <p>Tree seed collection</p>
Agricultural Zone	<p>Areas required for food and commercial crop production including upland and lowland areas</p> <p>Areas suitable livestock production</p> <p>Land held in reserve for future populations</p> <p>Land for future conversion to bunded paddy</p> <p>Degraded areas with low forest regeneration potential</p>	<p>Lowland rice production</p> <p>Upland farming production</p> <p>Fruit tree planting</p> <p>Economic tree planting</p> <p>Livestock grazing</p> <p>Agro-forestry</p> <p>Reserved agricultural land</p> <p>Fish ponds and small animal production</p> <p>(Note 1: This area may be sub zoned in accord with the purposes and uses indicated above.</p> <p>Note 2: This area needs to be large enough to allow all villagers dependent on rotational shifting cultivation or new families to have sufficient land access.)</p>
Potential Land for Commercial Tree Planting	<p>Degraded forest land or bare land</p> <p>Land in excess of village agricultural requirements for future populations</p> <p>Land with moderate slopes not in excess of 25 degrees</p> <p>Land which villagers have agreed to make available for plantation investment purposes</p>	<p>Commercial tree planting</p> <p>Commercial livestock raising and fish</p> <p>Commercial annual crops</p>
Other areas	<p>Other land areas such as bald or barren land, rock areas, gravel pits, streams, natural ponds, lakes or dams, roads</p>	<p>Recreation</p> <p>Irrigation</p>

Note

The procedures for land use zoning described below are appropriate when planning for commercial tree crop planting by investors. Where a concession has already been granted by higher authorities, it is necessary to go through a three step survey and authorization process of, a) identifying “potentially suitable” plantation areas, b) identification of lands which villagers decide may be available for plantations, and c) submission of a survey and land assessment report to District Authorities, before the land can be zoned as appropriate and available for concession purposes, at both the village and the village cluster levels. This procedure is described in Part 3, Chapter 6.5 of this manual.

The steps in village and village cluster forest and land use zoning are:

Step 1 Village cluster and village land use zoning orientation meetings

- Organise a meeting of kumban organization with the participation of target village representatives to explain the definition, importance, objectives and criteria, and to select 1 village within the village cluster for the actual implementation and to expand to other village.
- Invite village authorities, elders, knowledgeable and respected villagers to attend meeting for explaining the purpose, objectives, criteria and procedures for land use zoning. Also explain the villager rights to forest and land as specified in relevant legislation.
- Discuss data on socio-economic, spare agricultural land and benefits from communal forest land use (details are as per Stage 2).
- After the socio-economic, land and forest data has been discussed request villagers to draw sketch maps of areas of existing land uses, including the locations of paddy fields, upland farming areas (fruit trees, economic or industrial trees, and annual crops), communal livestock grazing, or individual livestock grazing, agro-forestry, agricultural land held in reserve for future allocation (spare land), and land for other agricultural purposes.
- Explain the forest categories as specified in the Forestry Law, the agriculture and forest land use types that will be considered during the land zoning procedure, and the equipment and materials that will be used.
- Discuss the existing condition and uses of agriculture and forest land areas within the village boundary using the satellite image village boundary map, topographic map and aerial photographs, if available.
- Enquire if villagers believe there is land available or otherwise for commercial plantations purposes on the understanding that villagers can take part in making decision for giving any land to commercial investors.

Step 2 Identify land use zones on satellite image or topographic map

- Define the village residential area including land that will be required for residential expansion of the village as population increases
- Assess the socio-economic data discussed above with villagers to gain an appreciation of agricultural land and forest needs for future populations
- Assist villagers to sketch in pencil or mapping pens on the satellite image prints, “provisional” agriculture and forest land use zones based on the following information:
 - Existing village forest areas, land use practices and farming systems.
 - Future agricultural land needs based on estimated population growth trends
 - Details of existing village land use agreements or rules (written)
 - The forest and land use zoning criteria (outlined above)
 - Areas of any of the three national level forests if they exist within the village cluster
 - Areas that villagers consider may have potential for commercial investment based on the above criteria

Step 3 Ground survey

- Using the provisional land use zone map , or topographic map, conduct a ground survey with villagers to a) record GPS readings at various points along land use zone boundaries, b) observe different forest types, uses and locations.
- While conducting the ground survey, observe and record on the satellite image map or the topographic map the location and uses of forest and land types in areas adjacent to the village boundary. (This information is required when doing land use surveys in other villages in the village cluster)
- Take digital photographs of strategic points where GPS readings are taken along the boundaries of the various land use zones and record the positions on the Ground Survey Form
- Note any areas that villagers consider may have potential for commercial investment purposes
- After the ground survey, adjust the boundaries of the various land use zones on the satellite image map or topographic map and prepare a provisional legend of the land use zones defined

Step 4 Meeting to verify land use zones

- Conduct a general village meeting to explain the information on the provisional land zoning map, and based on feed-back from villagers, verify and adjust the land use zones and zone boundaries
- After the meeting to verify the land use zones of the first village, make appointments with other villages in the village cluster to conduct land use zoning
- Following the criteria and procedures used in the first village, conduct land use zoning in each of the other villages in the village cluster as explained in Steps 4.1, 4.2 and 4.3. Representatives of each village should be present during the zoning activity to ensure that land use zoning between villages is consistent

Step 5 Digital mapping of land use zones

- If GIS capability exists in the PLUP field team, digitise the boundaries while in the field or District Centre. Digitise the village and village cluster land use zones using the data from the satellite image sketch map and the GPS readings
- If GIS capability does not exist in the PLUP field team, secure the boundary information drawn on the satellite image print so it can be digitised at the selected GIS Unit after work is completed in the field
- When digitising the zone boundaries, use the digital camera data to confirm points along the land use zones boundaries

Step 6 Village cluster meeting to confirm land use zones

- After the mapping on the land use zones has been completed in all villages in the cluster it is necessary to review the results with the village cluster representatives
- Conduct a village cluster meeting to display, explain, and review the village and village cluster land use zoning maps to representatives of all villages. Make adjustments on the land use map if required
- If land areas have been designated as having potential for commercial investment use the opportunity to inform villagers about these potential areas and also advise them that such lands would not be allocated for such purposes unless they are officially surveyed under the supervision of District Authorities.

Step 7 Distribution of land use maps

- After the land zone maps are produced ensure that that they are distributed to relevant stakeholders
- Provide copies to Village Committees, Village Cluster Authorities, District Authorities, and District agencies

Step 8 Village and village cluster sign-boards

- Draw a boundary and agriculture and forest land zoning map on a village sign-board and erect in a convenient location in the village.
- Draw a village cluster boundary and land zoning map on a village sign-board and display at the Village Cluster Office

Stage 5 Village and Village Cluster Agricultural and Forest Land Management Plans

Definition:

Land management plans are the management activities that are defined for each of the village and village cluster agriculture and forest land use zones and other areas. The “land zone maps” are not actually “land use plans”, however the village and village cluster boundary provides the framework for developing future land use plans.

Land management planning takes into account traditional agricultural and social practices used by the various ethnic groups to manage forests and agricultural land.

Objectives:

- To delineate and organize production land for villagers to manage, expand and use in a productive and sustainable manner
- To delineate land use types or sub-zones within the agricultural zone that are appropriate for low-land paddy cropping, upland annual cropping, commercial tree, fruit tree plantations, grazing and other village agricultural purposes
- To delineate land with potential for commercial tree plantations, using the criteria outlined in Stage 4 above
- To provide villages with a clearer understanding of agricultural production and conservation activities within the agriculture and forest land use zones
- To facilitate the step by step reduction and eventual cessation of shifting cultivation in areas designated as protection forest, village use forest, and village conservation forests
- To provide a basic planning tool for developing village development plans (VDP) and extension activities supporting the VDP
- To provide enough agricultural and production land, including grazing and plantations, for current and future generations

Criteria:

- The location and types of current land use practices and farming systems
- Land slope categories for different agricultural land uses to determine how the agricultural zone can be sub-zoned for different agricultural uses
- Potentials and limitations of different production areas as understood by villagers
- The potential for improved crop practices to improve crop yields and productivity
- The potential for introducing agro-forestry to improve agriculture eco-system
- Use practices in each of the forest zones
- The village requirements for domestic wood (housing, fuel, fencing etc)
- The village requirements for non-timber forest products (NTFPs) to ensure that particular NTFPs stocks are protected and sustained
- The minimum areas of agricultural and forest lands required to sustain the projected population in 10 years time

The agriculture and forestry data gathered in Stage 2, the village sketch maps and the land use zone maps from Stage 4 are used to facilitate preparation of land management plans. Participatory discussions with both men and women are conducted to work out details of the plans.

Step 1 Utilize agriculture and forestry data

The agriculture and forestry data gathered in Stage 2 is used to:

- Appraise and broadly define land slope categories within the village agricultural zone and sketch onto the satellite image map
- Indicate on the satellite image print the preferred cropping practices of villagers for different areas

within the agricultural zone

- Record data on the current use practices for each of the village forest zones and draw record on the satellite image map
- Draw the locations of the main NTFP's on the satellite image map
- Evaluate village land use trends, i.e., annual cropping, commercial cropping, grazing, and exploitation of forest products

Step 2 Utilize socio-economic data

The socio-economic data gathered in Stage 2 is used to:

- Map roads and tracks to provide knowledge on access to land use areas
- Calculate land use areas in the village using the digitised lmap
- Calculate approximate 10 year village population growth from village births and deaths data
- Evaluate likely changes in land use in the village and to calculate approximate increases or decreases in land use areas required for village livelihoods
- Estimate total future village areas required for cropping, forest, and housing

Step 3 Assess village land use issues and potentials

Land use information acquired from the problem census in Stage 2 is utilised to analyse causes, impacts, and make proposals for addressing problems and capitalise on opportunities and potentials to improve current agriculture and forest management and use practices.

- Identify potentials and opportunities for improved land use practices in forest zones and the agricultural land use zone
- Identify cases where land is used for food production in areas not classified for such purposes, e.g., rice fields in use forests, protection forests, conservation forests, and discuss what changes need to be made to rectify these situations
- Identify land that is used by villagers outside the village area or even outside the cluster and how these circumstances can be dealt with in the cluster land management plan
- Identify areas used by outsiders within the village or cluster area and what regulations apply

Step 4 Prepare village forest and agricultural land management plans

- Data from the analyses in Step 1, 2 and 3, and the village land and forest management agreement are synthesised to prepare future land management plans
- The aim is to attain a realistic balance between livelihood requirements and forest conservation and protection requirements
- The future locations and areas or sub-zones for different agricultural practices are designated within the agricultural zone using land slope and the village sketch map of preferred cropping practices for different areas (or sub-zones) within the agricultural zone, i.e., for paddy land, upland annual cropping, commercial tree and fruit tree cropping, grazing, and fish ponds etc
- Wherever feasible, identify potential areas suitable and available for future investments in industrial crops or tree plantations (see detailed procedures in Part 3, Section 6.5)
- Specify conservation farming practices that should be used in upland farming systems
- Specify feasible farming system and production improvements that could be addressed in the short and longer term
- Specify permitted utilisation levels for wood, fuel, housing etc. for the village forest use zone
- Specify limits for extraction levels of NTFPs in various forest areas

Step 5 Prepare land and forest management & use agreement

The agricultural land and forest management and use agreement is prepared to capture and elaborate the details of the land management plans for the various land use zones. Land and forest agreements, prepared in consultation with village authorities and villagers, are tools to help villagers manage and utilise village forest and agricultural land in accordance with the GoL policy and the requirements of the villagers. The rights, roles and responsibilities of village authorities and villagers in forest and agricultural land utilisation and protection are elaborated. The conditions and rules vary between villages depending on the types of forest and agricultural land present in the village and the uses of each type of forest or land.

The steps in preparing and accepting the Agreement are indicated below:

- Discuss existing village land and forest use rules and agreements with the village LFMC
- Review the future village land use zone map and the land management plans (see 5.4 above)
- Discuss the rules and agreements that should apply to each land use zone
- Prepare a first draft of the agreement which specifies the conditions and rules for each of the forest-land use zones and other areas. The agreement covers what activities are allowed/permited or not permitted in each land use zone. The sanctions for breaches of the conditions and rules for each zone are specified.
- Present the draft agreement and the land use zoning map to a general village meeting.
- Both men and women are invited to the meeting with the LFMC to hear, review, improve/adjust and agree with all conditions for each land use zone covered in the village agreement.
- The agreement is re-written in detail following the decisions of the general meeting. The LFMC do this work facilitated by DAFO and DLMA staff
- The Village Land and Forest Management Agreement is certified and endorsed by the District Governor.
- The DAFO staff prepare and make enough copies of the agreement to distribute to all neighbouring villages after it has been signed and stamped by the Village Head, the village LFMC and the District Governor.

Note:

During the process of preparing land management plans in each of the cluster villages, cross-cutting issues that are not specific to individual villages are identified for consideration in the village cluster plan. For example, joint management of contiguous protection forest zones within two or three villages, problems of water distribution to paddy fields in one or more villages, or outsiders encroaching on village land to remove timber or NTFPs.

Step 6 Prepare village cluster land and forest management plans

- After the land and forest management plans are prepared for the first village in the village cluster, a similar procedure is followed to prepare land and forest management plans for each of the other villages in the cluster. This includes the steps of gathering agriculture and forest data, analysing socio-economic data, analysing village land use issues and potentials, preparing village land and forest management plans, and preparing land and forest management and use agreements. Activities to address these issues are incorporated in an overall management plan for the village cluster
- If it does not already exist a Village Cluster Development Committee is formed including district agency staff and village representatives from each village in the village cluster
- The roles and responsibilities of the Village Cluster Development Committee regarding the preparation and implementation of the future village cluster land management plans are defined
- The village cluster land management plan is prepared using the data from the village land management plans
- A general meeting of the Village Cluster Development Committee discusses the issues, constraints and potentials and makes decisions about the most important cross-cutting conservation, protection and development activities that need to be undertaken by the village cluster member

villages

- Areas to be used by villagers from neighbouring villages are clearly identified and discussed.
- The village cluster management technical team assists the Village Cluster Development Committee to formulate the “village cluster land management plans”. These plans will be in accord with the village cluster land use zones defined and mapped and will specify the resources and funds required to implement them for a period of five years
- Land and forest user groups in the village cluster should be involved in the preparation of the cluster land management plan and the development plan
- To improve co-ordination between the villages in implementing the village cluster land management plan, a village cluster land and forest management and use agreement is prepared by the Village Cluster Development Committee and the Village Land and Forest Management Committees or Village Development Committees, and certified and endorsed by the District Governor

Figure 1: Indicative Village Land Management Plan Format

Village: District: Province:

Date: Officer Recording:

Forest and Land Use Zone	Location	Area (ha)	Management Activity
Forest Zones			
1. Village Protection	Phou Kaning	160	Watershed protection of paddy water source
2. Village Conservation	Phou Fa	180	Protecting wildlife species
3. Village Use Forest	Huay Peuay	220	Sustainable harvesting of timber, NTFPs etc for domestic use
4. Sacred Forests (cemetery, etc)	Near village	12	Totally protected area
sub-total		572	
Agricultural Zones			
1. Wet rice paddy fields	Huay Bone	10	Improve rice varieties and yields
2. Permanent annual cropping	Houay Phon	7	Commercial maize production relayed with black bean
3. Rotational annual cropping	Several areas	170	Maintain present areas under sustainable rotation; introduce conservation farming methods
4. Combined wet rice paddy and upland/garden crops	Huay Bone	5	Vegetables for consumption and sale
5. Commercial plantation crops	Huay Kitom	25	Contour planted rubber inter-cropped with annuals food crops
6. Livestock grazing paddocks	Adjacent to village	10	Improved forage planting for backyard cattle fattening and sale
sub-total			
Communal Grazing Zones (if they exist)	Phou Luang	300	Breeding area for village cattle herd (Ranch)
sub-total		527	
Other Zones			
1. Village residential area	Village	12	Provide housing area for future population
2. Communal land	Health post	1	Health service for village
sub-total		13	
Total Village		1,112	

An example of a Village Land and Forest Use Agreement is provided in Annex ??

An example of a Village Land Management Plan is provided in Annex ??

An example of a Village Cluster Land Management Plan is provided in Annex ??

Stage 6 PLUP Data Record Keeping and Digital Mapping

Introduction

In the past large amounts of data were generated by the LUP-LA through-out the country. Generally, districts produced comprehensive information in the form of socio-economic data, land use planning and land allocation data, village and village land use maps, village land and forest management agreements and summary reports. Unfortunately the value of this data was compromised because it was inadequately and inconsistently stored and safeguarded by different districts and provinces.

The absence of clear guidelines for data storage and management has been identified as a key area for improvement in the on-going PLUP program at village and village cluster level. Therefore, PLUP data storage requirements for the village cluster have to be considered.

Data record keeping and storage in this manual refers to information from the former LUP-LA program and the future PLUP program. When rural land titling activity is initiated it is anticipated that procedures and methods that have been developed for the urban and peri-urban land titling program will be adapted and applied for rural land titling by DLMA.

