

## **CHAPTER 4**

### **OVERALL RESULTS ONJOINT MANAGEMENT OF PROTECTED AREAS PROJECTIN OB LUANG NATIONAL PARK**

The study of co-management concept and its practical variation in protected area: a case study of Ob Luang National Park, Chiang Mai, data presentation and analysis the operation results of joint management in protected areas project at Ob Luang National Park, the central and regional levels with the outputs and outcomes of operation results that measure of successful and unsuccessful operation. Including the analysis of factors that affect the outputs with variance occurs in the area. It was considered that the achievement of this project would be also contribute significantly to sustainable management in the future.

#### **4.1 Joint Management of Protected Areas Project: JoMPA**

##### **4.1.1 The project background**

The background and facts in the past have witnessed many protected areas in the national parks and wildlife sanctuaries having been encroached and loss their biodiversity. The issue problems of protected areas arises from communities in the areas that impact on the ecosystem and the authorities have no power to fully resolve the conflicts. The conflict resolution was not successful because the DNP problem solving is not straight the point rather than focusing on the actual problem. The issues has been divided as ecosystem and communities management, and lack of integration plans and budgets, as well as to carry out a comprehensive revision. However, the issue of conflict in the resource management of protected areas, the executive at the ministerial level contacted the Danish government for help in resolving the new guidelines. The sorely needed to adapt the ideas and solutions to a new approach that holistically, resolve both ecosystems and production systems that integrate the collaboration of all stakeholders involved literally. From the Seminar on Environment and Development at Rio in 1992, the Danish government has allocated funds for assisting developing countries in the field of environmental management, and has provided assistance in this field from 1994

until 1998 in the form of projects that the board agreed for the year, but later in 2001 has changed the format of the big program helping for a period of five years and documented program of cooperation between Thailand - Denmark Environmental Management. Between 2002- 2006, the framework of environmental assistance programs consisted of two components: the first component supports the Decentralization of the Urban Environmental Management-UEM and the second component supports the Natural Resources Management on Community Based Natural Resource Management outside Protected Areas –CBNRM and Joint Management of Protected Areas–JMPA.

The DANIDA Organization of Denmark supports participatory management of protected areas through DNP for solving main problems were the loss of biodiversity occurs continuously, the degradation mechanism of ecosystems, loss in the livelihoods of the rural poor, and the lack of democratic participation of the various stakeholders in the protected areas management. The project has three objectives as follows: 1) development objectives, the bio-diversity and ecological functions of protected areas are conserved through the co-management of the government agencies, stakeholders, and the public. 2) immediate objectives, the management of protected areas applies the ecosystem and participatory approaches implemented in the selected protected areas. The project results will be expanded to other protected areas through the national protected area management as the main development strategy of the Development of National Parks, Wildlife and Plant Conservation. The capacity of organizations and personnel in the area of conservation use, the ecosystem approach and developed participation management(Protected Area Innovation Unit, 2005: 10-11).

#### **4.1.2 Structure and project management**

JoMPA project under the responsibility of Department of National Parks, Wildlife and Plant Conservation, was established the Protected Area Innovation Unit-PAIU as a major institute for operating this project. In addition, the Field Protected Area Innovation Unit was also established in eight of Protected Area Regional Offices, as follows: 1) Protected Area Regional Office 3 (Ban Pong), 2) Protected Area Regional Office 4 (Suratthanee), 3) Protected Area Regional Office 5 (Nakornsrihammarat), 4) Protected Area Regional Office 8 (Khon Khan), 5) Protected Area Regional Office 12

(Nakhonsawan), 6) Protected Area Regional Office 13 (Phrae), 7) Protected Area Regional Office 14 (Tak), and 8) Protected Area Regional Office 16 (Chiang Mai).The target areas of this operation consisted of seven protected areas and one western forest group therefore there were totally twenty-three protected areas(See Figure 4.1)

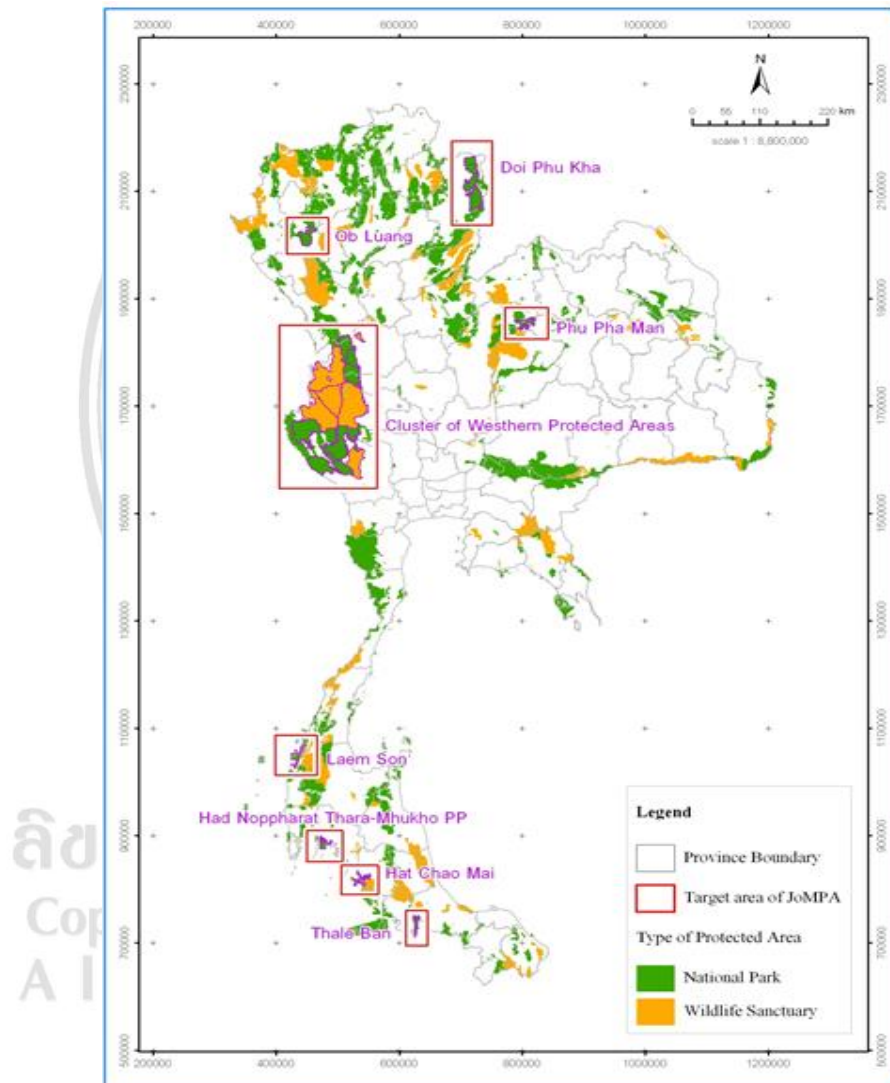


Figure 4.1 Protected Area of Thailand and JoMPA's Target Area

Source: Wittaya Nawapramote. 2013: 52.