Benefits of Effective Data Storage Systems

Properly stored data has many benefits for district land use planners, extension staff and villagers as summarised below:

Village Boundary and Land Use Zone Maps

- Facilitates future communal land registration, land management, extension and monitoring and evaluation activity
- Facilitates resolution of future boundary and land use disputes that may arise
- Facilitates planning forest, agriculture and land management extension activity
- Tools for district and provincial staff to manage local and foreign investor land development activity

Inter-Village Boundary and Management Area Agreement

- The DAFO staff have a written document to refer to should boundary disputes arise between villages in the future.
- The target village and neighbouring villages can use the written record of the agreement to mediate conflicts that re-emerge or new disputes which may arise

Village Forest and Land Management Agreement

- It is an important tool for the village committees to manage forest and agricultural land within the various land use zones in the village area
- The DAFO requires a copy for reference in mediating disputes which the village committee can not resolve

Review of LUP-LA Information

In 2009 a simple review will be undertaken to investigate the status of former LUP-LA data availability. Lessons from this experience could then be applied in the future PLUP program.

Procedure 1 Village, village cluster, and district level data storage

Two situations need to be considered:

1. Data generated by the former LUP-LA program
2. Data that will be generated by future PLUP activities

Data from the Former LUP-LA Program

Six types of information were produced by the former LUP-LA programme:

- Village Boundary and Land Use Zone Maps
- Inter-village Boundary Agreement and Boundary Conflict Resolution Agreements
- Village Forest and Land Management Agreement
- Village Land Use Planning Data
- Village Land Allocation Data
- Village Land Use Planning and Land Allocation Report

Objectives

- To safe-guarded data and maps to for the future PLUP and village development activity
- To facilitate the rural agricultural land registration process by making TLUCs available to the DLMA as one proof of claim for rural agricultural land parcel registration

This information should be protected by the DAFO in the following manner:

1. All documents should be filed in hardback clip folders
2. All land use maps should be stored in waterproof mapping cylinders

Data from the Future PLUP Programme

Four types of information will be produced by the future PLUP programme

- Village Boundary and Land Use Zone Maps
- Inter-village Boundary Agreement and Boundary Conflict Resolution Agreements
- Village Forest and Land Management Agreements
- Village Land and Forest Use Planning Data

Objectives

- To provide village land use zoning maps to the DLMA on which to base rural registration for individual and communal land parcels
- To facilitate future natural land resources management programs undertaken by DAFOs
- To facilitate village development and extension activities
- To assist government agencies consider requests by companies for commercial tree plantation land.

Methods

- Copies of all future PLUP data will be held at the village and DAFO levels because the Village Authorities need detailed data to deal directly with land use questions or issues that arise on a day to day basis within the village. The DAFO needs detailed data to compile and forward to the provincial level
- Summaries of future PLUP data will be held at the village cluster level, because the Village Cluster Administration needs only to maintain summaries of data from each cluster village so it does not become over-burdened with information it does not need or use

Persons Responsible:

District:	The DAFO staff member responsible for land use activities
Village Cluster:	The Head of the Village Cluster Administration
Village:	The Village Head and the Village LFMC

Future PLUP information will be stored in the following manner:

Written documents: Hardback binders

Village land use maps: PVC or Eslon cylinders

If computers are available at DAFO, electronic copies should be created for all written documents. A file should be created for each village. The file should be backed-up on a CD or other device.

Four copies should be printed for retention in hard backed files as follows:

- Village PLUP file
- Village Cluster PLUP file
- District PLUP Summary file
- One copy should be forwarded to DLMA Office

Further Reading

LSFP (2001): Procedures for Storage and Protection of Land Use Planning and Land Allocation Information. Technical Booklet 4

Procedure 2 Digitising, storing and distributing land use maps

Although in some cases PAFO staff members have received basic GIS training from both NAFRI and FIPD, adequate digital mapping capability does not generally exist at provincial level. Consequently, for the present, digital mapping should be handled at the central level. If adequate capacity does exist at provincial level or with projects operating at district or provincial level, digital mapping could be undertaken at those levels.

Three types of maps should be digitised and stored at the central level.

- Village boundary and land use zone maps
- Village cluster boundary and land use zone maps
- District, village cluster and village boundary and land use zone maps

Objectives

- To ensure the information is properly stored and retrievable
- To facilitate the distribution of maps produced by the GIS Unit to each of the stake-holders and end users
- To use as tools for land use planning and developments at village, district and provincial level
- To safeguard information on village and village cluster land boundaries and land use zones

The steps in this procedure are as follows:

Step	Activity	Agency Responsible
1	Provide the village and village cluster boundary and land use zone field map drawn on satellite image (or digital topographic maps) to the FIPD in DoF or other competent provincial GIS unit	DAFO - PAFO
2	Create a "Village and Village Cluster Land Use Maps" directory	GIS Unit, FIPD
3	Digitise the village and village cluster boundary and land use zone map using on-screen digitising methods	GIS Unit, FIPD
4	Ensure that the digital data is properly filed on the Village Cluster Land Use Maps directory	GIS Unit, FIPD
5	Create back-up files on CD	GIS Unit, FIPD
6	Provide the Land and Natural Resources Research and Information Centre (LNRRIC) of NLMA with back-up copies of the digital data	GIS Unit, FIPD and LNRRIC
7	Provide PAFO and DAFO with electronic copies of each of the maps in "jpg" format	GIS Unit, FIPD
8	Print three A3 size village boundary and village land use zone maps for each village in the village cluster	GIS Unit, FIPD
9	Print three AO or A3 village cluster boundary and land use zone maps	GIS Unit, FIPD
10	Provide one village boundary and land use zone map to the Village Authorities of each village in the village cluster	PAFO, DAFO
11	Provide one village cluster boundary and land use zone map to the Kumban Organisation Committee	DAFO
12	Provide the DLMA with one hard copy of the village boundary and land use zone maps and one copy of the village cluster boundary and land use zone map	DAFO
13	Retain and store properly at DAFO one hard copy of the village boundary and land use zone map and one copy of the village cluster boundary and land use zone map	PAFO, DAFO
14	File electronic copies of the village and village cluster maps in a Village Cluster Land Use Map directory at the DAFO	PAFO, DAFO

Procedure 3 Electronic data storage at provincial level

Generally adequate computer capacity and capability exists at the provincial level to develop simple PLUP information systems in PAFO. Simple information systems can be compiled from information supplied from the District using software programs such as Word and Excel.

Objectives

- To capture information generated at the district level
- To make district level information available for provincial agencies to utilise for land planning purposes
- To forward information to the central level for storage and distribution.

Land Use Planning Information

- Inter-village boundary agreement and boundary conflict resolution agreements
- Village & village cluster forest and land management agreements
- Village and village cluster land use planning data
- Village and village cluster land use planning summary reports

Steps in Establishing Electronic Land Use Planning Information Systems

If computers are available at the district level:

1. Electronic copies of each of the above documents are prepared
2. One electronic file copy of each document is held in the DAFO computer directory
3. A backup copy is made on CD or other device and stored in an accessible place at DAFO
4. One electronic copy is taken to the PAFO and entered into the PAFO land use planning computer directory
5. A backup copy is made on CD or other device and stored in an accessible place at PAFO

If computers are not available at district level:

1. The hand-written documents are photocopied
2. One copy is placed on the DAFO document binder filing system as explained in Section 7.1 above
3. One copy is taken to the PAFO and placed in a PAFO document binder filing system
4. Create a land use planning computer directory and a backup copy on CD at PAFO and file the documents received from the district

Further Reading

LSFP (2001): Establishing Computerised Temporary Land Use Certificate Record Systems at PAFOs. Technical Booklet 6

Introduction

In the former LUP-LA program TLUCs were issued in villages where land allocation was conducted because at that time MAF was responsible for issuing these certificates. The intention was that these TLUCs would be converted to permanent certificates by the Lands Office which would be followed by land parcel registration and land titling. Under the new ministerial arrangements future land certificates will be issued only by the NLMA as part of the rural land registration process. The old TLUCs are however one of a number of documents that will be used as evidence of land parcel “ownership” when registration of rural agricultural land is undertaken by NLMA.

It is recognised that there are many constraints to overcome to establish procedures and methods for land registration and land titling in rural villages. The reader is advised that the procedures described in this manual are an interpretation of the legislation regarding rural land adjudication, registration and titling, and not based on actual experiences. Therefore it may be expected that as experience is gained with this work, changes to the procedures described below will result.

Ministerial Instruction 564/NLMA, August 2007 provides for the issue of three types of Land Titles in rural villages:

1. Individual Land Title (Bai Ta Din Ekason)
2. Community or Collective Land Title (Bai Ta Din Luam Moo)
3. State Land Title (Bai Ta Din Lat)

Article 15 of Decree No.88/PM, June 2008, on the Implementation of the Land Law charges the DLMA with conducting land inspections, land measurement, and preparing land registration documents based on a land survey and a land use plan. Land registration can therefore be undertaken in situations where village land use planning (village land use zoning and land management planning) has been undertaken by MAF agencies, normally the DAFO.

Article 16 of Decree 88/PM, June 2008, on the Implementation of the Land Law explains that: “Land Certificate (TLUC) is a document issued by the District or Municipal Administrative Authority certifying provisional land use based on the land and forest allocation plan. After a period of three years of developing the land the holder of a Land Development Certificate shall have the right to apply for a Land Title which is the legal document certifying land use rights”.

This Article further explains that “Land Development Certificate is an official document issued by the concerned land use management sector, based on development plans, which proves that the concerned land parcel has been developed. The certificate is required as part of the land file for applying for land registration, as stipulated in Article 18 and 43 of the Land Law”

Implications of the current legislation

In the future PLUP program the MAF agencies need not issue any more TLUCs because land registration can be effected using other documents to verify ownership including Land Survey Certificates, Land Development Certificates and Certificates of Land Ownership History (See Decree No. 88/PM on the Implementation of the Land Law, 2008). Customary ownership is also recognised in Ministerial Direction No. 564/NLMA, 2007 as a means of acquiring private land use rights. Therefore in the future program the MAF agencies need only to undertake land use zoning within village management areas, after which the NLMA agencies will undertake land adjudication activity to establish ownership of village residential land parcels and agricultural land parcels within village agricultural land use zones.

The TLUCs issued under the former LUP-LA programme can be used as one form of claim to ownership in the rural land registration process. The importance of securing and storing these documents for use in the registration process is explained in Stage 6 above.

Of the three types of rural land titles available, two relate to village agricultural and forest land

- Individual Land Title (Bai Ta Suan Bookkhon)
- Community or Collective Land Title (Bai Ta Din Luam Moo)

Individual land titles will be issued only for agricultural land parcels that are located in the village agricultural land use zones designated by the village land use zoning processes (see Part 2,,Stage 4). Titles will be issued only for land parcels that have been developed for three years or more. They will also be issued for residential land.

Communal land titles will be issued for parcels of forest land designated by the village land use zoning and land use planning processes. These may include areas zoned as village sacred land, village use forests and communal grazing lands, communal agricultural land but not village protection forests, village conservation forests and unexploited forest land (Article 7 of Decree No. 88, June 2008).

Instructions on the use of new formats for land titles and registration books are provided in Instruction No. 1668/NLMA.CAB, of 29th April 2008.

7.1 Land tenure data collection and analysis

Under the improved PLUP procedures the issuance of TLUCs is delegated to other relevant agencies by DAFO for registering individual or family agricultural land parcels. However it is necessary to identify land parcels that are eligible for registration by the DLMA/PLMA after land use zoning has been undertaken and land management plans are being prepared.

To enable the adjudication of agricultural land parcels it is necessary to collect and analyse family land tenure information. The data is collected by DAFO and DLMA staff during the data collection activity explained in Stage 2.

The land tenure form provides data on the ownership of all land parcels in the village and the type of land use for each parcel. This enables the cadastral unit of DLMA to determine which land parcels are eligible for registration before they are surveyed and mapped, i.e., parcels that have been developed for three years or more and which meet the criteria outlined in paragraph 8.5.2 of Decree No. 88, June 2008.

In the Family Land Tenure Analysis table example shown in Annex XX, the types of permanent land use are recorded in the columns to the left, and swidden or non-permanent land use is shown to the right. The parcels included in the “permanent land use” columns, i.e., paddy, garden, orchard, plantations, grazing, are those that will receive further consideration during the DLMA adjudication process. The parcels included in the “non-permanent land use” column, i.e., swidden, are not considered any further in the initial adjudication and registration process.

Each permanent land use type includes a column for “type of document”. In this column the details of the following adjudication documents being offered as proof of claim for land parcels can be recorded, i.e., former TLUCs, Land Development Certificate, Certificate of Land Ownership History or Customary Use Verification by Village Head.

The aim is to work in all villages and village clusters initially to register land of families who have undertaken land improvements in lowland and upland fields for a period of more than three years. If DLMA resources permit, rounds of land adjudication and registration would be conducted in villages every three years to progressively register land parcels on which socio-economic development or improvements have been made since the initial round of adjudication and registration.

The last column “additional land needs” provides an opportunity for individuals or families to express needs for additional land parcels in addition to those that are claimed in the other columns. These parcels, for which individual or families wish to stake a claim, are located within the agricultural use zone, which includes the spare land or reserve land areas. This information is important particularly in cases where newly formed families, in-migrating families or poorer families have access to very little or limited land for basic food production. This data can be used to negotiate with the village community and the Village Authorities for the allocation of

more land for the needy.

7.2 Establish a village land and forest management procedure

A new system of “village managed land allocation” needs to be established so that the Village Authorities and villagers can manage the allocation of agricultural land within the agricultural land use zone including reserve land that is not immediately eligible for land registration by DLMA.

Principles

- Village managed land allocation can only be undertaken within the defined agricultural land use zone, including designated “agricultural reserve land”
- The Village Authorities assisted by the LFMC have responsibility for village managed land allocation
- Traditional land management and land parcel distribution systems are respected in accord with the existing practices of the particular ethnic group
- Land allocation will be flexible with the aim of providing land for all families or individuals in the village including former residents, new families and in-migrants.

Procedures

The procedure for village managed land allocation is as follows:

- The Village Authorities, assisted by the LFMC allocate family “land parcel use rights” based on the land use information recorded on the Family Land Tenure Analysis Form
- The land parcel use rights allocated by the Village Authorities are certified and endorsed by the District Governor in accord with Article 82 and Article 83.3 and 83.4 of the Forestry Law.
- TLUCs are not required because cadastral surveys would be conducted by DLMA adjudication teams when registration is undertaken at a later date .
- The families with informal land use rights will be encouraged to develop the land parcels, to gain entitlement for rural land titling in accord with Article 88 of the Forestry Law.
- If land parcel development is implemented in accord with required criteria, land registration can take place which will provide the owners with “formal land use rights” (individual land titles)
- Families or individual land owners who develop land parcels will be exempted from paying land tax for the three years when development of the parcel is being undertaken (legal reference ??)
- Every three years a new round of adjudication and titling may be undertaken by DLMA adjudication teams to provide families and individuals who have developed land the opportunity to have their land registered

7.3 General procedures for registration

Article 44 of the Land Law 2003 specifies that Land Registration consisted of two systems: Systematic and Sporadic.

- Systematic registration is undertaken in a particular area, e.g., a whole village, where land allocation, land categorisation and land management is necessary.
- Sporadic registration is registration made on request by individuals or organisations to certify their right to use the land.

The preferred system for registering agricultural land parcels is systematic registration because all parcels in the land use zone are considered at the same time to ensure that all ownership claims can be cross-checked with all families in the village and verified by the Village Authorities and elders. The verification is undertaken at the same time of the systematic adjudication of agricultural parcels.

It is anticipated that detailed guidelines for the registration of individual and communal/collective parcels will be developed and issued in due course by NLMA. In the interim, procedures are proposed in Stages 7.4 and 7.5 below.

7.4 Registration of agricultural land parcels

Objectives

1. To provide land use rights (land titles) to owners of parcels of land who have undertaken permanent land development and improvements for a period of three years or more; the title can be issued in the name of the wife alone, the husband and wife or the husband alone.
2. To recognise the investment made by farmers in economic and sustainable land development activities by providing land titles
3. To support village land use plans and economic production plans
4. To increase village crop and livestock production by providing secure land tenure
5. To stabilise land use with the aim of reducing the encroachment of cultivation into delineated village forest areas
6. To provide a basis for monitoring the expansion of economic land use activities
7. To allow villagers to use land titles as collateral for taking out bank loans

Criteria for Verifying Permanent Land Development

The following criteria are used to determine if land parcels have been developed for a period of three years or more to the extent required to qualify for land registration:

Land Development Criteria:

The following types of development are appropriate if undertaken by individuals, both men or women, or families:

- Irrigated or rain-fed paddy
- Permanent annual rain-fed cropping of any crop using conservation farming practices, for example SCV and the use of legumes in crop rotations
- Permanent fruit trees and industrial tree crops using conservation farming practices
- Agro-forestry systems incorporating conservation farming practices
- Sedentary livestock systems for cattle, buffalo, and goat raising, including “khang” or fenced areas for large livestock
- Fish pond areas and integrated multiple cropping systems based on fish ponds
- Gardens for vegetables, medicinal plants or domesticated NTFPs

Land Allocation Ceilings as Expressed in the Land Law, 2003:

Agricultural Land (LL Art. 17):

- Up to 1 hectare per full-time family labour unit for rice (including fish farming)
- Up to 3 hectares per full-time family labour unit for commercial annual crops and industrial crops
- Up to 3 hectares per full-time family labour unit for orchards
- Up to 15 hectares per full-time family labour unit of deforested land or grass lands for pasture

Deforested or Degraded Forest Land (LL Art. 21):

- Up to 3 hectares per individual or family

Registering Individual or Family Agricultural Land Parcels

Land registration is a process that should ideally be completed every three years to enable

families or individuals who have developed land parcels to have them registered and titled. The following steps are proposed after village boundary delineation, land use zoning and village land management plans have been completed.

Step	Activity	Responsible Agency/Authority
1	Explain to villagers, both men and women, the objectives and benefits of land registration and the criteria that will be used for adjudication, using CES methods developed by the LLTP II	DLMA and VA
2	Utilise the Family Land Tenure Analysis Form prepared by DAFO and DLMA to understand land ownership and land parcel claim status of all families or individuals in the village.	DLMA and VA
3	Using the land adjudication criteria identify the permanently developed individual plots eligible for adjudication and registration.	DLMA and VA
4	Identify TLUCs, Land Tax Declarations and receipts, old Land Survey Certificates and other land documents can be used as proof of claim.	DLMA and VA
5	Undertake land parcel adjudication activity in consultation with persons who claim land use rights, persons who claim the land use right on adjoining land parcels, the Village Head, and senior members of the village such as the Front for Construction (using the family land tenure data and the land development criteria)	DLMA (with support from PLMA) and VA
6	Completed an adjudication document (report) as explained in Ministerial Direction 564/NLMA, August 2007)	DLMA (with support from PLMA) and VA
7	Undertake accurate and appropriate cadastral surveys of agricultural land parcels which have been developed for three years or more using satellite image map prints and GPS	DLMA (with support from PLMA) and VA
8	Record the details of each land parcel measured, including, name of family individual or organisation, particulars of the land owner and the land owners parents, code number of the land parcel map, and land parcel dimensions and area	DLMA and VA
9	Enter survey details in the GIS and draw digital land parcel maps for all parcels surveyed	DLMA (with support from national level)
10	Complete the Land Files and Land Parcel Register Book	PLMA and DLMA
11	Issue Land Titles to families or individuals	PLMA and DLMA
12	Provide statistics and cadastral maps on registered land parcels per district to the provincial level (PLMA)	DLMA and PLMA

7.5 Registering village collective or communal land parcels

Ministerial Direction No 564/NLMA, August 2007, on Adjudication of Land Occupancy Right for issue of Land Titles explains that collective land means: "land belonging to co-operatives, collective organisations, village lands collectively used by groups of people or ethnic groups in a village. Collective lands include:

1. Land allocated to households for undertaking seasonal agricultural production with no individual having definite ownership (village agricultural zone or khet kasikham khong ban)
2. Village use forest (pa som sai khong ban)
3. Sacred forest and cemeteries (pa saksit, pa cha, pa houg harm, pa mahasak)
4. Lands for organising traditional or religious rites
5. Common grazing land (khet liang sat khong ban)

Forests and agricultural lands that are collectively titled can not be sold or transferred.

Article 7 of Decree No. 88, June 2008, on the Implementation of the Land Law, prohibits the granting of Land Use Rights (Land Title) or Land Utilisation Rights (Land Survey Certificate) for Protection Forests, Conservation Forests and Unexploited Forest Land. This means that Land Titles can not be issued for Village Protection Forests, and Village Conservation Forests, which will remain the property of the State.

The following steps for registering village communal land are proposed after village land use zoning has been completed by the DAFO and DLMA.

Step	Activity	Responsible Agency/Authority
1	Provide the Village Land Zoning Map and the Village Land and Forest Management Agreement as proof of claim by the Village Authorities, on behalf the community, for the proposed collective land areas	DAFO, DLMA and VA
2	Verify that the land use zoning was undertaken using appropriate and accurate mapping methods, i.e. satellite image map prints, and that the boundary points of the land use zones were verified and mapped using GIS software	DAFO, DLMA and VA
3	Meet with villagers to review and verify the location of the various land use zones, and identify the zones that will be registered as communal land, i.e., village sacred areas, village forest use zone, village common grazing land etc	DLMA and VA
4	Outline in a written document the conditions of management and use that will relate to the communal land categories, using the Village Land and Forest Management Agreement as a reference document	DLMA and VA
5	Undertake a ground survey to verify the land use zones that will be registered as communal village land	DLMA and VA
6	Record the details of each communal or village land parcel measured, indicating if it is in the name of the entire village community or in the name of a user group or association, code number, dimension and area and current use.	DLMA and VA
7	If the application is acceptable issue the Communal Land Title or Titles for the communal land parcels	DLMA

Further Reading

NLMA (2007): Ministerial Instruction 564/NLMA

PMO (2008): Decree No. 88 on the Implementation of the Land Law

NLMA (2008): Instruction No. 1668/NLMA.CAB on New Formats for Land Titles and Registration Books

Stage 8 Village and Village Cluster Networks & Networking

Definitions

Village Cluster or Kumban: An “administrative grouping” of villages at the “sub-district” level

Village Network: A group of villages that may or may not be located in the same kumban but which share similar ecological conditions

Village Networking: Collaborative activity between villages within a kumban or village network to facilitate the resolution of land use conflicts for the sustainable management of natural resources

Objectives of village networks and village networking

Dissimilarities within village clusters tend to cause villages to have disagreements and conflicts over management areas and land use practices, because they are of different ethnic groups, they may reside at different altitudes, they have different attitudes to natural resource use and management, they usually use land and natural resources (e.g. NTFPs) beyond the village boundaries, and they have different forest land uses and/or farming systems. The objectives of village networks are therefore:

- To solve difficult inter-village boundary conflicts and land use infringements between villages in the network, in close cooperation with the village mediation units
- To implement village and village cluster LFMAs and land management plans more effectively
- To ensure that management and use of forest and land use zones along different village boundaries is consistent
- To transfer positive forest and land use experiences and lessons from one village to another
- To contribute to shifting cultivation amelioration within the village cluster
- To reduce the risk of outside illegal exploitation of forest resources by strengthening co-operation and surveillance within the village cluster
- To introduce and share village livelihood development initiatives, e.g., commercial annual and commercial crop production and marketing
- To reduce the workload of government staff by transferring responsibilities for land and forest management to villagers
- To improve the effectiveness of technical assistance provided by the DAFO through the Technical Service Centres

Attributes of Inter-village Networking

Networking involves close co-operation between committees and communities in neighbouring villages. It has the following attributes:

Participatory: It involves villagers meaningfully and encourages them to make their own decisions regarding sustainable natural resource management.

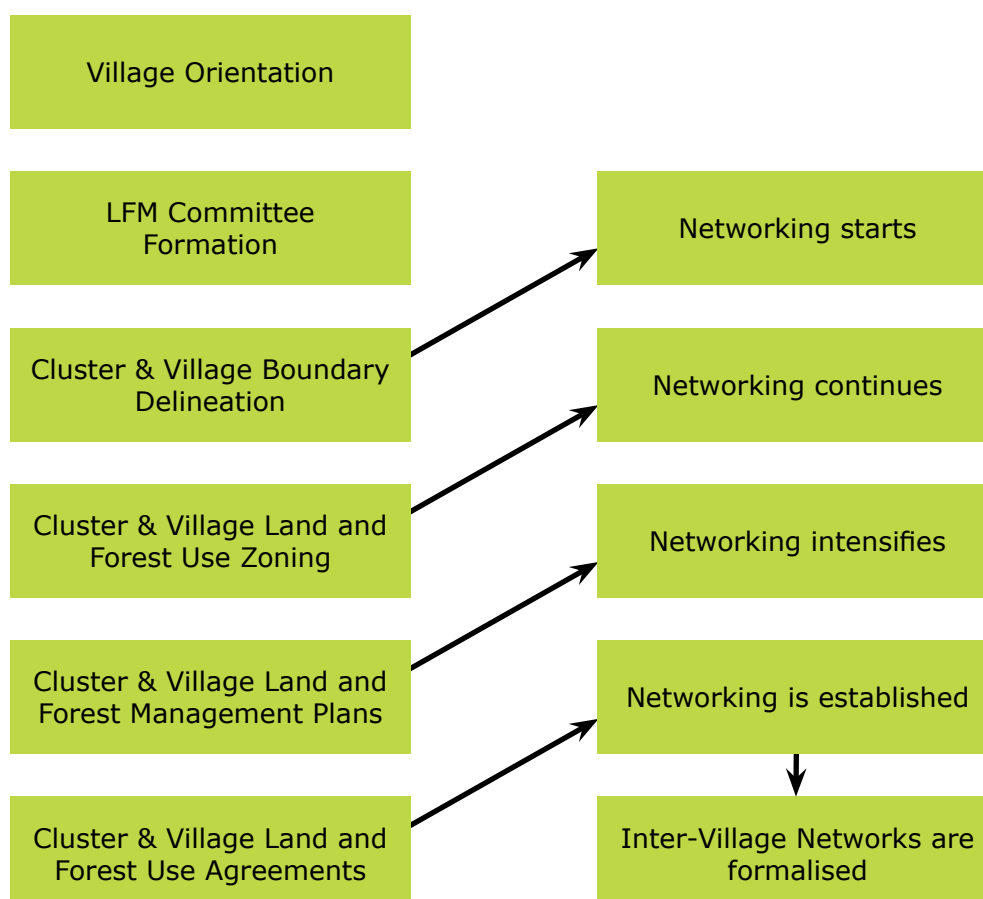
Empowering: It strengthens community organisation and capability and provides villagers with the skills and tools to address their own natural resources management problems.

Gender Responsive: It promotes the active participation of women and men in decisions regarding resource allocation and management.

Inter-community: It promotes inter-village cooperation to solve resource use conflicts and creates linkages among villages to develop networks which support forest and land management and community development activities.

PLUP at village cluster level provides an ideal framework for establishing village networks and conducting networking activity, as illustrated in the diagram below.

Diagram 4: The Process of Establishing Village Cluster Networks



A brief description of the networking activities illustrated in Diagram 4 is provided below.

Step 1 Initiating and establishing village cluster networks

The Village Administrative Authorities, Village Development Committees, and Village Land and Forest Management Committees are involved in initiating and establishing village cluster networks.

Networking starts: During village and village cluster boundary delineation when the village PLUP committees of neighbouring villages meet to discuss and agree on village boundaries.

The initial networking activities include:

- Consultation and agreement on the boundary locations
- Negotiations to resolve any boundary disagreements
- Signing Village Boundary Agreements and verification by District Authorities
- Agreeing on the village management areas for which each cluster village will be responsible

Networking continues: During village and village cluster land use zoning activity. These continuing networking activities include:

- Considering zoning along village cluster boundaries to ensure, as much as possible, that the land use zones on either side of the boundary are consistent
- Resolving any conflicts that arise between neighbouring villages in the cluster regarding different land zoning objectives, e.g., protection forest zones and agricultural zones
- Preparing and distribution of land use zone maps which are used to communicate and reinforce land zoning arrangements between cluster villages
- Preparing the village land use zone sign boards which are used to advertise and improve aware-

ness of the zoning arrangements to residents in cluster villages and between cluster villages

Networking intensifies: When village and village cluster land management plans are being prepared. Networking activities include:

- Discussing equitable uses of water resources that serve paddy areas in more than one village, i.e., upstream and downstream resource management and use
- Working out arrangements for the shared use of wood and NTFPs between villages in the cluster
- Working out arrangements for the shared use of communal grazing lands between villages in the cluster

Networking is firmly established: When village forest and agricultural land management agreements are prepared and implemented. Networking activities include:

- Preparation of inter-village or cluster LFMAs by representatives of neighbouring villages
- Distribution of village and village cluster LFMAs to all villages within the cluster after they have been stamped and signed by DAFO.

Step 2 Operating village networks

Several activities involved in operating village networks are described below. Men and women participate in each of these activities.

Activity 1 Preparing networking tools and materials

The following materials and tools for each of the cluster villages are prepared: Village LFMC formation record, village boundary agreement, village boundary conflict resolution records (if these exists), village land use zone maps, village land management plans, village forest and land management agreement, small watershed map, village land use zone cluster map, other village data such as non-timber forest products (NTFPs), population, land use data, etc.

Activity 2 Initial network meeting

A meeting of village representatives from each of the villages in the village cluster is arranged at one of the villages. Representatives of the Village Development Committees and the Village LFMC are invited. The objectives of the initial meeting are to:

- Summarise the PLUP activities that have been completed in the past
- Show the participants the various agreements, maps and information which have been produced
- Introduce the idea of networking
- Review the village agreements and village maps
- Identify opportunities for inter-village co-operation
- Identify land use issues requiring negotiation or mediation
- Identify village development opportunities
- Seek agreement on formalising a network
- Select some issues to illustrate network co-operation

Activity 3 Summary of land use planning activities

At the initial meeting DAFO and DLMA staff summarise the PLUP activities that have been undertaken in the past in each village. The documents and maps that have been produced are shown and explained to facilitate the presentation. This presentation refreshes villager's memories and focuses attention on boundary agreements, land use zones delineated and the contents of the village LFMAs. Discussion between authorities and local people is encouraged to get the villagers involved.

Activity 4 Introduce the idea of networking

The idea of networking is introduced using small watershed maps, and village land use zone and village cluster land use zone maps to explain the three levels of management.

Village: The significance and role of individual villages in the management of small watersheds is discussed. The involvement of both men and women in management and use is emphasised.

Cluster-Network: The significance and importance of inter-village co-operation or “networking” in the management and use of forest and agricultural land is discussed.

Small Watershed: The role of clusters-networks in the management and use of watershed resources is discussed

Activity 5 Review the village land use maps and village land and forest management agreement (LFMA)

The contents of the village and village cluster land use maps are explained and the important parts of the village LFMA discussed. The aim is to understand:

- If the villagers understand the maps and agreements
- If villagers are using these management tools
- If they have problems in practising the land uses shown on the land use map and implementing the provisions of the village LFMA

The outcomes of these discussions are recorded for further consideration.

Activity 6 Identify opportunities for inter-village co-operation

The review of the village land use maps and village LFMA identifies a number of village and inter-village issues where co-operation within the village cluster could lead to sustainable solutions. Possible issues which need to be solved may include:

- Illegal exploitation of fuel wood
- Hunting of protected wildlife species in village areas by outsiders
- Land cultivation activity in protected forest areas
- Forest disturbance in irrigation water source areas and watershed protection forests
- Domestic water supply pollution by animals

These issues can be recorded for future consideration and action by the network.

Activity 7 Identify issues requiring negotiation or mediation

The discussions on land use and the village LFMA may also reveal some unresolved issues which villages have not been prepared to raise in the past (troublesome issues that villagers find difficult to raise and address). For example, these might concern:

- Village boundary conflicts,
- Cross-boundary land cultivation,
- Unauthorised felling of trees
- Disrupting stream water flow
- Inappropriate practices by a land development company

These should be recorded for future consideration.

Activity 8 Reaching agreement on formalising a network

The purpose of creating a network is to increase awareness and recognition of the collective benefits that might arise from inter-village co-operation and joint action to address problems.

When the village cluster representatives acknowledge that these issues need to be addressed it is an appropriate time to propose that a formal village network be formed.

If they are in favour of the idea, discussions can continue on which villages would join the network initially, those villages which might join later, the objectives of the network, suggestions on network organisation, frequency of network meetings, priority problems to address. These agreements should be recorded by both DAFO staff and village representatives of the network.

The village representatives then nominate or choose candidates for the Cluster Network Committee. If some villages do not wish to join at this stage, they should be encouraged to nominate their representatives at a future meeting.

Activity 9 Select some land use issues to address

To demonstrate the government's commitment to co-operate with villages it is important that some issues are identified for resolution. This will indicate to villagers that district officers are prepared and ready to assist or support the village cluster in efforts to address land use issues. The assistance or support provided may take the form of technical advice, training, facilitating villager inter-action or in some cases, limited financial help for networking events or activities.

The issues identified by villagers are recorded for discussion at a follow-up meeting.

Activity 10 Conduct a follow-up problem solving network meeting

The objectives of the follow-up meeting are to summarise the results of the initial network meeting and to facilitate a problem solving session on one or two land use issues identified. This activity demonstrates how a network can function.

- Staff facilitate villagers to work through identifying the nature of the problem, problem causes and possible solutions
- The agreed course of action is documented
- Persons are identified from the respective villages to follow up
- A timetable for follow-up is set
- If the follow-up action requires assistance from DAFO, District Authorities, a date should be set for a site visit and mediation

Step 3 Monitoring networking activity

After the network has started, a cycle of network meetings and networking activities can be continued at appropriate intervals. The DAFO staff members have responsibility for facilitating the networking meetings and monitoring the results of the activities that were undertaken.