Management structure for the project management of protected areas to contribute to formal distribution plan is described as follows:

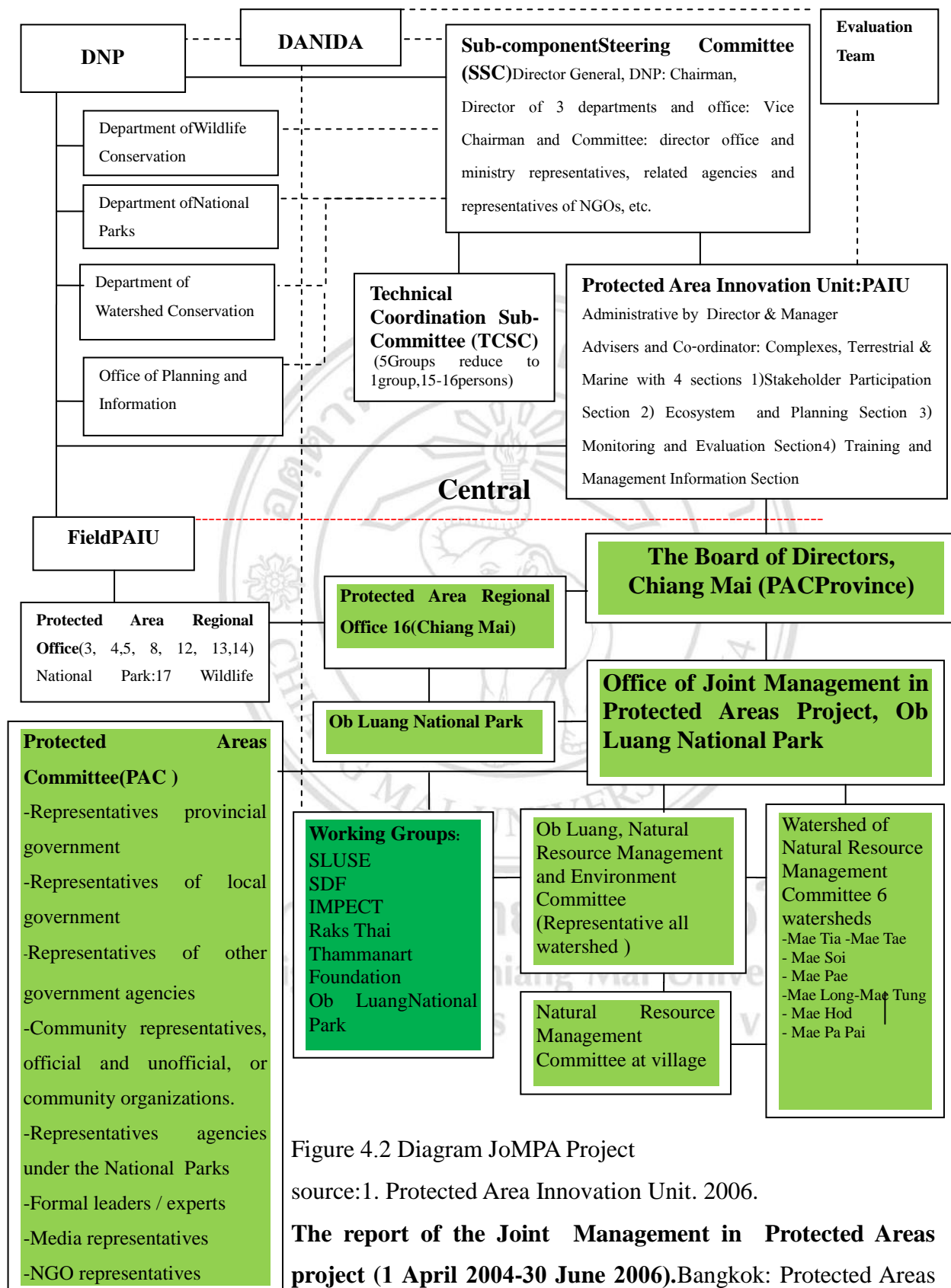


Figure 4.2 Diagram JoMPA Project

source: 1. Protected Area Innovation Unit. 2006.

**The report of the Joint Management in Protected Areas project (1 April 2004-30 June 2006).** Bangkok: Protected Areas

Innovation Unit, Department of National Park, Wildlife, and Plants.

2. Protected Area Innovation Unit. 2012. **Document of the Joint Management in Protected Areas project.** (Online)source:  
<http://www.dnp.go.th/paiu/AboutJoMPA.htm>.

Project Management of JoMPA from Figure 4.2, **In the Central:** The DNP has set up an Office of Protected Area Innovation Unit (PAIU) as main agencies that integrated into the normal structure of DNP for doing only JoMPA project. The PAIU office has a project director and project manager, consulting and project coordinator for the forest complexes, terrestrial and marine which was split into 4 sections as 1) stakeholder participation section, 2) ecosystem and planning section, 3) monitoring and evaluation section and 4) training and management information section. In which each party appointed by the National Park officer and hire staff to do the job. (Rates are composed Project Manager (Director and manager) National Park officer consists of 2 persons, official practice full-time job are 6 persons, officials working part-time (the previous one) are 9 persons and employed project are 10 persons). PAIU role was to coordinate with other agencies both within and outside of the DNP and work as the office of secretary for Sub-component Steering Committee (SSC), with the main function of providing advice and guiding to operational policy coordinating and linking activities in both countries, regional and protected areas.

The project has appointed committees, the SSC oversees the project. The board came from a variety of stakeholders from both government and non-government with 16 persons, comprising the Director General, DNP as a chairman, Director of Department of Wildlife Conservation, Department of National Parks, Department of Watershed Conservation and Office of Planning and Information as vice chairman and committees, and ministry representatives, related agencies and representatives of NGOs, community organizations, development institutions, Department of Local Government and external experts. The role in the formulation of policies and strategies, line operation into action, approval of the operating plan and budget, monitoring and evaluation, and establish a subcommittee to coordinate academic TCSC number consists of five sets of 15-16 persons with participation groups, ecosystem group, planning group, monitoring and evaluation group, and information and training group. This mechanism for coordination and as a forum to discuss technical issues of the stakeholders involved, later reduced to only one

set of the Sub-committee. Most of the primary missions of the individual, may not attend meetings and counseling and selected by a panel of experts who give their time to the project. The PAIU Office is coordinating contacts 10-16 experts who cover all relevant fields for consult with next project. Then, later in the minutes of the board of directors No. 1/2550 held on 17 July 2007 passed a resolution to cancel the TCSC but set the resource persons held a meeting in the forum concluded the lessons for collaboration and knowledge sharing.

**In the regional office:** The project has established the Protected Area Innovation Unit Field Office in the Protected Area Regional Office 1-16 that are the target groups in JoMPA project. The field PAIU areas covered the Protected Area Regional Office in target area are coordination between the central and coordinating the various agencies in the area. Ob Luang National Park is the responsibility of the Protected Area Regional Office 16 (Chiang Mai) by coordinating closely with NGOs and stakeholders to prepare an action plan participant, implementation of the plan and progress report on the performance.

**In the protected area:** The chief of national park is responsible for the cooperation with representatives of NGOs and other stakeholders in the area. The protected areas consists of NGOs and institutions, which is funded by the Embassy of Denmark and directly responsible for the activities of liaising and supporting the park. The advisory board of the PAC that the appointment of representatives from various sectors as provincial and local relevant government agencies NGO and a group of 15-30 persons, and community organizations to help in the management of protected areas by participating in the plan, implementation and monitoring and evaluation.

Ob Luang National Park consists of NGOs and participatory institutions which include Sustainable Development Foundation (SDF), CARE Thailand, Thammanart Foundation, Inter Mountain Peoples' Education and Culture in Thailand (IMPECT), sustainable land use and natural resources management academic center (SLUSE). The role of NGOs is to help communities in the area and the authorities of the protected areas work together. Without undermining the trust of the staff involved in the project include the same area. There is agreement on the division of responsibility and results

sharing agreement is a necessary element in the activities of the area. Including non-governmental organizations and institutions will be introduced to promote and support such as academic, Watershed Information Center, Watershed Management office and SLUSE with operational activities planned co-operation by operating in the area Ob Luang National Park that collaboration between the park and the relevant authorities, educational institution NGO. The commission's management of resources in the watershed and the village. In other areas such as the Western Forest Protection Area 17 target protected areas carry on by Seub Nakhasathien Foundation (SNF), Hat Chao Mai National Park carry on by Yanfon Association and cooperation with SDF and in Doi Phu Kha National Park carry on by MERI and cooperation with CARE (Protected Area Innovation Unit, 2006: 16-17).