Monitoring Methods

Monitoring of network activity is undertaken in two ways:

- Regular visits by land use planning staff to the villages in the network
- Regular village network meetings

The Extension Service Centres are used to undertake monitoring visits to cluster villages and to conduct village cluster network meetings.

1. Visits to Villages in the Network or Cluster

These visits deal with issues such as increasing understanding about the village LFMA, understanding the village land use map, inter-village co-operation, boundary dispute resolution, and planning inter-village land use activities. These visits should be conducted about every six months to each village.

2. Six Monthly Networking Meetings

The following tools are used at the networking meetings:

- The Village Land Use Zoning Maps
- The Inter-village Boundary Agreements
- The village LFMA and village land management plans
- Forest category definitions (as expressed in the Forestry Law)
- The Village Land and Forest Management Committee Formation Agreement
- Topics for discussion at the meeting

The following topics are normally discussed during the meetings:

- Land use zoning and the land management plans
- Management and use natural resources in protected zones
- Forest fire prevention and control
- Protection of fish and wild animals
- Collection and use of NTFPs
- Land use conflicts in and between villages
- Co-operation between the villages in the network
- Performance of the village LFMCs

Village representatives report on land and forest conflicts within the village and villages within the network. Staff facilitate discussions and record the results and agreements on the various issues. Staff follow-up on the issues with the relevant village authorities during their regular village monitoring visits.

Stage 9 Monitoring and Evaluation

Definitions

Monitoring is: “The systematic and continuous process of assessing the progress and changes caused by the implementation of an activity over a certain period of time, usually using pre-determined indicators”, (Guijt, 1998).

Evaluation is: “A process of identifying the broader positive and negative outcomes of an activity to reach conclusions about its overall benefits and if objectives have been met”, (Guijt, 1998).

Monitoring and evaluation focuses on procedures and methods explained in Part 2 of the manual. Some simple methods are described for monitoring the degree of adoption and implementation by district staff of the stages in the PLUP process, and for assessing villager understanding of the land management plans prepared, as explained below.

Principles

- The purpose of monitoring is to learn about activities and to adapt practices to improve performance
- Place less emphasis on accountability and more on improving work
- A process approach should be adopted to accommodate on-going change
- Monitoring should be participatory and involve those engaged in the activity

Objectives

- Follow-up and assess the quality of field activity undertaken by district staff
- Improve the implementation of field work undertaken by district staff, mainly DAFO and DLMA staff
- Assess the impacts of PLUP on natural resources management at village and village cluster levels
- Improve forest and agricultural land management and use by communities at village and village cluster level

9.1 Monitoring indicators

Indicators are tools used to measure what should be measured. They are used to measure quantitative or qualitative changes that are occurring or have occurred in an activity, for example, improvement in implementation of PLUP and the impacts of PLUP.

To ensure monitoring is effective indicators should have five characteristics:

S	Simple
M	Measureable
A	Adaptable
R	Relevant and reliable
T	Time scale appropriate

In the PLUP programme, indicators for two types of monitoring are used:

- Monitoring the quality of PLUP activities undertaken by district staff
- Monitoring the impact of various PLUP activities on land and forest resources management

1. Quality of PLUP Activities Undertaken by District Staff

The following questions help to identify indicators for monitoring the quality of PLUP activities:

- Were the recommended procedures followed during the nine PLUP stages?
- Was the PLUP work undertaken an improvement on previous land use planning LUP-LA?

Indicators:

- PLUP data collected using the prescribed forms and methods
- Village and village cluster boundaries delineated and mapped using the recommended tools and methods
- Village boundary agreements prepared
- Boundary conflicts resolved and documented
- Land use zoning of village and village cluster agriculture and forest lands undertaken using the recommended criteria, tools and methods
- Land management plans prepared using the recommended criteria, tools and methods
- Village and village cluster PLUP data documented and safeguarded as recommended
- Various maps digitized, distributed and safeguarded as recommended
- Village and village cluster networks established as recommended and operational
- Monitoring systems established and operational

2. Impact of various PLUP activities

The following questions help to identify indicators for monitoring the impact of PLUP activities:

- Were land management plans and agreements for agricultural and forest zones implemented as planned?
- Did the PLUP undertaken result in an improvement (or not) in the management of agricultural land and forests by villagers?
- Have village land and forest tenure rights improved?
- Were lands appropriate for plantation development identified?

Indicators:

- Village and village cluster LFMCs formed and functioning
- Various village and village cluster maps understood by LFMCs and villagers
- Village and village cluster LFMAs prepared by villagers with assistance from PLUP staff
- Village and village cluster LFMAs certified and endorsed by District Governor
- Village and village cluster LFMAs and land management plans understood and being followed by villagers
- Village and village cluster networks and LFMCs are addressing land and forest management issues and conflicts within villages and within the village cluster
- Land registration activities initiated by DLMA after land zoning and land management plans completed
- Individual and communal land parcels registered and titles issued
- Areas appropriate for plantation development identified, mapped and reported by District Authorities to Provincial Authorities

9.2 Monitoring steps and methods

The steps in a monitoring system are summarized below:

Step	Monitoring Activity
1	Preparation of staff, material, available data and discussions with villagers
2	Collection and recording village information using semi-structured interviews, questionnaires and field observations
3	Analysis of information and compilation of a monitoring results report
4	Feed back of results to concerned staff at district level
5	Activity plan to respond to village problems or needs
6	Implementation of actions identified in the response plan
7	Follow-up on the actions taken (return to step one)

Step 1 Preparations

- Prepare the materials required such as land use maps, discussion topics questionnaires, village agreements, and previous monitoring results
- Prepare maps to facilitate discussions about different locations and land use zones or to identify land use problems..
- Train staff in monitoring methods and explain the purpose of monitoring
- Inform Village Authorities well in advance so they can reserve time for monitoring activity
- Explain the objectives of the monitoring activity to the Villager Authorities and villagers
- If there have been previous monitoring visits to the village, review results and progress made on solving problems.

Step 2 Collecting and recording information

In informal settings, interview various groups including the Village Authorities, the LFMC, a men's group and a women's group, to gather a wide range of opinions.

Village Authorities:

- Use questionnaire, discussion topics, maps and village LFMAs that relate to the indicators summarised above.
- The interview is conducted in a participatory way, to allow the committee members to express their viewpoints and experiences.
- Carefully record results from the discussions.
- Forms are used to record relevant problems which are presented and discussed with concerned district staff after the visit.

Village Men and Women:

- The purpose of interviewing groups of men and women is to assess the impacts of PLUP on various social groups in the community, both men and women
- Organise discussion groups representing about 10% to 15% of families in the village.
- Conduct discussions in a participatory and friendly manner
- Record the results to facilitate the forthcoming analysis

Field Visits:

- Field visits to areas of particular interest in the village complement the interviews and discussions
- These might be various forest and land use zones, conflict areas, demonstration sites, plantations or other locations identified during the discussions.
- Field visits enhance staff understanding of the village land use situation.

Step 3 Analysis of information and presentation

Conduct an analysis of the information obtained during village visits to identify problem solutions and opportunities. The analysis is made in two stages.

In the Village:

- Analysis answers from the villagers to identify problem causes
- Identify solutions to problems with the villagers

In the Office:

- Assess impacts on land and forests and the environment using data obtained from the village discussions
- Draw conclusions on different issues such as management of village natural resources, rice production, and tree planting difficulties

Step 4 Feeding back monitoring results

- Conduct a debriefing meeting to present the results from the monitoring visit to concerned district staff and record problems and possible solutions
- Use the results from the meeting to plan future activities.

Step 5 Planning the measures to be implemented

- Plan the measures to address the problems, needs and opportunities that were identified
- Incorporate the activities in Annual Work Plans

Some examples of activities that might be applied are illustrated in Box 2 below.

Box 2: Examples

1. If the problem is a result of inappropriate work by DAFO, it should be corrected by the persons responsible.
2. If it is a result of low knowledge level among villagers, a plan for education or training should be made.
3. If it is an obvious or deliberate violation of the village LFMA, the appropriate fine for that offense should be imposed.

Step 6 Implementing the activity plans

Implement the field activities that were identified from the monitoring activity.

The work should be done with the active participation of the villagers

Step 7 Monitor the implementation

- When remedial work is undertaken in accord with the activity plans it should be followed-up and monitored closely with the aim of preventing problems reoccurring
- The cycle of monitoring re-commences, i.e., there is a return to “Step 1” and a new round of monitoring is started

Further Reading

IIED (1998): Participatory Monitoring and Impact Assessment of Sustainable Agricultural Initia-

tives. SARL Discussion Paper I

MAF, FIPD, LSFP (2000): Monitoring and Evaluation of Land Use Planning and Land Allocation Impacts. Final Results Report 1998-2000

LSFP (2001): Monitoring and Evaluation of Land Use Planning and Land Allocation Activities. Technical Booklet 8

PART III

LAND USE PLANNING IN SPECIFIC SITUATIONS

TABLE OF CONTENTS

PART III

6 LAND USE PLANNING IN SPECIFIC SITUATIONS	74
6.1 LAND USE PLANNING IN PRODUCTION FOREST AREAS	75
6.1.1 PROCESS OF FOREST LAND USE ZONING AND PLANNING (FLUZAP)	77
6.2 LAND USE PLANNING IN NATIONAL PROTECTED AREAS (NPAs)	82
6.2.1 LAND USE PLANNING APPROACH IN NPAs	82
6.2.2 STAGES AND STEPS FOR PARTICIPATORY LAND USE PLANNING IN NPAs	83
6.2.3 RECOGNITION OF LAND USE RIGHTS	89
6.3 LAND USE PLANNING IN NATIONAL PROTECTION FORESTS	90
6.3.1 PLUP STAGES AND STEPS IN PROTECTION FORESTS	91
6.4 LAND USE PLANNING IN RELOCATION VILLAGES	97
6.4.1 PROCEDURES AND STAGES FOR SCENARIO 1	98
6.4.2 PROCEDURES AND STAGES FOR SCENARIO 2	98
6.5 LAND USE PLANNING IN AGRICULTURAL LAND CONCESSION AREAS	102
6.5.1 PLUP TO IDENTIFY LAND POTENTIALLY AVAILABLE FOR CONCESSIONS	104
6.5.2 PLUP WHERE LAND CONCESSION DEVELOPMENT EXISTS	106
6.5.3 RECOGNITION OF VILLAGE LAND USE RIGHTS	107
6.6 LAND USE PLANNING IN RE-SETTLEMENT VILLAGES	108
6.6.1 PROCEDURES FOR PLUP IN RESETTLEMENT VILLAGES	109

6 LAND USE PLANNING IN SPECIFIC SITUATIONS

Introduction

As explained in Part 1, Chapter 2.2 the changing development context means that flexibility in land use planning approaches at village and village cluster levels are required. A set of standard procedures and steps for PLUP has been described in Part 2, Stages 1 to 9 which can be used generally, however “flexibility and adaption” needs to be built into these standard procedures to meet the particular requirements faced by land use planners in different situations.

The different situations include:

- Villages located in and around Production Forests Areas (PFAs)
- Villages located in and around National Protected Areas (NPAs)
- Villages located in and around National Protection Forests (NPF)
- Relocation villages, affected by either induced or voluntary relocation
- Villages located in or affected by agricultural concessions
- Resettlement villages, in cases of hydro power, mining and other industrial developments

This part of the manual briefly describes procedures and steps that can be applied in each of these situations. For each situation, the objectives, criteria, main processes, procedures and steps are summarized and aspects that are important to consider are explained.

For example:

- Land use zoning in villages within Production Forest Areas requires identifying suitable agricultural land areas to replace agricultural production land in declared production forest zones.
- Land use zoning in relocation villages is redone because significant population increase has increased the area of the village agricultural land use zone and diminished the size of village forest zones
- In National Protected Areas the collection of specific biodiversity data is required to facilitate the land use zoning activity. This includes an activity called Participatory Biodiversity Assessment.

In addition to the basic guidelines provided in this document, key references and publications that describe the procedures and steps in more detail for each situation are provided for additional reading.

6.1 Land Use Planning in Production Forest Areas

Definitions

Production forests are defined in Article 12 of the Forestry Law (FL) as: natural forest and planted forest classified for commercial production of wood and forest products to satisfy the requirements of national socio-economic development and people's livelihoods. Production forests may have dense forest zones, degraded forest zones, bare forest land zones and village common use forest zones. (Article 13, FL).

Part of Article 25, xFL states that production forests will be clearly demarcated and surveyed and classified into various zones including: water source protection, environmental protection, research, areas of historical and socio-cultural value, regeneration and potential logging and NTFP harvesting. Production forests will be managed according to plans and measures and with the participation of the local people.

The Participatory Sustainable Forest Management Manual produced by the Sustainable Forest Rural Development Project (SUFORD) contains guidelines for the management of Production Forest Areas (PFAs). For forest management purposes PFAs are divided into sub Forest Management Areas (FMAs) which are generally equivalent and consistent with Village Development Clusters (kumban).

At the village level land use zoning and planning is undertaken to facilitate village development planning. Sections in this manual dealing with land use zoning and planning are currently being improved through pilot work in representative villages. This zoning and planning process can be conducted at village level, village development cluster level or sub-FMA level.

Purpose of Village and Village Cluster Land Use Zoning

Villagers reside in PFAs and FMAs and are dependent on agricultural land and forests within the FMAs and subFMAs for their livelihood activities. Their presence in these areas poses threats to the sustainable management of the FMAs because many families utilize the forest areas that are categorized as production forest.

As a consequence FLuZaP needs to address and resolve two key land related issues:

1. The excessive claiming of un-taxed land and/or forests by villagers; individuals and families assuming ownership of several hectares of forest, often dry dipterocarp forests, for their own grazing, cropping and NTFP collection purposes. This is often in addition to existing paddy land they own. If this is widely practiced in a village the forest areas become fragmented and it is almost impossible to distinguish communal forests.
2. The practice of upland cropping and forest clearance by individuals and families in the designated forest production zones. There is a need to identify and provide equivalent areas of "replacement land" for these individuals and families in the village agricultural zone. This needs to be done in close participation with villagers so that they make choices regarding the areas of land which they will use in the future.

Purpose of FLuZaP

Provide fair and equitable areas for villagers to conduct their livelihoods by re-allocating some land within the village agricultural zone in cases where scattered agricultural plots are located in forest areas. Village development planning and implementation is then undertaken to assist villages with these land use adjustments and to improve their livelihood opportunities, so they are able to co-exist in sustainably managed FMAs. This will assist with the preservation, improvement, and sustainable maintenance of the production forests.

Objectives of Forest Land Use Zoning and Planning

General Objective:

- To delineate production land for villagers to manage and use in a productive and sustainable manner;
- To provide accurate 'current land use' maps and 'future land use' maps and plans, for production forest, village use forest, and agricultural, plantation and grazing lands.
- To reduce upland cropping in the areas designated for production forest and village use forest.

Specific Objectives:

- Accurately map current land use including the local cropping and farming systems
- Identify where agricultural cropping activities caused the degeneration of forest areas
- Mapping future land use areas to provide enough agricultural and production land, including grazing and plantations, for current and future generations
- Delineation of areas for grazing, plantations, rice paddy, permanent annual crops, and rotational crops.
- Where possible, grouping or amalgamation of dispersed land use, especially in the core of the 'production forest'

Criteria and Considerations for Forest Land Use Zoning and Planning

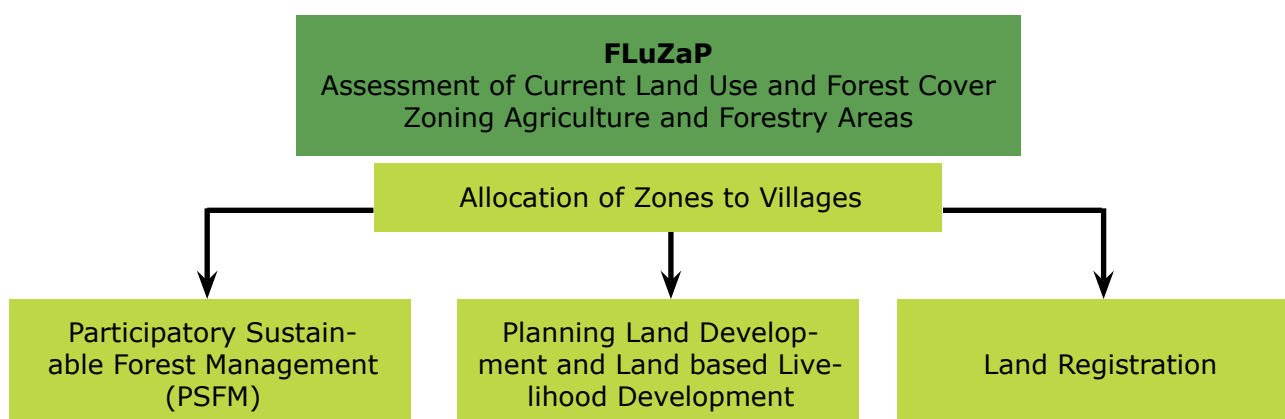
- Village agricultural land areas should be adequate for present and future populations.
- Land zoning should ensure protection of good quality forest, current timber production areas, the regeneration of future timber production forest areas, and identify agricultural areas with potential for current and future villager livelihoods.
- Degraded forest areas can be regenerated as 'production forest' or designated for cropping land, plantation land or community use.
- The steps in FLuZaP process may be phased over time to enable villagers to adjust. The process can be undertaken in one village first, then expanded to other villages in the village cluster.