#### **4.1.3 Concept of Protected Areas Management**

The concept of protected areas management is aimed at maintaining and enhancing the services and products of nature to take it from conservation areas, ecosystem analysis and participatory management approach are the important tools for protected areas management linked to each other intimately. The lead management framework for the sustainable use and preservation of protected areas in the given conditions with together that have six main aspects must be a participatory process, the process is repeated, presents a chronological order of events, must be possible and reasonable, the need of technical knowledge and local knowledge. It is a learning process that the basic element in the protected areas management, including organizational structure. The establishment of committees in protected area by the key stakeholders together set a plan for the entire ecosystem, GIS support global agreement on participant management. After successfully mapping implementation of participatory land demarcation, complete mappings and prepare a plan for the protected areas management. The operation is carried out conservation activities and programs as agreement. The iconography agreement and plan of action and networking among stakeholder groups and monitoring and summarizing periodically.

#### **4.1.4 Strategy and Implementation**

The implementation of project as the protected area management establish the participatory mechanism for all sector of stakeholders and use the principle of integrated ecosystem management. The operation was divided into five steps as follows:

1. Analysis of the ecosystem of the area, stakeholders in the area and relationships of ecosystem and stakeholders. Analysis of the data with documents and the area facts, ecosystem analysis of the size in the forest boundary. The academic value and form of administrative law and cultural acceptance.

In consideration of stakeholders is an element of knowledge, experience and cultural contributions can be divided into two groups: those associated with the resources and willingness to work and those who contribute to the collaboration or working with those who live in the area.

The relationship between ecosystem and key stakeholders in the protected area. Key stakeholders in the area, any organization or someone who is willing and serious in the management area. The scope of the ecosystem that institutions or entities have the ability to maintain and management.

2. Stakeholders understanding in the structure and composition, the functions of ecosystems and the mechanism for the review. Separate structure and composition of the ecosystem to desired products and services or threatened ecosystems due to excessive use. The administration has been decentralized to the local level in the local community group and the group of farmers and the group's executive national or international stakeholders which will require an understanding of the structure and composition of ecological knowledge.

3. The economy is affecting ecosystems, community and local residents that need to analyze the economic impact on ecosystems and the local people with economic factors causing a negative incentive or compensation or the public employment or the use of natural resources is not sustainable and view at the market value or avoid bringing the ecosystem profit diffusely. People in the community who live in the area and the people that are out there taking advantage of different. This ecosystem



management approach will need to build a body of knowledge and understanding of the local community for improving the quality of life of the community people.

4. Consider the impact on the ecosystems in the area and vicinity. Some of the effects that occur causing ecological changes such as the extension of agricultural land or livestock to forest fire hazards, etc. These features will make system changes. Naturally, the dynamics of the ecosystem in the area will follow the steps of the period. Those who live in the area will find a way to create better understanding and solutions to problems that may arise.

5. Plan to target long-term or short-term time and to modify the plan period. Plans are supposedly pre-set expectations most importantly. Stakeholders will be involved in the solution or adaptation or the manager or the chief will have to work closely with those involved. And consider the socio - economic, cultural marketing stakeholders, administration and management.

It also managed to participatory in conjunction with system management. This is a process that allows individuals or communities or any other party, taking part in the learning process, analyze problems and think critically plan or perform in a particular subject purposes. Including participation in monitoring and evaluation, monitoring activities which encourage the development of democracy and the development process at the community level. Operating under terms and conditions that were set up. Based on information on the ecology of the protected area, in order to have sustainable management that achieving both conservation. To take advantage of the community and other stakeholders in a fair and balanced (Tawee Nutong, 2007: 1-4). However, the concept of ecosystem management and procedures mentioned above, the analysts have said the main idea of the project DANIDA in participatory protected areas management. Looking at the relationship between ecology and human ecology, natural issue is a balance between conservation and use of resources is not yet clear. The impact arising from land use problems, which interact with the community and economy of the community. It is important that the process of engagement and management tools, troubleshooting, sharing of resources and truly come from all sectors.

#### **4.1.5 Types of Implementation**

Operation for the implementation of the project is divided into 3 types.

1. The area level support to the activities performed engage in protected areas, including the national parks and wildlife sanctuaries.
2. The regional level promote and encourage regional cooperation among government organizations. NGOs and academics through Protected Area Regional Office of the DNP care coverage area those goals.
3. The national level collecting experience in the region and proposed a mechanism in practicing and supporting the protected areas management by participatory.

The implementation of the project with support from DANIDA was regarded as the conception and implementation of natural resource management as a new line of ecological conservation, concept to development and management with the participation of all stakeholders, which is different from the operations of the National Park Service adhered to the conception and ecosystem conservation is the more participatory management. Including the split by segment. Duties and powers of the bureaucracy in the implementation of the budget plan and a defined system of command and the command of the chief executive alone.

#### **4.1.6 Project Outputs**

From of implementation of the project, the division of labor is based on party lines and the part of the bureaucracy as the main operational projects, the lack of integration plans and budgets that affect the successful and unsuccessful in the implementation of the different action plan. The implementation of the project with DNP and NGO for the outputs of project that begin about 3 outputs. In project implementation, three outputs were setas follows:

1. The 1<sup>st</sup> output: Using ecosystem management approach and participatory management for protected areas and the joint management has substantial operations in the target protected areas.
2. The 2<sup>nd</sup> output: Patterns and systems of protected areas management and ecosystem-based approach to manage participant.
3. The 3<sup>rd</sup> output: Capacity of organizations and managing protected areas by

using the ecosystem approach and participatory management have been developed.

In addition, the project outputs transfer and change the first outputs from 3 outputs to 10 outputs later because of the problem of project driving. The mid-term review report assessed by consultants from Denmark and Thailand on May 15 - June 5, 2006 revealed that the DNP during October 2006 - May 2006, one year later than planned. Since the inception of the Sub-component Steering Committee (SSC) has been delayed, the budget needed for the committee. The process would take several steps to make the budget go further delay then need to work for about a year and a half to have the budget sent to the area. It also organizes a budget that is not clear because of the lack of manuals or guidelines. Thus, many of the operational activities in the area to do some activities such as training, educational establishment the PAC. The evaluation board is of the opinion that the delays in the area. If the implementation of the action plan and the budget plan. Danish embassy field staff shared the results from 10 outputs to make the project successful. The extension in the next one year to complete the project in March 2009 without asking for additional budget increase in performance because of budget transfers to areas still remaining because of a delay in the operation, adjusting plans and budgets as a result of new takes approximately one additional year (Protected Area Innovation Unit, 2006: 13-14). However, it still the objectives and goals of the project. The new adjusted results were listed as follows:

1. The 2<sup>nd</sup> output: the land demarcation of the special use zone area was mutually determined.
2. The 3<sup>rd</sup> output: there should be a mutual agreement on utilization of the special use zone areas in the protected areas that should be complied by all parties seriously.
3. The 4<sup>th</sup> output: there should be a plan of natural resources management in the protected areas.
4. The 5<sup>th</sup> output: conservative activities for restoring natural resources should be supported.
5. The 7<sup>th</sup> output: local communities should be promoted on occupation and income without giving any negative effect to ecosystem.

For the results of the second and third outputs are important key process in the

area that make boundaries of community land use clearly. Using empirical data and build consensus through the participation of all stakeholders. Results for the special use zone area is a result that everyone wants to see it. The area of special use zone, this process requires that boundaries be involved and take action in order to comply with the request to extend the duration of the project, as discussed above. But the result that the boundary area as tolerated only. It have no endorsement of the unrelenting legal DNP yet. It is the variability that occurs. The results for the fourth – fifth and seventh output can be considered as a support activity in the area and the project to be successful. All outputs caused as outcomes result that forest encroachment reduced, increase of the forest area, the forest fire reduced , moreover the conflict has reduced with the boundary of arable and forest area more clearly.

The new outputs for management as follows:

1. The 1<sup>st</sup> output: government/public and stakeholders seriously participated in the protected areas management process.
2. The 6<sup>th</sup> output: there should be the database system for planning ecosystem management.
3. The 8<sup>th</sup> output: the potential of related personnel on operation shall be developed.
4. The 9<sup>th</sup> output: performance should be followed up and evaluated systematically covering all dimensions of operation, especially, follow-up on impacts of biological diversity, economy, society, and joint-management.
5. The 10<sup>th</sup> output: the project should be managed efficiently.

Results for the first output assumes an important co-management mechanism in participatory management at the central, as the Sub-component Steering Committee (SSC) and the Technical Coordination Sub-committee (TCSC) representative from the government, relevant agencies and NGOs. At the regional agencies, a Steering Committee at the provincial level and the Protected Area Committee (PAC) for the area as a community representative and a part of all parties and in the Ob Luang National Park's management board in watershed level and village level. For the six, eighth, ninth and tenth output that regarded as management activities of the central, regional and local authorities to make the project successful.

## **4.2 Joint Management of Protected Area (JoMPA) in Ob Luang National Park, Chiang Mai**

In Ob Luang National Park area that is regarded as one of the studied areas. There are twenty-three protected areas that are important targets of a variety of ethnic groups and conflict problems at Chom Thong district, Chiangmai Province. It is the only area that resembles the corporate management in the watershed. However, the area is considered a priority in the development of the concept of co-management with team and technical support empirical data in a common space. Moreover, in the Ob Luang National Park has a diverse group of NGOs as SDF IMPECT and CARE that support and move forward on resolving disputes in the resource-sharing at the important watershed.

In addition, the concept of co-management that operates in the area Ob Luang National Park showed that achievement of successful and some are unsuccessful treated as variation with based on the output results of operations in the area. The outputs are the land demarcation of the special use zone area, mutual agreement on utilization of the special use zone areas by all parties, plan of natural resources management and promoted on occupation and income without giving any negative effect to ecosystem.

### **4.2.1 Background and Context**

The background and problem situations in Ob Luang National Park found that the conflict between the state and public with policy on the issue of forest conservation. Forest conservation and targeted to reach approximately 40% of the total area of the country in late 1987. In 2000, the government announced Chom Thong, Mae Cham and Mae Tuen forest were the Ob Luang National Park. Efforts to solve the problem at the policy level, source of conflicting claims over forest areas in the state and the local community in 2002, Mr. Prapat Patyachatilak, Minister of Natural Resources and Environment at that time, has taken the concept to solve the problem by "The pilot projects development of participatory with sustainable national park management" to develop guidelines and participatory management of natural resources and local communities can co-exist with the forest. This operation has two years to change the incumbent Minister concluded the project did not proceed which has no tangible results

are in the process to clarify and understand with the locals (Raya Phakamas, 2011: 27)

There was also a reflection of the problems of stakeholders from the public sector, NGO, village leaders and local authorities. So the problem areas can be summarized as follows: the locals and authorities not accept in declare the park because Ob Luang National arable area over the people who were before. The problem of the community is not involved in the demarcation of areas and national parks. The government's own use of state power to declare the area a national park, through legal processes alone. Problem areas with no clear boundaries and limits that cause problems during officials with the locals. And misunderstanding between officials and villagers in the area boundary and natural resource management. (Raya Phakamas, 2554: 29-43).So, guidelines on the issues mentioned above. the need for adapt in new concepts with collaboration between the community, government officials, NGOs. village leaders and local authorities in natural resources management

### **The project preparation of Ob Luang National Park**

The document deals with the management of protected areas involved in the Ob Luang National Park in Chiang Mai, has prepared proposals since 2004 by the Chief Ob Luang National Park, was incorporated those involved in the conflict area and to address the issue seriously. It has been prepared with the cooperation of various parties, was academically SLUSE –CMU and MJU, Government was the Ob Luang National Park and Information Center for Watershed Management, NGOs were SDF IMPECT Care Thailand and Thammarat Foundation. Some meeting and talking together several times to draft the proposal as a framework to work and plans activities and then develop a proposal to join the central.

For the project of management of protected areas in the Ob Luang National Park of Chiang Mai Province was the one of project in the Ob Luang National Park area that considered a support program for the Natural Resources Management - NRM by aiming to promote the conservation of biodiversity and the better well-being of local communities. It was the joint implementation of the relevant parties of stakeholders both within and outside the area in seeking approach to achieve its goal of conservation and to meet the needs of the community with fair and balance. Government policies had intention to let “People live with the forest.” as solutions and reduction of the conflict

between the state and the people living in the area of the national conserved forest and conserved forest area, based on principles of good governance and public participation. They emphasized on the importance and strength creation for people and communities in the area as well as building potential and capability, including incentives to citizens and local organizations to be ready and willing and to cooperate with the state sector and all relevant parties. This included the non-governmental organizations in solving problems of natural resource and environmental management in the conserved forest area to be able to facilitate the economics, society, and natural resources and environment. (Rakthai Foundation, et al, 2004: 13-15)

However, DANIDA also realized the importance of the concept of co-management has supported the proposal at a later time in the year 2006. For the purposes of the project JoMPA in Ob Luang National Park like the central objectives with 4 section as capacity building and the strengthening of communities, establishment of community organizations in the natural resources and environment management, and support the use of the land boundary, the protection and restoration of community and including a systematic monitoring of the natural resources based, environmental, economic and social participation. The different objectives that Ob Luang National Park focus the analysis of socio-economic data, environmental conditions and support on occupation and income without giving any negative effect to ecosystem.

#### **4.2.2 JoMPA Project Areas**

Ob Loung National Park, Chiang Mai province was divided by the watershed ecosystem as 6 watersheds that all the drainage area from Mae Cham and Mae Ping River basin that importance in the North Basin. The JoMPA project area are Mae Tia - Mae Tae watershed, Mae Pae watershed, Mae Soi watershed and Mae Long-Mae Tung watershed and Land use (See Table 4.1- 4.2)

**Table 4.1** Watershed in Ob Luang National Park

	<b>Watershed</b>	<b>Sub -district</b>	<b>Villages</b>
1.	Mae Tia - Mae Tae watershed	Doi Keaw sub-district and Sob Tia sub-district, Chom Thong district, Chiang Mai province	23
2.	Mae Soi watershed	Mae Soi and Sob Tia, Chom Thong District, Chiang Mai province	10
3.	Mae Pae watershed	Ban Pae sub-district and Mae Soi sub-district, Chom Thong District, Hang Dong sub-district, Hod district and Kong Kag sub-district, Mae Cham district, Chiang Mai province	17
4.	Mae Long-Mae Tung watershed	Hang Dong sub-district, Hod district Chiang Mai province	8
5.	Mae Hod watershed	Hod sub-district, Hod district Chiang Mai province	5
6.	Mae Pa Pi watershed	Hod sub-district, Hod district Chiang Mai province	5

Source: Document of Joint Management in Protected Area Project, 2004.