Role of Forest Land Zoning and Village Development Planning

FLuZaP defines the zones for agriculture and assists in preparing forestry management plans. Land use zones are allocated to the village and village land use plans are prepared as an integral part of village development plans, including extension activities. It also helps to identify land tenure rights and facilitates land registration and land titling by the land management authority.

These processes are illustrated in Diagram 5.

Diagram 5: The Role of FLuZaP in Village Development and Participatory Sustainable Forestry Management



6.1.1 Process of forest land use zoning and planning (FLuZaP)

The activities or steps undertaken in villages will vary, and need to be flexible, depending on planning already undertaken, indigenous forms of land management, agro-ecological characteristics, and forest types.

There are five phases in the FLuZaP process:

1. Preparation
2. Village work activity
3. Post village work activity
4. Establishment of FLuZaP in production forest areas
5. Rural land registration in PFAs

A comprehensive description of the land use zoning and planning procedures can be found in the document produced by the SUFORD program named: "Guidelines for Participatory Forest and Land Use Zoning and Planning in Production Forest Areas", SUFORD May, 2009.

The main steps undertaken when implementing the five stages are described below.

Stage 1 Preparation

There are four types of preparation:

1. Materials and equipment: includes household interview forms, field survey equipment, and mapping equipment
2. Satellite Photo Sheets and Maps: includes and processed satellite imagery of at least 5 m resolution (2.5 m resolution if available), topographic maps, and forest and land use maps (FIPD),
3. In-office Review of Satellite Photo Sheets Maps
4. Staff Preparation: includes training of DAFO and Village Cluster staff and explanation of procedures and methods to be used.

Stage 2 Village Work Activity

There are eight main village level steps:

Step 1 Preparation of Villagers

This involves establishing a village FLuZaP committee and selecting well informed villagers to participate in work activities.

Step 2 Village boundary delineation

Procedures described in Part 2, Stage 3 of this manual are generally followed. The actual work undertaken will depend on whether:

- (a) an official village boundary already exists in which case it will be verified with villagers
or
- (b) no official boundary exists in which case it will be identified and mapped

Boundary delineation is implemented using villager information, satellite imagery prints, and field survey of the boundary line.

Step 3 Identification of Important NTFP Areas and Mapping

The objectives of this activity are to facilitate community participation in forest land use zoning,

to identify the most important non-timber forest products utilized by the village, and to determine the forest areas in which NTFPs are found. This information assists the zoning process by identifying NTFP areas of high commercial or subsistence importance and areas of forest which should be conserved to maintain these resources.

Step 4 Forest and Land Problem Census and Analysis

Informal discussion and field and forest walks are used to identify problems in the management and use of forests, forest resources, agricultural land, and land tenure.

Step 5 Household Data Gathering and Analysis

Household socio-economic data gathering and analysis. Data will be used for developing land use plans and village development plans, and can be used as base line data for monitoring and evaluation purposes.

Household land use and land claims data gathering and analysis. Data is gathered by interviewing each household, using a task specific interview sheet. Data is summarized and analysed to identify land use and land zoning issues.

Step 6 Field and Forest Surveys:

This activity is guided by village information and satellite image prints. It is a key task to understand agricultural systems, land use and tenure, and forest types. It also enables ground truthing and interpretation of the satellite image prints.

- Survey agricultural fields: if land use changes have occurred update the satellite image map. Take GPS readings at strategic points
- Survey forests: note forest type, forest condition, agricultural cultivation incursions, and locally managed or zoned forests
- Village boundary: Check key sections of the village boundary and make adjustments on the satellite image sheet if required
- Permanent land marks: Survey with GPS all roads, tracks, and streams, in the village forests

Step 7 Mapping Current Land Use and Forest Cover

Household data and knowledge and information from the field surveys are used to map current land use and forest cover on the satellite image base map.

- Develop a base map of streams, tracks, hills, other features and name all features
- Conduct enquiries to understand past land use in 'forested areas'
- Draw land use areas and forests on the satellite image print, based on type and condition, and other landscape features, such as wetlands, grasslands etc.
- Insert data from all land use and forest cover survey teams on the satellite image print
- Sketch in the adjusted village boundary on the satellite image print

Step 8 Land and Forest Zoning

- Explain the objectives of zoning with key village informants, and discuss land and forestry issues
- Discuss land / forest zoning options with key villagers regarding conservation of medium and good quality forests and the identification of potential livelihood areas.
- In areas which are being progressively degraded or developed decide either to regenerate to 'production forest' or reserve for future cropland, plantation land or community use
- Identify families that have cultivation land within forest zones, and agree on the means to resolve this problem

- Conduct a discussion with all villagers and decide on land zone options
- Conduct a field survey and paint or mark trees along the boundary of the cropping and forest zones.

Stage 3 Post village work activity

There are three main steps in the post village activity stage:

Step 1 Map production

Clear and accurate user-friendly maps are digitized, including:

- Map 1: Current land use and forest cover map
- Map 2: Land and forest zoning plan

Step 2 Storage of the maps and data

Use the procedures and methods as described in Part 2, Stage 6 in this manual on Land Data Record Keeping and Digital Mapping to store maps and data.

Step 3 Provision of maps to district and provincial authorities

The land use zone maps are presented to relevant agencies at district and provincial level for review and approval.

Stage 4 Establishment of FLuZaP in PFAs

There are five main steps performed in this stage during a return visit to the village:

Step 1 Review the land use zone plan and map

This step is undertaken to verify with the villagers the land use zones map and to confirm the land use plans that are specified for each land use zone

Step 2 Preparation of Land and Forest Management Agreement

This is a participatory process guided by district staff after the confirmation of the land use zones on the land use map. The agreement elaborates the agreed conditions of land usage for each of the zones, and specifies penalties that may be applied if the agreement is not followed.

Step 3 Marking the boundary of keys zones in key locations

This is an essential task to ensure FLuZaP effects a long term and sustainable maintenance of forest cover in the PFA. Example of possible boundary markers include; signs, cement markers, paint marks on trees, establishment of firebreaks, and fences and gates built by villagers whose land adjoins the forest zone

Step 4 Provision of maps and agreements

Copies of the land zoning maps and the Forest and Land Management Agreement are provided to the Village Authorities to use as tools in the management and use of the land use areas

Step 5 Monitoring

The village and village cluster boundary and land use zoning maps, the land zone plans, and the forest and land management agreement are used by the responsible staff to monitor the implementation of land use agreements, and the land plans within the designated village and village cluster management areas.

Stage 5 Rural land registration

The procedures as described in Part 2, Stage 7 of this manual may be applied for this purpose. This activity is aimed at officially recognising the land use zone areas and the information in the land and forest agreement prepared with villagers. The land zoning maps are provided to the DLMA to facilitate communal land parcel registration of the village use forest zone and sacred or spirit forests. The household land use and land claims data is used to undertake land adjudication and registration of individual land parcels located only within the defined agricultural zone.

Designated FMAs, village conservation areas, and village protection forest areas will be registered and titled as State land. This procedure provides villagers with secure tenure over the communal land areas and their individual production parcels and a clear understanding of their rights and responsibilities with regard to the management and use of the various forest and land categories in the village and in the FMAs.

Further Reading

SUFORD (2009): Guidelines for Participatory Forest and Land Use Zoning and Planning in Production Forest Areas

Example 2: Land Use Plan Record Format

Village: Ban Some

District: Xe Bang Fai

Province: Borikhamxay

subFMA:.....

Date: November, 2008

Officer Recording:

Zone	Current area (ha)	Future Area Proposed (ha)	Comment
1. Production Forest zone <ul style="list-style-type: none"> dense forests fragmented forest 	[1,331] 1,223 108	1,228	103 ha of 'forest land' transferred to the agricultural zone.
2. Other Forest zone (village use forest)	342	342	
3. Upland Agriculture zone <ul style="list-style-type: none"> current upland Agriculture ('08) upland fallow 	[745] 86 659	848	Proposed zone includes some fragmented forest areas allocated or allowed to be converted into agricultural land
4. Paddy Rice Zone	262	262	
5. Other <ul style="list-style-type: none"> Swamp/grassland Water Urban Rocks (limestone) NT2 power line alignment 	41 8 14 43 41	41 8 14 43 41	
Total	2,827	2,827	

Reference: SUFORD (2008) FLuZaP

6.2 Land Use Planning in National Protected Areas (NPAs)

Definition of PLUP in NPAs

Conservation forest is forest classified for conserving nature, plant and animal species, forest eco-systems and other valuable natural, historic, cultural, tourism, environmental, educational and scientific sites. (Article 11, FL)

Prime Minister's Decree 164 (1993), which legally established NPAs, the Wildlife and Aquatic Law, No 07/NA, December 2007, the Forestry Law (revised 2008), and relevant provisions of the Land Law (2003) provide the legal framework for conducting PLUP in NPAs. Taken together, these laws provide for:

- Establishing distinct zones within and adjacent to NPAs, namely, Totally Protected Zones (TPZ), Controlled Use Zones (CUZ) and Corridor Zones (CZ) and Buffer Zones (BZ) (Art 24, FL)
- Identifying and zoning village-use land into three forest categories and agricultural land types.
- Developing local rules and regulations with villages regarding the management and permitted uses of the above land categories including the definition of penalties for improper use.

Objectives

- Participatory land use planning in NPAs has the following major objectives:
- Establish Total Protection Zones to safeguard key biodiversity within NPAs
- Stabilising forest and land use patterns under a sustainable management system.
- Ensuring equitable access to forest and land resources for all community members and formalising land use rights within the existing legal framework.
- Establishing resource use and conservation co-management agreements with local communities living within the CUZ
- Developing a partnership between villages and government for the joint management of community development and conservation activities.

The procedures for PLUP in NPAs are applicable to provincial and district conservation areas. PLUP is useful as an initial intervention point and is ideal for establishing a dialogue and partnership with protected area guardian communities.

Specific needs of PLUP in NPAs

Specific PLUP needs are necessary to respond to the unique situation that exists in NPAs, some of which are:

- Taking adequate account of specific biodiversity values that are unique to individual NPAs
- Ensuring that conservation co-management roles and responsibilities of villagers are elaborated in the Forest and Land Use Agreements
- Focusing on critical issues at village, development cluster and NPA levels
- Collection and analyzing data and information of conservation importance when reaching forest and land use zoning decisions and establishing management agreements

6.2.1 Land use planning approach in NPAs

The preferred land use planning approach or process in NPAs is referred to as Forest and Land Use Planning, Allocation and Management (FLUPAM). FLUPAM is conducted within the framework of a Participatory Integrated Conservation and Development Process (PICAD) as has been implemented for a number of years by the NT2 Watershed Management and Protection Authority.

6.2.2 Stages and steps for participatory land use planning in NPAs

The stages and steps for PLUP in NPAs, are summarized below.

Stage	Steps	Unit Responsible	Level of focus
Stage 1 Confirm NPA Boundary and establish Total Protection Zone	1. Confirm NPA Boundary 2. Identify NPA TPZ	NPA	Entire NPA
Stage 2 Setting LUP priorities	1. Village classification 2. Selection of priority villages	NPA	Entire NPA
Stage 3 Village land and forest management planning	1. Village data collection including Family Land Tenure information 2. Village boundary delineation 3. Village forest and land use zoning 4. Village forest and land use plans 5. Village land and forest management agreements 6. Land data record keeping and digital mapping	NPA and PLUP staff	individual village
Stage 4 Informal land allocation of agricultural land parcels	As described in Part 2, Stage 7 of this manual	Village Authorities and the LFMC	Families and individuals
Stage 5 Land registration of village communal land zones	As described in Part 2, Stage 7 of this manual	DLMA assisted by PLMA	Village community

Stage 1 Establish Total Protection Zone

Step 1 Verify the NPA Boundary

It is necessary to work with villagers to ensure that they and the conservation staff find out exactly where the boundary is on the ground, and whether any revisions to its location on maps are needed.

The steps are: a) consult with villagers using any existing maps; b) discuss any differences between the map/s and villager understanding; if there are differences or uncertainties, arrange for a ground survey, c) conduct a field survey, rectify the location with villagers and make the adjustments on the NPA boundary map, d) complete a boundary agreement using the standard format and distribute copies to the Village Authorities, the NPA field office and the District.

Step 2 Establish the Totally Protected Zone

The Forestry Law 2007 requires that NPAs should be zoned into “Totally Protected Zone”, “Controlled Use Zone”, and “Corridor Zone”. (Article 24). The law states that the TPZ protects habitat, feeding and breeding places for various wild animals. It is critical that the TPZ is large enough to sustain ecological resources.

In a NPA the TPZ should be identified and mapped first after which negotiations can be undertaken on land zoning for villages. The identification of the TPZ first reduces the risk that the TPZ will be diminished in size due to land claims from surrounding villages. Such negotiations should be sensitive to the land and livelihood needs of villagers.

The following activities are conducted with villagers when mapping the TPZ:

1. Conservation education on the importance of the TPZ
2. Sketch mapping of the proposed TPZ
3. Negotiation of the TPZ, village boundaries, accompanied by community education on the benefits of TPZ and CUZ
4. Demarcation of the TPZ and village areas bordering the TPZ

Figure XX: Key Steps in Mapping the Totally Protected Zone (TPZ)

Enclave and straddle villages should receive priority when conducting negotiations for zoning the TPZ and undertaking village land use planning because these villages are likely to have the greatest impact on NPA bio-diversity.

Corridor Zones

Corridor zones are designated within the NPA and or between the NPA and other types of forests to provide safe passage for wildlife and safeguard the sustainability and expansion of wildlife populations (FL, Article 24). In some cases it will therefore be necessary to create a 'corridor zone' that will between the TPZs and other habitat areas.

Stage 2 Setting priorities for PLUP

This stage of the process focuses on the entire NPA, and helps to make decisions about which villages should receive land use planning priority. Two steps are involved in setting priorities:

Step 1 Classification of village types

Step 2 Selection of priority villages

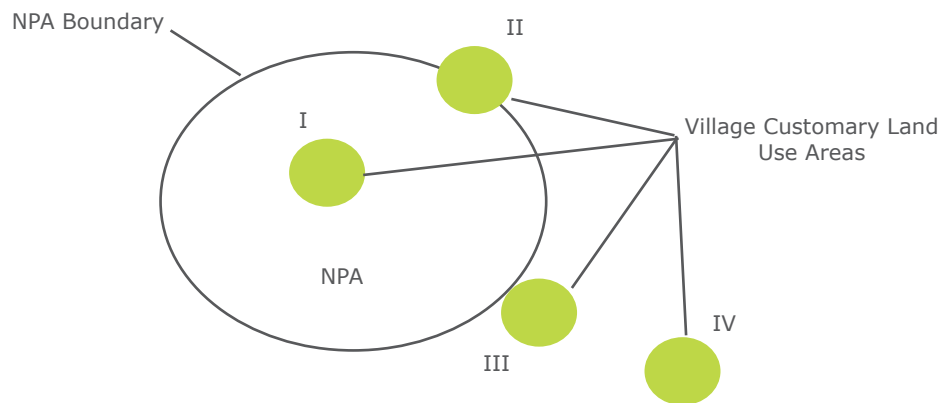
These activities are conducted to, a) identify which villages have the greatest impact on NPA resources, b) set priorities for forest and land use management planning in and around the NPA, c) identify which villages have the greatest stake in the NPA and its resources, and d)

help identify village partners for NPA management.

There are four types of stakeholder or guardian villages:

- I. Enclave village
- II. Straddle villages
- III. Adjacent villages
- IV. External villages

Figure XX: The four types of NPA Villages



- Type I: Enclave villages:** The settlement and village-use land fall entirely within the NPA boundary.
- Type II: Straddle villages:** The settlement area is usually outside the NPA but some village-use land falls within it.
- Type III: Adjacent villages:** The settlement area and village-use land border the NPA but do encroach into it.
- Type IV: External villages:** Villages and their land-use areas are outside the NPA boundary, but their activities still impact on it.

There are five criteria with which to select priority villages:

Location: Village types I and II should have the highest priority for land use planning.

Population: Generally a village with a large population has a bigger impact than a small one and therefore should receive priority consideration

Village Land Area: Villages with large land areas may have bigger impacts on forest resources, and therefore should be given priority consideration

Dependence on Forest Resources: This is generally influenced by the relative wealth of the village. Usually poor villages depend on forest resources to a greater extent than wealthier villages.

Traditional Land Use Practices: The type of farming, hunting or gathering activities traditionally practiced by a community will influence the impact it has on the protected area, e.g., shifting cultivators generally have a higher impact than paddy rice farmers.