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**Table 4.2** Land use types in watersheds (2000)

No	Watershed	Land use types (Sq. Km.)					
		A	F	M	U	W	Total (Sq. Km.)
1.	Mae Tia - Mae Tae	17.64	127.56	8.72	0.85	0.11	154.88
	Percentage(%)	15.03	81.34	2.36	1.00	0.27	
2.	Mae Pae	21.97	82.4	4.63	2.45	0	111.45
	Percentage(%)	19.72	73.93	4.15	2.2	0	
3.	Mae Soi	1.06	44.46	0.58	0	0	46.1
	Percentage(%)	2.31	96.43	1.26	0	0	
4.	MaeLong-Mae Tung	1.04	29.46	2.76	1.74	0.09	35.1
	Percentage(%)	2.97	83.93	7.88	4.96	0.27	
	<b>Total</b>	<b>41.71</b>	<b>283.88</b>	<b>16.69</b>	<b>5.04</b>	<b>0.2</b>	<b>347.52</b>

**Note:** A = Agriculture    F = Forest    M = Miscellaneous

U = Urban    W = Water

Source: Somporn Sangawongse. 2010. Dynamics of Land-Use/Land-Cover in the Small Watershed Areas in Chiang Mai Province. Chiang Ma: Department of Geography, Faculty of Social Sciences: 62-72.

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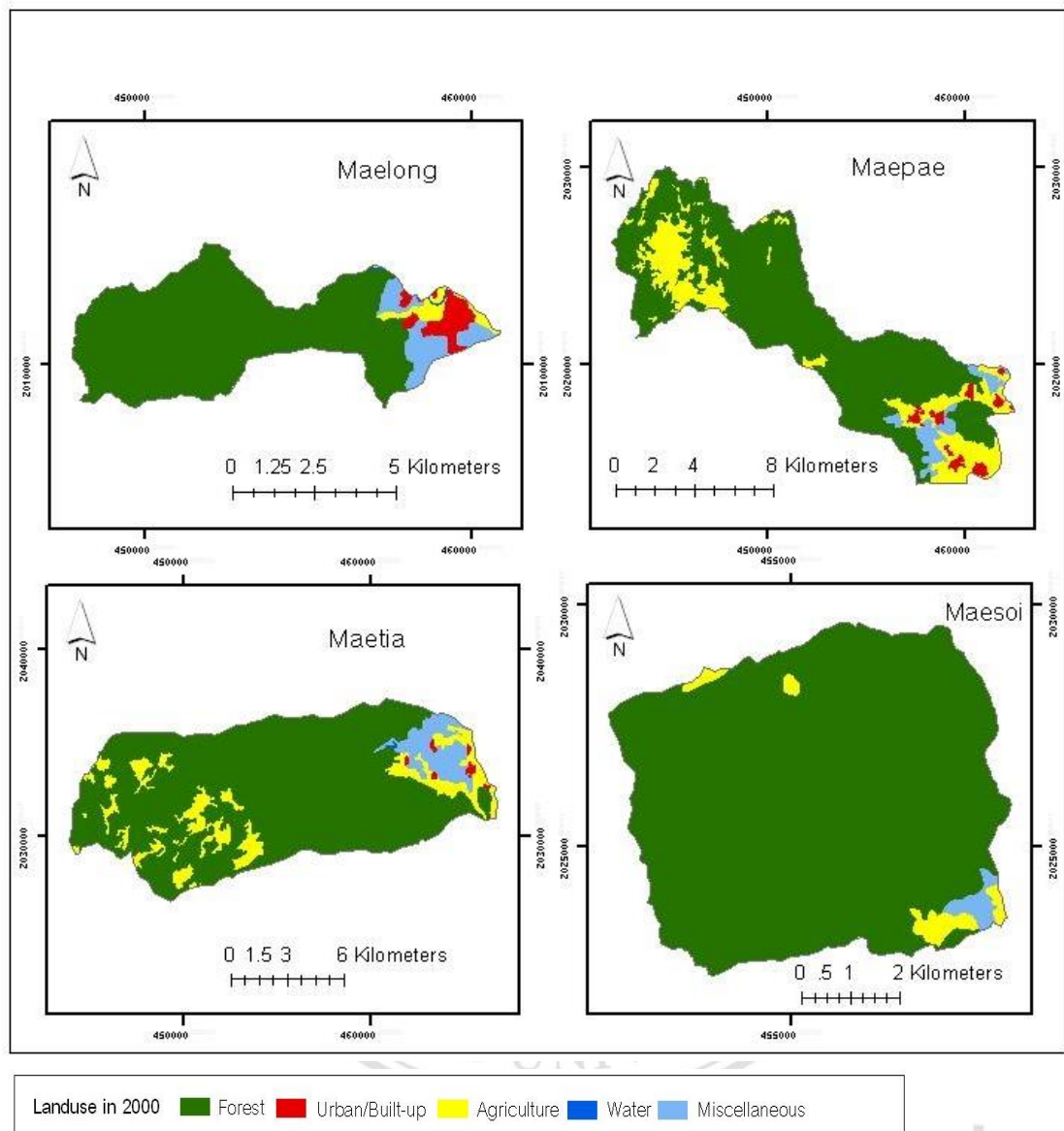


Figure 4.3 Land use types in watersheds(2000)

Adaptation from source: Somporn Sangawongse.2010. Dynamics of LandUse/Land-Cover in the Small Watershed Areas in Chiang Mai Province. Chiang Ma: Department of Geography, Faculty of Social Sciences: 62-72.

#### 4.2.3 Operation Mechanism

In implementing the pararell activities of JoMPA, the Ob Luang National Park was the key actor with support from the government, local people, and stakeholders. Major activities included forest demarcation in the protected area, land use agreement, national park area management, natural resource conservation and rehabilitation,

database for ecosystem planning, income generation without ecological impact, and staff training.

Partners participated in the JoMPA were listed as follows:

1. Ob Luang National Park
2. Four communities in Ob Luang National Park
3. 36 surrounding communities
4. Sustainable Development Foundation (SDF)
5. CARE International
6. Thammanart Foundation
7. IMPECT
8. Eight sub-district Administrative Organizations
9. Concerned Government agencies
10. Three Concerned Districts
11. Protected Area Regional Office 16 (Chiang Mai).

Functions of each partner can be classified, as follows:

**1. Academic support mechanism** (SLUSE) provides knowledge support on joint management strategy, resource management and utilization and evaluation in collaboration with Geo Informatics System for Watershed Management and Protected Area Regional Office 16 in the form of database.

**2. Mechanism at National Park Level.** The Protected Area Committee (PAC) was set up, consisting of government, local people, and private sector, to consider local people activities and advise on project operation. According to the Department of National Parks, Wildlife and Plant Conservation letter that regarding the appointment of PAC as follow: Chairman is Chom Tong District Head, and Committees are 2 District Head or Representative (Hod and Mae Chaem), 3 Mayor of Sub-district Municipality (Ban Pae, Ban Luan and Hod) 6 Head of Sub-district Administrative Organization (Sob Tia Mae Soi Doi Kaew Hang Dong Nakorrua Hod), 3 Head of Police Station (Hod, Chom Thong, Mae Chaem), Chom Thong District Community Development Officer, Editor of Chiang Mai News Newspaper, Head of Doi Inthanon National Park, Kor Kae Community Leader, Mae Chaem District Director of Chiang Mai Education Area Region 5, Representative of SLUSE, Representative of SDF, Representative of CARE, Representative of Thammanart Foundation, Representative of

IMPECT and Head of Ob Luang National Park as committee and secretary. The Role are participate in the planning by consultant recommendation, participate in the operation by guiding the activities in natural resources and environment and participate in monitoring and evaluation.

Responsibilities were divided activities starting from direct stakeholder and integrated with the watershed committee through PAC consisting of representative from regional level, representative from local level, and representative from other government agencies. The role of this committee was related to formal and informal community representative and representative from Department of National Parks, Wildlife and Plant Conservation and others located in related areas, representative from National Park /Wildlife Sanctuary, representative from the media and NGO representative (National Park Unit, Protected Area Regional Office 16, 2011:38-41).

### **3. Mechanism at the Community Level**

3.1 Village Resource Conservation Committee. The committee was founded by selecting from existing leader, and senior citizen, and youth group through the public hearing at the village level. The committee has 15 members with 5 members by their position consisting one village leader, two assistance village leader, and two sub-district Administrative Organization member. The remaining 10 members selecting from each village. Once the committee was established, regulations on natural resource and environment conservation were set up in each village with the national park officer serving as advisor. The committee was responsible to coordinate with the watershed /committee and JoMPA partners in key areas such as reduction of conflict and pressure, conflict resolution an resource utilization in the watershed, and other planned activities from the village in each watershed.

For example, Hin Lek Fire Village Resource Conservation Committee have Mr. Pathok Sanguensripreecha (headman), Mr. Nipon Heawdokluk(assistant headman), Mr. Kritiwat Charoenratanakamol(assistant headman), Mr. Patya Praiwankiri (SAO member) and Mr. Yodpai Phetpaisanti (SAO member) and a third group of Community Committee are the environmental group has 10 members, the cultural group has 10 members and the agriculture group has 10 members. They set the rules as

follow: 1. Regulation of land: prohibit the sale of land to outsiders (outside Mu), any violation will be seized the area for the collective. And may not rent land to the outsider and investor. 2. Regulation of forest and wildlife: prohibit not sold to the outsider and Not loggers and hunting in conservation forest, except collection of herbs to treat disease. 3. General rules and regulations: prohibit any person to take any action in communities without the permission of the committee, any violation will be seized for majority of the village. Every household must help the protection fire line of fire and firefighting, when fires forest into the village areas. It is everyone's responsibility and everybody have to help maintenance surveillance, watch the invasion and deforestation. If a person violates the community rules and anyone who saw and inform the Village Committee or community to resolve next time. (Mae Tia Community Organization, 2005: 50-51).

3.2 Watershed Resource Conservation Committee. The committee was set up in each watershed consisting of community leader, Muang Fai leader, youth, housewife, teacher, monk and sub-district administrative organization with JoMPA partner as advisor. The committee was responsible in analyzing needs and cooperation with land users and then divided into three committee as follows:

1) Watershed Forest Committee. The Committee consisted of formal leaders, and sub-district administrative organization member, and informal leaders selecting from key actors in watershed forest conservation, Muang Fai representative from each village, education leader, housewife group, and youth group. Responsibilities of the committee included policy formation on watershed forest conservation and other resources, program/project approval, selection, appointment, and working committee, monitoring and evaluation of working committee for effective operation, setting operation guidelines, rule formulation, and consultation.

2) Working Committee. The working committee has 10-15 members selecting from the watershed committee consisting of chairman, vice chairman, secretary, treasurer, planning section, service section, and public relation. The responsibilities include project and program on annual watershed protection and rehabilitation, coordination with other sections in achieving the project's objective, project operation summary report, financial and accounting report, and information distribution to watershed communities and interested people. Team in the office of the

working committee was 1-2 years.

3) Advisory Committee. The advisory committee consisted of government agencies, NGO, local administrative organization, and other organizations including sub-district administrative organization, Ob Luang National Park, Administration Section, CARE, SDF, Thammanart Foundation, IMPECT and SLUSE. The advisory committee was responsible in providing consultation, support, Facilitation, and suggestion to the Watershed Forest Committee (Sidthinat Prabudhanitisarn, 2009: 45-48).

The establishment of local organization aimed to have organization at the local level to oversee and protect the watershed forest from the upper, middle and lower watershed forest. The key local organizations worked collaboratively with government agencies, NGO, academic, businessman, and other outside organizations in forest and environment conservation. In addition, it served as the learning forum, brainstorming, cooperation, human resource in management and problem solving on watershed forest and community livelihood

#### **4.2.4 Concepts, principles and process**

From the problem of resource utilization, it was complex between the need to have the resource base which still maintained the perfect ecologic system supporting the livelihood of the watershed area and the region relying on for way of life. The arising problems focusing on the intensive resource exploitation to support the need for the people's way of life must be considered from the relationship system that linked between 1) the potential and limits of natural resources in each watershed; 2) dependence on natural resources for production and way of life; and 3) management of resources and resource-dependent system by finding a balance between the international law and regulations and local rules and regulations, between the rights and the use of sustainable resources and production, between multiple stakeholders to prevent one party to receive all and to make the other party lose all, and between management mechanisms of the government and private organization of the group of community organizations, network of community organizations and local administration agencies.

In the past, the emerging problems were due to separate conception and

implementation such as the action on the resource base without linking to the production system or even the resource base fragmented into consideration of only the forest seen as the trees and not linked to the ecosystem, including soil, water, and biodiversity, or taking measures and strategies based on only one approach, for example, the application of law, use of the community's rules, exercise of rights, taking advantage, exploitation of technology, utilization of traditional wisdom, and etc. All of these could not be solved, but they caused more conflicts further. Thus, the key concepts that should be adhered in this project were that allowing the natural ecology and human ecology to coexist. In other words, the people lived with the forest with interdependency in ways that led to bring sustainability to resource base and production / way of life. Although such concept was correct, it was highly ideal. If there were none of the important practices that were: (1) to consider the problems that occurred in the watershed level of the resource base, production system, and management system as the proposition (2) to build knowledge, information system, and co-learning between multiple involved parties to lead to (3) co-management or participatory management by increasing the roles of the organizations in the community in the watershed network to be strengthened and adjusting the roles of stakeholders in the public and private sector as co-thinkers, co-operators, and supporters of the organizations in the area to implement the action plan / activities that were common consensus.

The Joint Management of Protected Area (JoMPA) in Ob Luang National Park, Chiang Mai Province had main development strategies, as follows:

1. The participation of partner organizations and communities started from situation analysis, strategic issues, programs and activities to operation and evaluation. At present, the participation is at the programs and activities stage and will bring the draft of the programs and activities of the project to discuss with the watershed committee.

2. Problem identification is focused on the linkage among the resource base, production system and management system that leads to integrated solution.

(see Figure 4.4)

3. The application of evidence based information system and technology (such as GIS) at both the macro and micro levels serves as the learning process and tool in resource management , planning and evaluation from the community to the policy

levels. The assumption is that the evidence based information will serve as a key to effective management and conflict resolution (see Figures 4.5)

4. Capacity building of community organizations watershed networks and local administrative organizations is the key to sustainable management through the learning process, development forum, and integration of technology and indigenous knowledge (Raks Thai Foundation, 2004: 7).

At the implementation stage, the project applied the strategic framework to link between goal objectives and activities (see Figures 4.4 and 4.5).