Stage 3 Village land and forest use management planning

This phase incorporates six key steps:

- Step 1 Community orientation
- Step 2 Participatory Biodiversity Assessment
- Step 3 Village and village cluster information gathering
- Step 4 Village and village cluster boundary delineation

- Step 5 Village and village cluster forest and land use zoning
- Step 6 Village and village cluster land and forest management agreements

Step 1 Community Orientation

Land use planning begins simultaneously in a group or cluster of adjacent villages. Orientation meetings are conducted in each of the villages to explain the PLUP process, its objectives, what will be done, how long it will take, what is expected of the villagers and how they will benefit from it.

Step 2 Participatory Biodiversity Assessment (PBA)

This activity is conducted before other data is collected. to collect information about local wild-life and aquatic animals habitats and participatory mapping, and understanding of threats to wildlife conservation. This is done with five to 10 knowledgeable informants.

Step 3 Village Data Collection

After the PBA is conducted baseline data is collected and used to identify the major problems and opportunities facing each community within the village cluster. The aim is to develop a shared understanding of land use patterns, livelihood systems and their impact on natural resources. The types of information collected are:

- Family land tenure information
- NTFP collection and use
- Key wildlife species and habitats
- Wildlife use; hunting, fishing and trapping
- Socio-economic indicators
- Population trends
- Priority problems

Data collected during household interviews is recorded on the data sheets below.

Family Land Tenure Analysis

An example of a Family Land Tenure Analysis form is provided in Annex XX

NTFPs

Name of NTFP	Type of NTFP	Part gathered	Where collected	Season collected	Person collecting	Method of Harvest	Organisation of Harvest	Amount of NTFP	
								Then	Now

Key Wildlife Species and Habitats

Species name	Description of evidence	Distance/direction from village	Status: current compared to past	Other information

Wildlife Use

Record number	Name of animal	Importance/ Rank	Where Hunted	Methods (gun, trap, fishing line etc.)	Usage %		Buyer (and price)	Market (and price)
					Eat	Sell		

Socio-economic Information

Socio-economic data is collected to identify village-level and family-level needs, which will guide staff in starting development and livelihood activities in each village later in the process. Interviews are conducted with each family in the village, including: family information, annual cropping, permanent agriculture, livestock, income

Population Trends

Information about change in population also guides development and livelihood activities. An increase in population results in a need for more farming land. Increasing populations can also pose a significant threat to the forests and wildlife.

Problem Identification and Analysis

The problem census method, using gender disaggregated group discussions, is the recommended way to identify and analyse problems, and it is particularly appropriate for use during PLUP. It has three simple steps, problem identification problem prioritization, problem analysis, as indicated on the sample recording form below.

Priority	Problem	Root causes	Proposed solutions	Proposed project
1.				
2., etc.				

Step 4 Village and village cluster boundary delineation

The procedures for village and village cluster delineation as explained in Part 2, Stage 3 of this manual should be followed. Some points to note are:

- If village boundaries have been formalised as part of the former LUP-LA process the boundary map and boundary documentation need to be reviewed with villagers.
- The location of the village boundary lines of the village and the boundary line of the NPA need to be discussed, verified and marked on the satellite image print to ensure villagers are aware of the boundaries. The former boundary agreement document and the boundary map may need some revision.
- If initial delineation of boundaries has not yet happened, or no documents can be found, the full procedure of boundary demarcation will need to be undertaken.

Step 5 Village and village cluster land use zoning

The basic procedures for village and village cluster land use zoning as explained in Part 2, Stage 4 of this manual are followed. However, some principles specific to NPAs need to be followed:

- A key responsibility of PLUP and conservation staff undertaking PLUP in NPA villages is to zone the forest land in the villages around and straddling the NPA.
- Discussions with both village men and women are conducted to ensure that community needs are adequately considered including access to NTFPs, wood for housing and other purposes
- An agreement needs to be reached which incorporates both village and conservation needs
- The protected area team should review the village boundary agreements and any existing zoning maps with villagers, and then proceed with zoning or re-zoning of village forest lands

NPA Forest Categories: Five categories of village agriculture and forest land may be delineated within the CUZ:

1. Village Conservation Forest: Strict controls are enforced, with few uses allowed.
2. Village Protection Forest: Activities that contribute to soil erosion are prohibited, including the cutting of trees, and forest clearance.
3. Village Use Forest (or Village Production Forest): Cutting of timber is permitted for domestic use following the approval of the village authorities, but timber cannot be extracted for commercial sale.
4. Village Agricultural Land: This category includes all currently or recently cultivated land, and other intensive productive uses, such as fishponds and livestock areas.
5. Village Settlement Land: This category includes private houses, public buildings and temples etc

Key Issues when Zoning in NPAs

These include:

- Location of key wildlife habitats and species: Zoning must be based on knowledge of where key species occur using information from the Participatory Bio-diversity Assessment
- Boundaries between land use zones: These need to be discussed and ideally should follow identifiable features
- Existing local rules: Identification of zones need to be closely linked to local rules which define what activities are permitted in each zone
- Village conservation forest: This type is very important in Type 1 and Type II villages and should have strict rules regarding forest utilization. Key habitat areas, wetlands, and salt licks, spirit forests and burial grounds should be zoned as VCF.
- Village protection forest: Enough land must be set aside based on resource needs as a lot of NTFPs will be collected here (in addition to the village use forest). Steep land close to the village and watersheds for minor irrigation schemes are typical protection areas.
- Village Use Forest: Normally one or more areas of use forest should be allocated in different locations to ensure convenient access for all households and a diversity of species for domestic use. Individuals need to get the Village Committee's permission to cut trees up to a specified volume per family.
- Access by Other Villages: A common problem is that villagers are either unable or unwilling to deny resources from their own lands to outsiders. Arrangements to allow access and use of resources in neighbouring villages should be agreed.
- Village Agricultural Land: All fallow land that is claimed for use should be included in the agricultural zone for all agricultural uses, including both lowland and upland land uses. Clearance of any new primary forest for agriculture within a NPA is not permitted
- Fishing and Fish Stocks: To prevent further depletion of fish stocks, protected pools in rivers should be designated and guarded. Making rules for controlling fishing methods and intensity are necessary.

Step 6 Village land and forest management agreements

The general procedure for preparing village land and forest management agreements as described in Part 2, Stage 5, is used as a basis for NPA villages and village clusters. The agreement is written jointly by the PLUP team, the Village Authorities, the LFMC, and the village community.

Some particular points need to be considered when preparing agreements in NPA villages:

- The agreement is usually named a "land and forest management and conservation and agreement in the NPA"
- The agreement document formalises the agreements reached on boundaries, zones and local

rules

- The agreement is an exchange of commitments. Villagers receive formal recognition of some tenure rights and legal access to specific areas and resources and they make commitments to respect the rules that they helped to create
- These rules recognize the villagers' own long-term interests, even though they may limit use of resources in the short-term.
- The agreement sets up a partnership for conservation area management between the conservation staff and the villagers, and the NPA management team takes on responsibilities for support and livelihood development assistance.

Note

An important principle to follow in the Agreements is that villages will receive development support at least equal in value to the livelihood losses that they incur by abiding by the agreements. The economic value of resource use foregone and the cost of the development support to be provided by the NPA management are explicitly laid out in each agreement. By linking development support to PLUP in this way, no village will be asked to forego any resource use rights until support is available to replace these losses with alternative livelihood options.

6.2.3 Recognition of land use rights

The Village Forest and Land Management Agreement (VFLMA) has been the primary instrument to recognize the customary rights of local communities. This permits local communities to decide how they want to allocate the land within their territories, and they need not necessarily proceed to the step of issuing individual land use certificates or other land tenure documents. The clearing of new land for agriculture is not permitted, but no attempt is made to reduce the area of fallow swidden. Any agricultural land in excess of current requirements is reserved for future population increase. The distribution of agricultural land amongst families is often a community decision which takes into account family size and community needs.

An adaption of the "village managed land allocation" procedure for individual land parcels as described in Part 2, Stage 7 of this manual is an option that could be applied in defined agricultural land use zones in NPAs. In this procedure "informal land utilization rights" are provided to families and individuals by the Village Authorities based on information recorded on a Family Land Tenure Analysis form. In this case, no land parcels surveys are required and no land use certificates are issued.

In regard to communal land use zones such as the Village Land Use Zone, communal land titling is an option as this would provide secure village land tenure over these areas. Communal title can not be transferred or leased which would avoid the concerns of land sales in the NPA.

Further Reading

Department of Forestry (2000): A Manager's Guide to Protected Area Management in The Lao PDR.

MAF, DoF, NAFRI (2001): Forest and Land Use Planning for NBCAs, a Component Description.

MAF, DoF, NAFRI (2001): Manual on Land Use Planning and Management Practices in NBCAs

Nakai Nam Teun National Protected Area (2007): Report of Initial Participatory Biodiversity Assessment (PBA), Teung Village Cluster

NT2 Watershed Management and Protection Authority (WMPA), Independent Monitoring Agency (IMA) (2007): Draft Report on Review of the Participatory Integrated Conservation and Development Process (PICAD), NNT2 NPA

6.3 Land Use Planning in National Protection Forests

Definition

The Forestry Law, Article 10 defines Protection Forest as forest classified for the purpose of protecting water sources, river banks, road sides, preventing soil erosion, protecting soil quality, strategic areas for national defense, protection from natural disasters and environmental protection.

Classification of protection forests must be in accord with socio-economic development plans ... the forestry strategy and forest land use plans (FL, Article 16). Protection forest may be divided into Totally Protected Zones (TPZ) and Controlled Use Zones (CUZ), as specified in FL, Article 59.

TPZ includes forest and forest land with a land surface slope exceeding 35 degrees, water source areas, riparian forest, roadside forest and other high risk areas. These areas must be strictly protected and it is absolutely prohibited to conduct shifting cultivation, timber cutting, destruction of forests, burning of forests, removing trees, hunting animals for domestic raising, constructing houses, extraction of soil, minerals and ore, hunting and harvesting of NTFPs, with some exceptions as indicated in FL Articles 44 and 70.

CUZ are forest areas with low risk of environmental impacts and they too have to be protected like TPZ forest areas. Timber and forest products can be used provided there is a management plan as explained in FL, Articles 40, 41, and 42.

Article 16 of the Draft Decree on the Implementation of NPFs explains that in accord with Article 82 of the Forestry Law, forests under village management and protection will be classified into three categories, protection, conservation and village use, and that these will be managed according to land management and land-forest allocation plans. This implies that PLUP will be undertaken in NPFs following normal procedures.

PLUP objectives and considerations in NPFs

Objectives

PLUP in NPFs has a primary objective of protecting watersheds from degradation, however it recognizes the development needs of the many people who are dependent on natural resources for their day-to-day livelihoods. PLUP is useful as an initial intervention point and is ideal for establishing a dialogue and partnership with protected area communities.

PLUP objectives in NPFs are similar to those for NPAs. The major objectives are:

- Stabilising forest and land use patterns under a sustainable management system.
- Ensuring equitable access to forest and land resources for communities living within these areas and formalising land use rights within the existing legal framework.
- Establishing natural resource use and watershed protection co-management agreements with villagers living in CUZs
- Developing a partnership between villages and government for the joint management of watershed protection activities and community development

Considerations

The following points need to be taken into consideration when undertaking PLUP in NPFs:

- Specific watershed protection requirements for the TPZ and the CUZ areas
- The livelihood needs of populations that reside within the NPFs, including access to NTFPs and grazing lands for livestock
- The elaboration of villager roles and responsibilities in watershed protection co-management
- The development of land and forest management agreements
- Critical issues for watershed protection at the village, village cluster and NPF levels

6.3.1 PLUP stages and steps in protection forests

The standard steps as described in Part 2, Stages 1 to 9 are generally applied. Before these steps can be applied it is necessary that the NPFs be zoned into TPZ and CUZ areas, which has implications for village and village cluster level land zoning. It is also necessary to know the location of the boundaries of the TPZ and the CUZ to understand if existing villages are having direct or indirect impacts on the TPZ and CUZ.

Table XX: Stages and Steps for PLUP in NPFs

Stage	Steps	Unit Responsible	Level of Focus
Stage I: Definition of TPZ and CUZ	Define TPZ/s and CUZ/s in the NPFs Complete digital mapping of the TPZ/s and CUZ/s	Protected Area Division, DoF and PAFO and relevant GIS Unit, in consultation with villagers	Entire NPF
Stage II: Setting PLUP priorities	Village classification Selection of priority villages	NPF Unit and PAFO	Individual village
Stage III: Land use management planning	Preparation for PLUP Village and village cluster boundary delineation Basic village forest and land use data collection Village and village cluster forest and land use zoning Village and village cluster land use plans Forest and land management agreements Land and forest data record keeping and digital mapping Establish networks and networking activities Monitoring	NPF and PLUP in consultation with villagers	Individual village and village cluster
Stage IV Recognition of Land Use Rights	Provision of 'informal family or individual land utilization rights' Provision of communal land registration and titling of communal forest areas	Village Authorities, LFMC and District Governor DLMA and PLMA	Families or individuals Village communities
Note: The follow-up livelihood development, watershed protection, and monitoring activities are not elaborated in this manual because these are not the responsibility of LUP staff. However they are an integral part of watershed protected area management and therefore arrangements need to be made for watershed protection and development aspects to follow the land use planning activities.			

The procedures for PLUP in NPFs are applicable in provincial and district protected areas.

Stage 1 Delineation of the TPZ and CUZ in Protected Forest Areas

The delineation of the boundaries of NPFs is still in progress and the Decree for Implementation of Protection Forest Areas has yet to be passed so it is likely that in most cases the TPZs and CUZs will not have been defined. Two options are available depending on the situation encountered:

Situation 1: If the TPZ and CUZ are Already Delineated and Mapped

- Proceed with steps in Stages II, III and IV summarized in Table XX above

Situation 2: If the TPZ and CUZ are not Delineated and Mapped

- Proceed with steps in Stages I, II, III and IV summarized in Table XX above

Distinction between TPZ and CUZ

The key criteria mentioned in Article 23 of the Forestry Law to distinguish TPZ and CUZ areas are:

1. Totally Protected Zone

- Forest land with a land surface slope exceeding approximately 35 degrees
- Water source areas
- Riparian forest
- Roadside forest
- Other high risk areas

Activities that are prohibited by law within TPZ are: shifting cultivation, timber cutting, destruction of forests, burning of forests, removing trees, hunting animals for domestic raising, constructing houses, extraction of soil, stones and ore.

2. Controlled Use Zone

- Forested areas without high risks of environmental impacts
- Similar protection strategies should be applied as in the TPZ (in village protected forest zones)

Villagers are permitted to use timber, forest products and agricultural land according to a village land use management plan (land use zones and zonal management plan)

Note

It is inevitable that populations will be living and farming in some areas which fit the criteria for TPZ, so a pragmatic approach to totally protected zoning will be necessary in order that villagers can maintain livelihood activities while co-operating with watershed protection activities to avoid the potential for increasing poverty of upland cultivators. In practice this will mean delineating the most critical areas, based on population densities, being flexible with the delineation of agricultural zones, and developing feasible forest and land management agreements which balance watershed protection and livelihood needs. The re-location of villages should be avoided except in exceptionally high risk areas. A "protection and development approach" is recommended where the protection activities undertaken by villagers are recognized by the government in the form of providing appropriate development activities.

Procedure for Delineating TPZ and CUZ

The TPZ and the CUZ are distinguished in a meeting with representatives of all villages in a village cluster. The TPZ is drawn for one cluster of villages and should occupy areas described in the criteria above. The procedure is repeated in successive village clusters within the NPF until all TPZ areas are delineated. The delineated areas are then digitally mapped indicating the current location of all villages within village clusters, so that the base spatial and demographic information is available for the next steps of classifying village types and selection of priority villages.

Stage 2 Setting PLUP Priorities

This stage of the process focuses at the level of the entire NPF, and helps to make decisions about which villages should receive land use planning priority. Two steps are involved in setting priorities:

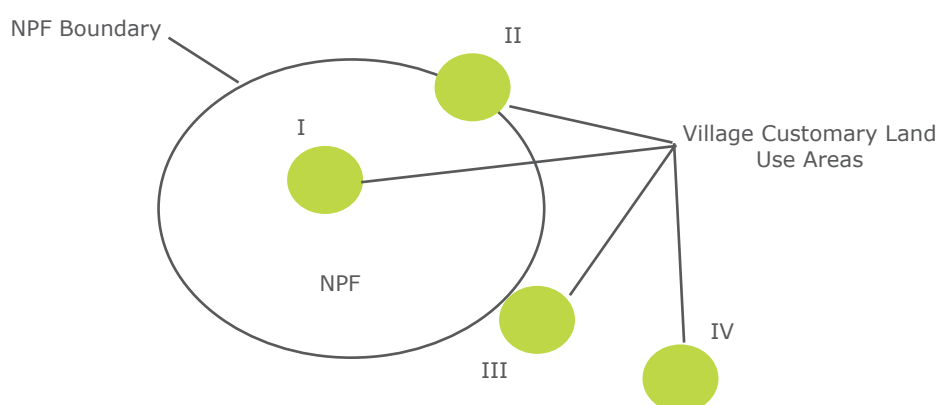
1. Classification of village types
2. Selection of priority villages

These activities are conducted to, a) identify which villages have the greatest impact on NPF watershed resources, b) set priorities for forest and land use management planning in and around the NPF, c) identify which villages have the greatest stake and therefore a vested interest in the NPF and its resources, and d) help identify village partners for NPF management.