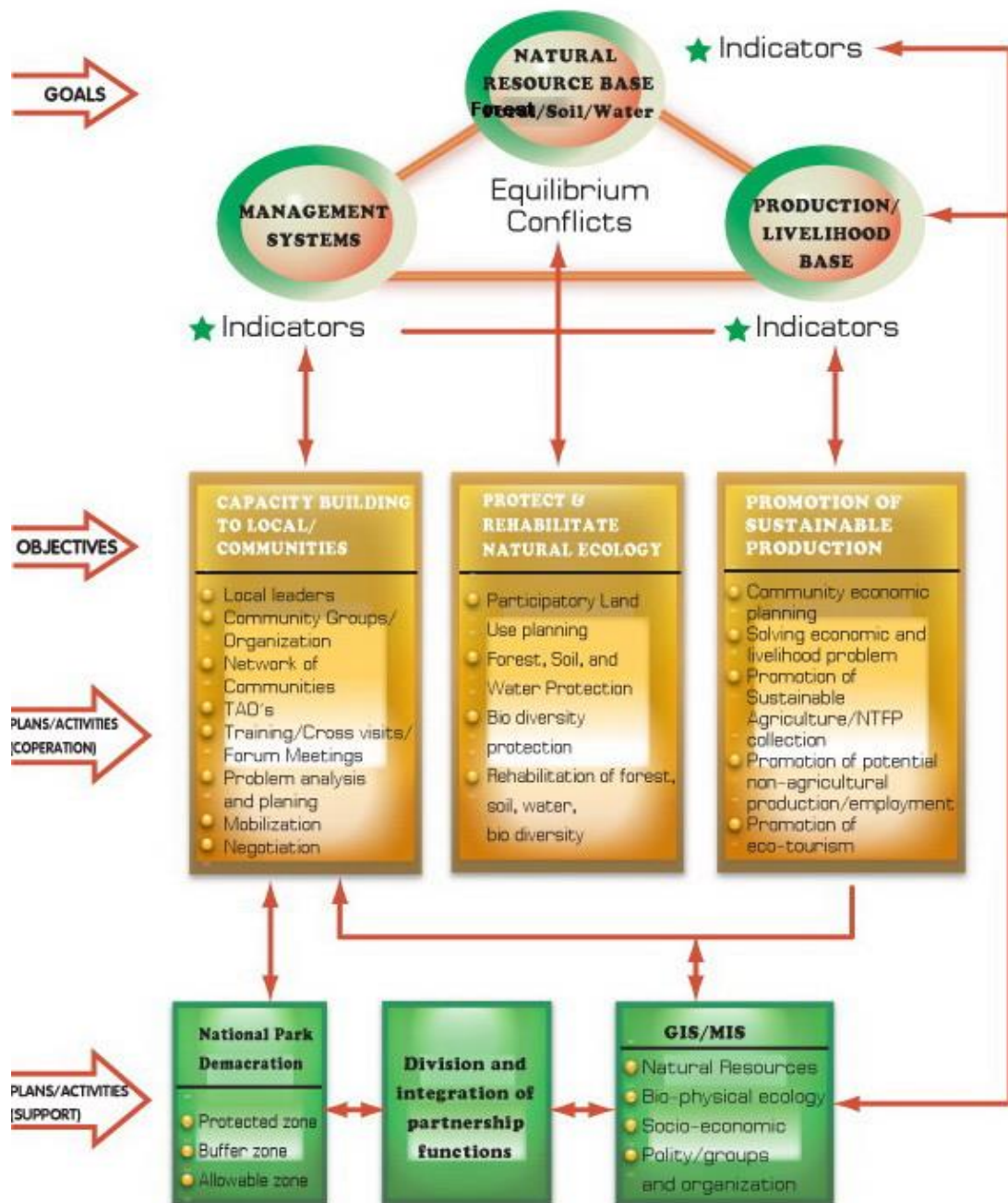


Figure 4.4 Strategic Conceptual Framework: The linkage of Goals/Objectives/Plan  
Source: Sidthinat Prabuddhanitisarn, 2009: 51.

In the program for its effectiveness in resolving problems with integration needs to be linked to a common problem, using facts and tools with joint resources management. It has to be linked the goals, objectives and plans for the importance strategic conceptual framework.

From figure 4.4, the strategic framework has the main objective of promoting the coexistence between people and forest. Such coexistence will lead to the sustainable resource based, production system and way of life. Thus, there is a need to view the problems through the linkage of three systems: resource based system, production and community economic system, participatory management system in order to solve the problems integrative that will lead to the balance and sustainability of these three system. The objectives are as follows:

1. The participatory management system must strengthen the strength of the community and local organization.
2. Land, water, and forest resource base must be protected and rehabilitated the forest ecosystem in the national park.
3. The product and community economic system must be supported through the sustainable tourism (and sustainable agriculture).

And have the linkage of areas operational plans, as follows:

1. The capacity building of community and local organization action plan concerns with capacity building, leadership preparation, village training, seminar and study tour.
2. The sustainable land and forest resource based action plan concerns with participatory forest demarcation, participatory resource conservation, and participatory utilization protection.
3. The sustainable economic and agriculture action plan concerns with community socio-economic development, knowledge sharing community development project, ecotourism, alternative agriculture, off farm employment, and community problem solving skills. This action plan directly supports the capacity building of community and local organization action plan, the supporting plans, as follows:
  1. The supporting plan on participatory forest demarcation and participatory resource conservation and mitigation will support the capacity building of community and local organization action plan
  2. The supporting plan on function formulation of the concerned organizations.
  3. The supporting plan on database development on natural resources, socio-economic, indigenous knowledge, and community based tourism will support the action plan on sustainable tourism (and alternative agriculture)

**Coordinating**  
**Managing**  
**Supporting**  
**Evaluating by Project's partners and Stakeholders**

**Managing N.R. at National Park Level**

- Demarcation
- Protection/Rehabilitation

**Co-management**

**Managing N.R. at community/Subwatershed**

- Forest demarcation
- Land use planning (Protected, community forest, buffer zone, areas for E.T.)
- Community/Network's rules/regulations (Legal/communal/Right/Utilization/Duties)
- Rehabilitation (Reforestation, Ag. Forestry, check dams)
- Protection (Servillance, forest fire management)

**Co-management by household/communities**

**Co-management by households and communities**

**Production/Livelihood**

- Community economy
- NTFP
- Non-Agricultural production/employment
- OTOP
- Eco-Tourism
- Quality of live improvement

**Data base**

- Natural Resources
- Social-Economic and political
- Knowledge/Research

**Co-management by households and communities**

- Base line
- Information flow/updating
- Knowledge creation

**Co-management by household/communities**

- Area approach
- Partnership
- Learning process (Problem analysis-planning-implementing-evaluating-lesson-learning)
- Mobilizaing and negotiating

**Co-management by household/communities**

- Analysis of potentials and limitations of NA base and Production base by stakeholders
- Initiatives and actions by households/communities
- Sustainable forest utilization
- Rice/food supplies
- Sustainable agriculture (Agro-forestry, alternative agriculture)
- Eco-Tourism
- Mobilizaing social & cultural capitals
- Negotiating and mediating of conflicts

**Co-management by household/communities**

- Legal coordination
- Policy coordinating
- Budget/knowledge support
- Conflict: mediation between up-down stearm/ethnic differences/State and locals

the operational plans and activities of the project need to be consistent with the three main objectives of the system, so a strategic framework to guide the part of corresponding clearly.

Figure 4.5 shows the strategic framework that links objectives, plan and implementation. We have identified the relationship in each component. It can be divided into three parts, as follows:

1. The database on natural resource and environment and socio-economic system was developed by collecting basic information continuously through survey and questionnaire. In addition, lesson learned meeting and case study were used. The

activity links to community economy and way of life, organization capacity and natural resource management at the national park and major watershed level.

2. The production community economy and way of life system was developed by using survey and questionnaire with an assessment of potential and limitation of natural resource base and production system under community participation in identification of household/community activities, such as forest utilization, alternative agriculture, rice system, and handicraft. The identification of activities, such as ecotourism and implementing indigenous knowledge-based activity that links to the natural resource and environment database and socio-economic information, building capacity of organization for co- management between family and community and the resource management in the community and sub-watershed through co-management between family and community.