There are four types of stakeholder villages:

- I. Enclave village
- II. Straddle villages
- III. Adjacent villages
- IV. External villages

These four village types are illustrated in Figure XX



- Type I: Enclave villages:** The settlement and village-use land fall entirely within the NPA boundary.
- Type II: Straddle villages:** The settlement area is usually outside the NPA but some village-use land falls within it.
- Type III: Adjacent villages:** The settlement area and village-use land border the NPA but do not encroach into it.
- Type IV: External villages:** Villages and their land-use areas are outside the NPA boundary, but their activities still impact on it.

Generally, enclave villages will have a higher priority than straddle and adjacent villages, however the following five criteria need to be considered in making objective and final decisions:

Location: Village types I and II should have the highest priority for land use planning. Type III and Type IV villages are also important if they serve as 'gatekeepers' controlling important access routes.

Population: Generally a village with a large population has a bigger impact than a small one. However, size is only a rough guide to impact. A village may be large because it has a lot of agricultural land and therefore it may not depend on forest resources at all. Ethnic minorities often live in small villages with little or poor agricultural land, so they might depend heavily on forest products.

Village Land Area: For Type I and II villages, the amount of land used inside the protected area is critical. Villagers may traditionally collect resources over a large area, and thus consider all of the area theirs. For Type II villages, the area of village forest land outside the watershed protection area is also important. If these lands provide for subsistence needs, then zoning more land for protection inside may be possible.

Dependence on Forest Resources: This criterion is influenced by the previous three criteria, and also by the relative wealth of the village. Generally, poor villages depend on forest resources to a greater extent than wealthier villages.

Traditional Land Use Practices: The type of farming, hunting or gathering activities traditionally practiced by a community will influence the impact it has on the watershed protection area. Shifting cultivators generally have a higher impact than paddy rice

Stage 3 Land use management planning

This stage has the following steps which follow the same pattern as PLUP in villages which are not located in NPFs, i.e., preparation for PLUP, village and village cluster boundary delineation, basic village forest and land use data collection, village and village cluster forest and land use zoning, village and village cluster land use plans, forest and land management agreements, establishing networks and networking activities, land and forest data record keeping and digital mapping and monitoring.

There are some particular points that need to be considered when implementing these steps in NPF villages.

Step 1 Preparation for PLUP

In the orientation activity with villagers it is necessary to explain that their villages are either in TPZ or CUZ zones and therefore land use planning and management practices appropriate to the zone need to be followed. This will entail some adjustments to forest and land use practices, which will be worked out in consultation with villagers later in the process.

Step 2 Basic village forest and land use data collection

This data is used in land use zoning and preparing village and management plans and therefore information that is relevant to these two activities is gathered. This includes the location of steeper forest lands that must be protected, water sources for small scale irrigation, potential paddy land, the location of contiguous blocks or stands of forest or NTFP species, areas of degraded forest, areas that are habitats of valuable wildlife species, the extent of the current agricultural fallow lands and trends in agriculture and forest land use. In addition, information on the current upland farming rotation cycle should be understood, and the areas in which shifting cultivation will be conducted in successive years should be sketched on a map. Population data is gathered to assist with projecting future agricultural land requirements.

Step 3 Village and village cluster boundary delineation

Standard methods are followed for boundary delineation and the resolution of village boundary conflicts as indicated in Part 2 5, Stage 3 of this manual.

Step 4 Village and village cluster forest and land use zoning

Similar criteria and methods as described in Part 2 , Stage 4 apply however, in villages located closely adjacent to a TPZ, the agricultural zone should be limited to the extent of current cultivation so it does not expand further into undisturbed forest. In areas where there are patches of scattered forest surrounded by farming land, it is probable that these will be cultivated in future. These areas should be aggregated where possible and be zoned within the agricultural zone as a means of providing for population expansion and increasing land demand. Steep land, whether it be densely forested or not, should be zoned as watershed protection forest. The rotational farming cycle sketch map is used to define the extent of the agricultural zone. Where contiguous blocks of similar forest types are located in more than one village, these are delineated as the same land zone category in each of the villages.

Step 5 Village and village cluster land management plans

Similar criteria and methods as described in Part 2, Stage 5 can be applied. However, the land and forest management and use agreement will include clear descriptions and rules regarding higher risk forest lands and specific watershed forest protection requirements. The agreements will also outline co-management agreements between the village and the State for these higher risk areas. Village cluster land use plans will take into account the management and use of contiguous blocks of similar forest types that are located in more than one village.

Step 6 Village and village cluster networks and networking

The methods of setting up and operating village cluster networks as described in Part 2, Stage 6 may be applied. These networks will have a focus on watershed protection activities within the network and with adjoining networks within the NPF.

Step 7 Land data record keeping and digital mapping

There are four types of information that will be produced by the future PLUP program in NPFs, village boundary and village land use zone maps, inter-village boundary agreement and boundary conflict resolution agreements, village land and forest management agreements and village land use plan data. This information should be stored as described in Part 2, Stage 7.

Stage 4 Recognition of land use rights

The Village Land and Forest Management Agreement (LFMA) has been the primary instrument to recognize the customary rights of local communities. However these agreements have often not been applied properly, or have been ignored since investments in commercial land development have expanded rapidly. In summary they do not carry the weight to adequately protect the access rights of villagers to land and natural resources for livelihood purposes.

In NPFs the opening of new land for agriculture is not permitted, but no attempt should be made to reduce the area of fallow swidden if this impacts negatively on village livelihoods. Any agricultural land in excess of current requirements is reserved for future population increase.

Land registration and land titling will not be undertaken for individual or family land parcels in the TPZ in order to avert the potential for land sales within the NPF. An adaption of the “village managed land allocation” procedure for individual land parcels as described in Part 2, Stage 7 of this manual is an option that could be applied in defined agricultural land use zones in

the TPZ of the NPFs. In this procedure the distribution of agricultural land amongst families remains a community decision which allows for family size and community needs. “Informal land utilization rights” are provided to families and individuals by the Village Authorities based on data recorded on a Family Land Tenure Analysis form. No land parcels surveys are required as no land use certificates are issued.

In regard to communal land use zones such as the Village Land Use Zone, communal land titling is an option as this would provide secure village land tenure over these areas. Communal title can not be transferred or leased which would avoid the concerns of land sales in NPFs. The proposed procedures for communal land registration and titling are described in Part 2 , Stage 8 of this manual.

6.4 Land Use Planning in Relocation Villages

Definition

The term “relocation villages” refers to villages that have been affected by either induced/ planned or voluntary relocation..There are generally two different types of relocation:

- Smaller adjacent villages are “merged” to form larger administrative units
- Villages move from higher elevation areas to lower more accessible areas and consolidate with existing well established villages.

In the first situation the families may not actually move from their former location to another village, there simply being a merger of the village committees into one administrative unit so that the number of households conforms with the policy of having at least 50 households per village. In this case villagers continue to use farming land as they did previously.

In the second type of relocation there are two circumstances:

- Families move voluntarily to seek better services and access, and acquire residential and agricultural land by a process of negotiation to the original residents of the host village.
- Families, or whole villages, are moved following the district development plan to a more accessible location and merge with a well established village. In this case provision of land by the former residents to the new settlers becomes a complicated issue.

Effects of relocation and village consolidation

Research work indicates that there are different effects arising from village re-location and consolidation, (LSUAFRP, 2002, 2003, and 2007).

Infrastructure and Services:

- Better access to transportation and markets
- Access to education and health services,
- Access to irrigation and to clean water
- Access to socio-economic services
- Access to better information

Land and Forest Related Effects

- New settlers access allocated and other agricultural land by various means including borrowing, renting, and purchasing
- Confusion over land occupancy including: exchanging allocated land, reduction of agricultural areas for families, and new settlers having access to very few or no land parcels
- A decline in land and soil quality, an increase in fallow cycle frequency, new arrivals using poorer quality land, sub-division of parcels, three years of continuous cropping
- An increase in illegal land trading practices; land sales
- Less land available for original residents
- Longer walking distances to farming lands
- Accelerated reduction in quantities of NTFPs for consumption and sale

Objectives of PLUP in re-located villages

Scenario 1: In villages where PLUP-LA has not been undertaken

- To delineate village boundaries and land use zones within the village management area
- To allocate agricultural land to individuals and families, both original residents and new settlers, as equitability as possible
- To develop land use plans and land use agreements for future use of the land
- To improve land use rights of individuals and families

Scenario 2: In villages where land allocation has been previously undertaken:

- As far as possible, retain land allocated parcels in the hands of the original owners
- As far as possible, provide adequate land to new settlers
- Attain as far as possible, a fair distribution of land between the original residents and the new settlers and provide land to the more needy and disadvantaged
- To improve land use rights of individuals and families
- To retain adequate access to agricultural production land by re-alignment the village boundary and re-zoning of land use areas
- To provide better land security and land investment opportunities for villagers
- To maintain village protection and village use forest areas

6.4.1 Procedures and stages for scenario 1

In this case the standard procedures for PLUP outlined in Part 2, Stages 1 to 9 should be followed.

The following important points need to be considered:

- A LFMC committee must be established that has equal representation from the merged villages and ethnic groups
- Projections on future populations need to be undertaken to ensure the agricultural zone will be large enough to support an increased population at least in the medium term
- If merged or consolidated villages have small land areas they should not be considered for commercial land development investment
- If the village has mixed ethnicity, care should be taken that the more powerful groups do not claim excessively large areas at the expense of the more vulnerable families

6.4.2 Procedures and stages for scenario 2

These procedures have two key stages:

Stage 1: Adjusting the village boundary and zoning land use areas to provide adequate land for an expanding population.

Stage 2: Thoroughly investigating family agricultural land ownership and land claims with the aim of re-allocating land for families in the merged village.

Steps in Stage 1

The steps in Stage 1 are indicated in Table XX

Table XX: Adjusting the Village Boundary and Re-Zoning Land Use Areas

Step	Activities
1. Understand village populations and population trends	Gather births and deaths data from the different ethnic groups in the community Make population growth predictions based on two factors, annual natural increase of each ethnic group and in-migration rates based on district relocation plans
2. Verify village boundaries and do land category mapping	Verify boundaries for both the host village and the migrating villages/s and calculate arable land availability in each village, using former LUP-LA maps and interviews with village leaders in each of the villages.
3. Calculate agricultural land availability	Using satellite image print-outs or enlarged topographic maps, calculate the approximate area of agricultural land available based on slope category zones in the host and migrating villages. Aggregate land areas of the migrating village/s and host village to assess total land availability.
4. Calculate approximate carrying capacity of available land	Calculate the total annual area required in the village for all families Calculate total area of land required for the village to maintain a four plot cropping cycle Deduct village total required from total available Determine the number of additional families the available land could support
5. Formal agreement to delineate a new village boundary	Hold discussions with District Authorities and villages to reach agreement on extending the host village boundary to secure adequate land for upland crop production and large livestock grazing
6. Initial boundary re-orientation reconnaissance survey	Re-define the village boundaries of the merged villages with representatives of each of the villages Determine the extent of farming lands, grazing lands and potential forest protection areas in the old village sites
7. Officially recognise the merged village management areas	Dissolve old village boundaries by agreement between the villagers and the District Authorities Zone, map, and digitize the farming areas, grazing areas and protected forest areas and incorporate the zones in the overall merged village management area
8. Undertake village agricultural and forest land use re-zoning	Re-zone agricultural and forest areas after redefinition of the merged village boundary is completed (see example in Figure XX)
9. Prepare a Village Land and Forest Management Agreement	Prepare a village land and forest management agreement for the merged village with the village authorities to replace the original agreement made when LUP-LA was done previously Prepare the agreement using the steps as described in Part 2, Stage 5 of this manual

Steps in Stage 2

The steps in Stage 2, are presented in Table XX.

Table XX: Steps in Identifying Land Ownership and Re-allocating Agricultural Parcels

Step	Activities
1. Allocate agricultural parcel identification (ID) numbers	Label agricultural land parcels with ID numbers. ID numbers are key references when tracking parcel ownership. (Note: In the past LUP-LA program a family based parcel recording system was used.)
2. Document family land ownership & land parcel claims	Use the original land allocation list to conduct interviews with villagers to determine the ownership of the parcels previously allocated to families in the host village Understand the land parcel ownership changes that have occurred since land allocation was conducted (see table XX above) and prepare a land parcel checklist
3. Develop land re-allocation criteria	Discuss and agree on land re-allocation criteria with village authorities and villagers Aim at re-allocating a minimum of 3-4 parcels per family to achieve equitable land parcel allocation
4. Track land parcel ownership changes of new settlers in the host village	Track family ownership including land parcel claims of new settlers within the village boundary Identify land parcels claimed outside the village boundary by both new settlers and former residents of the host village Tabulate the land ownership data on Excel spread sheets to create a record of changes Adjust land parcel checklists
5. Enter the land parcels and their IDs on village land use zone maps	Transpose the information recorded on the land parcel checklist onto enlarged topographic maps of each zone. Verify that each parcel recorded on the land parcel checklists is indicated and visible to villagers on the enlarged topographic maps.
6. Verify land parcel data on topographic maps	With village zone leaders and land users, verify the tabulated data for each land parcel on the Excel sheets with the plots indicated on the zone maps
7. Issue Family identification documents	Issue Household Numbers and Family Registration Books to ensure positive and accurate land ownership details are recorded
8. Re-allocate land parcels to all families in the merged village	Effect the transfer of land parcels to families using a Agricultural Land Parcels Allocated Form which is signed by both husband and wife Provide the information to the District Authorities for endorsement

6.4.3 Recognition of land use rights

In relocation villages the procedures described in Part 2, Stage 7 may be used to implement land registration and land titling. The Record of Agricultural Land Parcels Allocated Form which has full particulars of land parcel IDs and ownership of each land parcel may be used to facilitate land adjudication and registration by the DLMA and the PLMA. Land parcels that have been developed for three years or more are eligible for registration and land titling. Owners of other parcels will be eligible to have their parcels registered after the land has been developed for a period of three years.

The digitized land use zone map is used to verify the communal land areas that are eligible for communal land registration. In the case above the village sacred forest areas, the village use forest zone and the communal grazing zone, would be eligible for communal land titling.

Further Reading:

NAFRI, LSUAFRP (2007): Draft Research Report on Studies on the Effect of Village Re-location on Previous Land Allocation

NAFRI, LSUAFRP (2007): Draft Research Report on Improved Land Use Planning and Land Allocation Procedures in Re-location Villages

6.5 Land Use Planning for Foreign and Local Agriculture and Forestry Investment

Introduction

Part 2, Stages 4 and 5 of this manual include activities for identifying potential land for agricultural investment (concession areas). This chapter provides more detail on PLUP procedures proposed in two cases; a) where land is identified for concession purposes and b) when agricultural development has commenced in approved concession areas.

Relevant Legal References

Article 6, FL concerning the principles of preservation, development and utilisation of forest and forest land, states in part that development and utilisation of such land will ensure that development preserves the environment with “firm” people’s participation, and benefits for the State, organisations and individuals engaged in the development according to laws and regulations.

Article 12, FL states that production forest is natural or planted forest classified for wood and forest products production purposes that satisfy national socio-economic development and peoples livelihoods.

Article 33, FL states that forest and forestland management organisations will collaborate with parties concerned and the local administration to carry out surveys and determine areas for forest plantations with a focus on degraded and bare lands.

Article 74, FL states that lease or concession of forest land is only possible in degraded forest land which cannot naturally regenerate, and barren forest land, and must satisfy the following requirements; a study of socio-economic data, physical conditions of the land, climatic conditions, land use rights, labour availability and the status of the forest; a feasibility study; a social and environmental impact assessment; a work plan on land development, enhancement of people’s participation, technologies to be used and benefit sharing arrangements.

Objectives

The objectives of village PLUP in agricultural and forest development concession areas are:

- To assess village forest status and agricultural systems within the village management area
- To determine and delineate the types of village forest land that are not permissible for concession purposes, including spiritual and ceremonial forests, cemeteries, village use forests, conservation forests, and watershed protection forests
- To determine and map the extent of existing agricultural fallow lands to ensure that village livelihood requirements are satisfied
- To determine and map land potentially available for agricultural crops and industrial tree plantations based on suitability criteria and the livelihood requirements of future village populations
- Provide PLUP and survey information on potentially available areas for plantations to District Authorities for planning purposes
- Make agreements with villagers on actual areas that could be made available for plantation development recognising that villagers retain the right to refuse the allocation of village lands for plantation purposes

Issues and specific needs

Issues

Many issues have arisen in recent years regarding agricultural land concessions some of which are administrative, while others directly concern the appropriation and use of land in village areas. Some of the issues concerning land use in villages and village clusters are sum-

marised below:

- Village land use maps, land and forest management agreements and TLUCs produced by the former LUP-LA program have either been disregarded or used insufficiently in consultations at district and village level when land is allocated for concessions.
- The documents mentioned above have provided inadequate proof of village tenure rights which has permitted concessionaires to gain access to lands which villagers otherwise may have retained for livelihood purposes
- Categories of forest land other than those stipulated in the Forestry Law have been granted for plantation development
- Concession companies have cleared village agricultural land that was not agreed to in concession agreements.
- Companies have created their own criteria for gaining access to land within their concession areas, i.e., they have mapped lands for plantation development used by families who are not able to produce tax certificates as proof of ownership, while excluding lands for which villagers can produce land tax certificates. These arrangements have been condoned by district authorities
- The allocation of concession lands in village areas reduces villager land use options
- As a consequence of concessions gaining control over land, misunderstandings between villagers and investors arise
- Provincial, District, Village Cluster and Village Authorities have insufficient village and village cluster land zoning maps and land suitability maps to effectively advise investors regarding areas that are both suitable and available for plantation development

PLUP has a valuable role in providing land and forest use zoning and land suitability information to assist provincial, district and village authorities, make objective decisions about allocating land for concessions.

Specific Needs

The following specific adjustments are required to improve the process of assessing and declaring land suitable and available for commercial development purposes:

- Understandings need to be developed among the three stakeholders, district and village authorities, and investment companies, that district authorities and village authorities will make decisions on the granting of appropriate concession land, however investment companies may provide support for PLUP
- Villagers need to be included in the process of decision making, rather than being accessories to decisions already made by higher authorities about the allocation of land in their areas
- District officials need to adjust their role from one of being agents of the companies seeking land, to one of facilitating transparent discussions between the villagers and the companies
- PLUP procedures should be undertaken prior to decisions being taken on concession agreements
- Appropriate survey and mapping methods need to be adopted to ensure land use information is accurate, usable and retrievable, including satellite imagery, and geographic information systems.
- Procedures, guidelines and methods for undertaking land surveys, socio-economic and environmental impact assessments, mapping, and presenting data for decision making need to be developed and used
- Training of provincial and district staff in the procedures, guidelines and methods is an urgent requirement
- Building GIS capability at provincial level to assist districts with village and village cluster land use mapping is a priority

Land use planning requirements

PLUP is required in two situations:

1. Land use planning in villages and village clusters to identify potential land for concessions
2. Land use planning in villages and village clusters in which agricultural land concession development has commenced

In situation (1) PLUP the key activity is the identification of land potentially available for commercial or industrial tree planting in villages after the forest and agricultural land requirements for village livelihoods have been determined.

In situation (2) it is necessary to undertake village boundary delineation, land use zoning and prepare land management plans for village use areas and the company use areas, in consultation with the developer. This activity will later facilitate village level land adjudication and registration activities of individual land parcels, communal land parcels and state land.

6.5.1 PLUP to identify land potentially available for concessions

This chapter provides detail on procedures to identify land potentially available for agricultural land development concessions. At the same time the activities described in Part 2, Stages 4 and 5 of this manual, should be considered.

Criteria

- District Authorities should be responsible for identifying land potentially suitable for plantation concessions using the procedures described in this manual.
- Private sector companies, may provide equipment and materials required, technical back-up and training for provincial and district staff based on the procedures
- Private companies should not physically participate at village and kumban levels in discussions with villagers on the availability of land before PLUP has been undertaken under the direction of the District Authorities
- District Authorities, the relevant district technical agencies, village authorities and the villagers are involved during all the activity steps described.

The procedures outlined in Table XX below aim to prevent direct negotiation and illegal purchase of agricultural land from villagers by prospective land developers.

Table XX: Stages and Steps in Identifying Land Potentially Available for Agricultural Development Concessions

Stages	Steps
1. Preparation and explanation of village land use rights	<p>Prepare Spot 5 satellite image print out maps (15 meters resolution), GPS and other field equipment</p> <p>The District Authorities arrange approvals with the Provincial Authorities to conduct surveys and assessments</p> <p>District authorities hold orientation meetings with villagers to explain the purpose of the procedures that will be followed</p> <p>Village Authorities and the villagers are advised that they have the right to decide if they wish or do not wish to provide land for plantation development</p> <p>Prepare an activity work plan</p>

2. Village and kumban boundary delineation	Undertake the PLUP procedures as described in Part 2. Stage 3 of this manual
3. Undertake village and kumban land use zoning	Undertake the PLUP procedures as described in Part 2, Stage 4 of this manual
4. Clarify if national forest categories exist in the area	If national or provincial conservation or protection forests exist in the area of interest they are excluded from potential plantation land areas
5. Delineate slope categories	Areas steeper than 25 degrees are excluded from potential plantation activities
6. Identify “potentially suitable” for concessions	Areas of degraded or bare land with slopes less than 25 degrees are identified and mapped. These areas are classified as “potentially suitable” for plantation development and indicated on the land use map
7. Agree on areas “potentially available” for concessions	Consult with villagers to ascertain which areas of degraded and bare land villagers would be willing to make available for concessions This activity is undertaken with the community and the Village Authorities and allows enough time for public discussion and decision making. Villagers demarcate areas within the “potentially suitable” areas which they wish to retain for their own production and use purposes and land that they may be willing to make available for future plantation development The villagers and the District Administration verify which agricultural land is adequate for the village population. These agreed areas are designated as “areas available for plantation development”
8. Submit Survey and Land Assessment to District Authorities	The agreements reached on land use are drawn on a final map which demarcates the areas of land potentially available for concessions and all the categories of village use land A Village Land Survey Report is prepared by District Authorities The land use map and the Village Land Survey Report are submitted by the District Authorities to Provincial Authorities for consideration and future planning purposes
9. Initiate a process of rural registration of village and state lands	Based on the designated village land use zone maps and the land use agreements, undertake land registration and land titling of individual, communal and state lands as appropriate

Insert an example of a village land use map indicating land potentially available for concession after the PLUP activity is completed

Insert an example of a Village Land Survey Report

6.5.2 PLUP where land concession development exists

The objective is to ensure that village livelihood forests and agricultural lands are registered. The procedures in Table XX should be followed.

Table XX: Stages and Steps for PLUP in Operational Concession Areas

Stage	Steps
1. Identify village and village cluster boundaries	If PLUP was not previously undertaken identify and map village and village cluster boundaries on satellite image map prints using procedures described in Part 2, Stage 3 of this manual
2. Locate company concession area/s	Find the location of the concession areas within the village and village cluster boundaries using company, district and village information sources
3. Map the concession areas	Transpose the concession boundary information onto the satellite image print map of the village and village cluster management area
4. Explain villager land use rights	DAFO and district staff advise Village Authorities and the villagers that they have the right to refuse to make available any addition land for plantation purposes
5. Conduct village and village cluster land use zoning	After the concession areas are mapped on the village and village cluster management area maps, proceed with land use zoning, using procedures described in Part 2, Stage 4, of the manual. Incorporate the village land use zones and the concession land use area on the one land use zone map
6. Prepare village and village cluster land management plans	Prepare village and village cluster land management plans using procedures described in Part 2, Stage 5 of this manual
7. Map the concession development plans	Indicate the future land development plans of the concession company on the village and village cluster land use map
8. Land registration and land titling	Based on the designated village land use zone maps and the land management plans, undertake land registration and land titling of individual, communal and state lands as appropriate

(Insert an example of a village land use map indicating village land use zones and the concession areas after the PLUP activity is completed)

6.5.3 Recognition of village land use rights

It is extremely important to protect village land use rights in villages affected by agricultural land concessions. The general procedures for land registration, and the proposals for registering individual or family agricultural land parcels and communal village forest areas are described in Part 2, Stage 7 in this manual can be applied.

The land registration processes proposed in villages where, a) agricultural land concessions are planned, and b) agricultural land concession development has commenced are indicated below.

A. Agricultural land concessions are planned

- Conduct a village survey and mapping procedure as described in Table XX above
- Draw up an agreement between villagers and the District Authorities, based on the village land use map and the Village Land Survey Report, that verifies the areas of land that are potentially available for plantation development, and the areas where the village will be provided with formal land use rights
- Proceed with registration of zones or parcels that are eligible for communal land registration, i.e., village use forests, communal agriculture and grazing areas and village sacred areas
- Proceed with the registration of state conservation and protection forest areas that have been identified and mapped during the village survey and mapping process
- Conduct a Family Land Tenure Analysis of individual or family agricultural land parcels that are located within the agricultural land use zone
- Identify from the Family Land Tenure Analysis agricultural land parcels that have already been developed for three years or more by families or individuals and proceed with adjudication and registration of these parcels
- Every three years identify individual or family agricultural land parcels that have been developed since the initial land registration and titling activity and proceed with adjudication, registration and land titling of those land parcels

B. Concession development has commenced

After village land use zones within the village management area have been digitised and mapped:

- Proceed with the registration of zones that are eligible for communal land registration, i.e., village use forests, communal agriculture and grazing areas and village sacred forest areas
- Proceed with the registration of the three forest category areas as state land for villages to manage and use
- Conduct a Family Land Tenure Analysis of individual or family agricultural land parcels that are located within the agreed and mapped agricultural land use zone
- Identify from the Family Land Tenure Analysis agricultural land parcels that have already been developed for three years or more by families or individuals and proceed with adjudication and registration of these parcels
- Every three years identify individual or family agricultural land parcels that have been developed since the initial land registration and titling activity and proceed with adjudication, registration and land titling of those land parcels

Further Reading

Earth Systems Lao, November 2007: Technical Guidebook for Implementing Potential Degraded Forestland Conversion Methodology

Earth Systems Lao, November 2007: Pilot Project for Development of Survey Method for Identification of Potential Degraded Forestland Area for Conversion Through Remote Sensing

StoraEnso Project CD Presentation Burapha 2007-08: Project Information

6.6 Land Use Planning in Re-settlement Villages

Definition

Article 3 of Decree No 192/PM, July 2005 defines resettlement as all measures taken by the Project owner to mitigate adverse social impacts of a project, fully or partially, on affected people (APs), including compensation at replacement cost for lost assets and incomes and the provision of other entitlements, income restoration assistance, and relocation, as needed. APs include any person or entity or organization affected by a project, including standard of living, land and property rights, business or occupation, and community resources adversely affected. For purposes of this section the term “AP” will cover (i) those who will be resettled; (ii) those who will not resettle but are entitled to compensation due to expropriation of land and/or fixed assets; and (iii) members of a host community.

Resettlement as a result of a development is not to be confused with re-location by district authorities which involves the re-location and/or merging of villages, usually to more accessible locations, with a view to improving the provision of services to merged communities. This is defined and discussed in Part 3, Chapter 6.5

With regard to land user rights, Article 6 of Decree No 192/PM, July 2005 on Compensation states that (1) Project owners shall compensate project APs for their lost rights to use land and assets; (2) APs who are living in rural or remote areas, who do not have any legal Land Use Certificate or any other acceptable documentary proof indicating land use right to the affected land and assets they occupy shall be compensated for their lost rights to use land.

With regard to resettlement site and land allocation, Article 10 states that all persons relocating to group resettlement sites shall be provided with(1) agricultural sites of equivalent size, with productive potential and locational advantages better or at least equivalent to the old site; (2) All replacement land for agriculture, residential and businesses shall be provided with secured land titles and certificates, without cost to APs at the time of transfer.

Article 10 also specifies that where APs are relocated into an existing established village, termed “host community”, members of the host community will also receive similar assistance to APs. Therefore if APs are relocated into a host community where PLUP and land allocation has not occurred beforehand, the whole village, consisting of both host and AP households, is deemed eligible for PLUP. Where LUP-LA has occurred beforehand, resettlement of APs into the host village will require PLUP to be undertaken again according to the revised procedure, prior to relocation and with joint participation of host and AP households.

Objectives

The objectives of village PLUP in resettlement areas where project development is to take place are to:

- Facilitate rural land titling in project affected or critical areas
- Identify and allocate replacement compensation agricultural land for village entities, families and individuals who are resettled due to project development
- Identify and allocate replacement community resources, including forest use lands due to project development
- Compensate AP in rural or remote areas for lost land use rights, including those who did not previously possess any legal land use certificates or other documentary proof of land use right
- Provide agricultural land of equivalent size and productive potential and locational advantages better or at least equivalent to the old site
- Provide secure land titles for all agricultural, business and residential land at no additional cost to the settlers
- Define the village management areas of resettlement villages and the land and property assets therein so that the three types of land registration and land titling can be applied to the various assets, i.e., individual titles, state titles and/or communal/collective titles

- Define management and maintenance rights and responsibilities in relation to assets and land defined under the three types of land registration and land titling
- Ensure that settlers rights to resettlement land are not threatened by other interests subsequent to resettlement, including businesses, squatters and other persons seeking to take advantage of improved infrastructure, facilities and land use opportunities

Specific Needs

- An agreed process for PLUP in resettlement areas needs to be developed and officially adopted
- The clear definition, official agreement and adoption of roles and responsibilities of the various stakeholders in the PLUP process in resettlement areas, i.e., MAF agencies, NLMA Offices, the project developer and APs (including host communities where affected)
- A procedure for deciding what is replacement compensation land area for villages, i.e., individual land and communal land, based on an assessment of the land condition and soil type and productivity potential of the resettlement area
- A clear process to distinguish the three types of land ownership in resettlement villages, i.e., individual land, state land and communal/collective land, and the responsibilities for managing and maintaining the three types of land
- A procedure for adjudicating and registering individual and communal land areas within the designated village management areas of re-settlement villages. (the refinement of current survey, adjudication and incentive procedures for urban and peri-urban areas may need adaption to suit the situation, e.g., is it possible to undertake rural registration without using systematic adjudication teams (SATs)?)
- Land and forest management agreements for the various types of forest land delineated and mapped in each village to be prepared by the relevant agency, certified and endorsed by the District Governor or the District Authorities (Article 82 and Article 83.3 and 83.4 of the Forestry Law)

6.6.1 Procedures for PLUP in resettlement villages

Note

The following steps are tentatively proposed. Further study of past experiences need to be undertaken before final procedures can be agreed.

The tentative proposals below would contribute to district and provincial capacity building and clarify the allocation of roles and responsibilities of the various stakeholders.

No	Steps	Responsibility
1	Selection of resettlement area based on a study of appropriate bio-physical and socio-economic parameters	Project developers in consultation with district authorities and APs
2	Definition of replacement land compensation needs based on villagers previous access to land and other livelihood assets	Project developers, PAFO, DAFO, and District Authorities
3	Clear definition, official agreement and adoption of roles and responsibilities of the various stakeholders in PLUP.	MAF agencies, PLMAs, Project Developers and APs

4	Preparation, as in Part 2, Stage 1 of the PLUP manual)	Project Resettlement Management Unit (PMRU), DAFO, DLMA, adjudication team (SAT), Community Education Services (CES), Lao Women's Union (LWU)
5	Staff training on the required activities, including gender awareness training on women's land titling rights and land use rights following resettlement	PMRU, DAFO, DLMA, SAT, CES, LWU
6	First village orientation on PLUP activities (similar to Part 2, Stage 1)	District Governor, PMRU, DAFO, DLMA, SAT, CES, LWU, Village Authorities (APs/host community)
7	Village and management area (boundary) delineation, marking and digital mapping, (to provide adequate residential, agricultural, grazing and communal forest land for the future needs of the resettled households)	DAFO, PAFO and PMRU with Village Authorities (APs/host community)
8	Definition of village land use zones, and land management plans within the designated village management area. (may include: village residential area and adjacent gardens, individual agricultural land, common use agricultural land, village forest use land, spirit land, common grazing land, land for public purpose (e.g. schools, village authority buildings, wat, clinic, etc.),	DAFO, PAFO and PMRU with Village Authorities (APs/host community)
9	Identify changes of land use where relevant, and the needs to adjust land tax accordingly, e.g., if APs are moving into an existing host community,	DAFO, Village Authorities (AP/host communities), other relevant agencies??
10	Preparation, certification and endorsement of land and forest management agreements for the various land use zones in each village management area	DAFO, PAFO, DLMA, PRMU, Village Authorities (AP/host communities), District Governor or District Administration
11	Second village orientation on rights and responsibilities and dispute resolution procedures	PRMU, Community Education Services, PLMA, DLMA, LWU, SATs, Village Authorities (AP/host communities)
12	Prepare an agricultural land parcel allocation checklist with APs entitled to individual land compensation within the designated agricultural land use zone	PRMU, DLMA, PLMA, SATs, Village Authorities (AP/host communities)
13	Pre-registration step, identification of individual, state and common use village land based on the land use zone maps and land management plans prepared in Step 8 above by DAFO-PAFO and the agricultural land parcel allocation checklist (from Step 12 above)	PRMU, DLMA, PLMA, SATs, Village Authorities (AP/host communities)
14	Adjudication of communal, state and individual land parcels	PRMU, DLMA, PLMA, SATs, LWU, Village Authorities (AP/host communities)
15	Land Registration of the above land categories	PRMU, PLMA

Further Reading

PMO (2005): Decree No 192/PM on Compensation and Resettlement by Development Projects

PMO (2005): Regulation No 2432/STEA for Implementing Decree 192/PM on Compensation and Resettlement of People Affected by Development Projects

PMO, STEA: Technical Guidelines on Compensation and Resettlement in Development Projects