3. Joint management of natural resource can be divided into two levels, as follows:

3.1 Joint management at the community/sub-watershed. The joint management between family/community and sub-district administrative organization /network/conservation committee. The activities include the area base strategy, coalition building with the key leaders, learning process on problem-cause-solution (from the database training- study tour through PRA) and problem solving guidelines with activities to be carried out by the community itself or cooperation or support from the outside.

3.2 Joint management at the national park/major watershed. The joint management activity is focused on joint management with government agencies, non government organization, and communities. The activities include legal coordination, policy coordination, resource support, major watershed management knowledge, and conflict resolution among upstream midstream and downstream with the difference of ethnicity. While the joint management activities at the community/sub –watershed concern with the demarcation, land use adjustment (community forest, living area, conservation), regulations, land use (by law/right/utilization) rehabilitation (re-forestation and dam building) and protection (surveillance and fire brake).

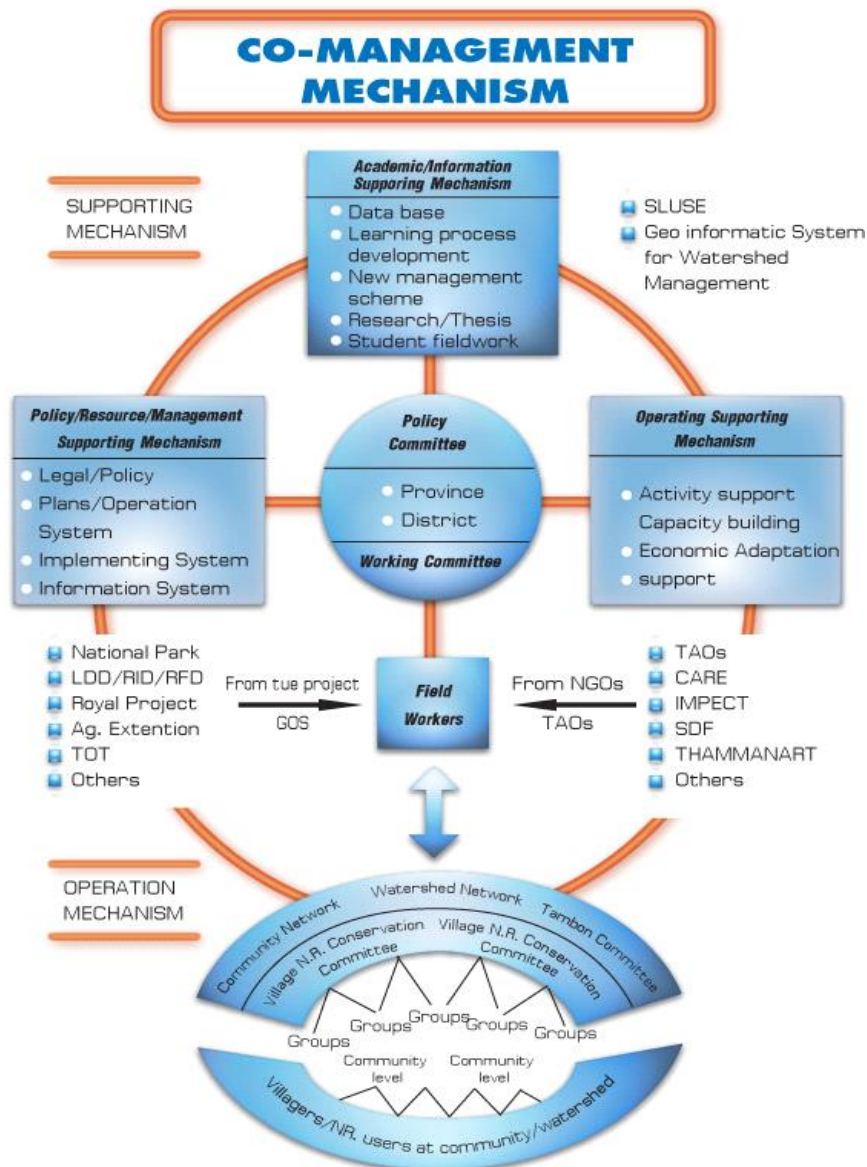


Figure 4.6 Management Mechanism Model of “Joint Management”

Source: Sidthinat Prabuddhanitisarn, 2009: 53.

In driving the process of participatory resource management, requires mechanisms operation of all parties involved and relationships linked to trigger push the solving of natural resources integration at all levels.

Figure 4.6 shows that model and management mechanism of Joint Management Project by using mechanism of cooperation which had the relation and linkage to staffs who worked in the area. They could work in the area correctly and efficiently.



The academic support unit (SLUSE) and Geo Informatic System for Watershed Management Center support in database, learning process development, management system, research and thesis, and intern students which serve as a mechanism for project operation and management to the policy committee, working committee and field workers.

The policy and management support unit includes Ob Luang National Park, Land Development Department, Royal Irrigation Department, Royal Forestry Department, Royal Project Foundation Agricultural Extension and others which provide the policy support, operation plan, implementation and monitoring and database and serve as a mechanism for project operation and support through the policy committee, working committee, and field workers.

The operation support unit includes sub-district administrative organizations, village leaders, CARE International, IMPECT, Sustainable Development Foundation, Thammanart Foundation and others which provide the operational support and activities related to capacity building and community economic development and serve as a supporting and operating mechanism through the policy committee, working committee, and field workers.

All supporting mechanisms help support the operation mechanism for the villagers, resource users and community organizations and networks through the community conservation committee, sub-district conservation committee, and watershed committee to work collaboratively in solving conflicts in resource utilization at the community and watershed levels.

#### **4.2.5 Operation Plan**

At Ob Luang National Park, Chiang Mai province that NGOs already work and joint natural resources management activities in the areas for solving conflict issues with the upland communities continuously but they still cannot resolve disputes successfully. When the concept of co-management in natural resources at the JoMPA project be considered as alternatives to resolve resources conflicts between national park officials and communities, especially the upland communities in national park that unlike the central not to participate in community corrections with natural resources

problem in the area, so they have to prepare the project proposed by meetings as follows:

1. Participatory workshop “Participatory of natural resources management” with the policy and plan makers in 26 May, 2004 and 23-24 June, 2004. The partners are Ob Luang National Park, CARE, SDF, Thammanart Foundation. Geo-informatics Center for Watershed Management, IMPECT, Conservation Forest and Environmental Group and SLUSE.

2. Meeting to prepare a draft action plan of participatory natural resources management in 8-9 July, 2004. The partners are Ob Luang National Park, CARE, SDF, Thammanart Foundation. Geo-informatics Center for Watershed Management, IMPECT, Conservation Forest and Environmental Group and SLUSE.

3. Conference workshop on participatory about database systems for participatory of natural resource management in 12 July, 2004. The partners are Ob Luang National Park, CARE, SDF, Thammanart Foundation. Geo-informatics Center for Watershed Management, IMPECT, Conservation Forest and Environmental Group and SLUSE.

4. Conference workshop on participatory about “Integrated Action Plan for Participatory of Natural Resource Management” In 13-14 July, 2004. The partners are Ob Luang National Park, CARE, SDF, Thammanart Foundation. Geo-informatics Center for Watershed Management, IMPECT, Conservation Forest and Environmental Group and SLUSE.

The action plan sets out the framework of program activities and joint the elements of plan with each system provides a critical component to making the effective of system, then take the other arrangements in the form of logical framework.

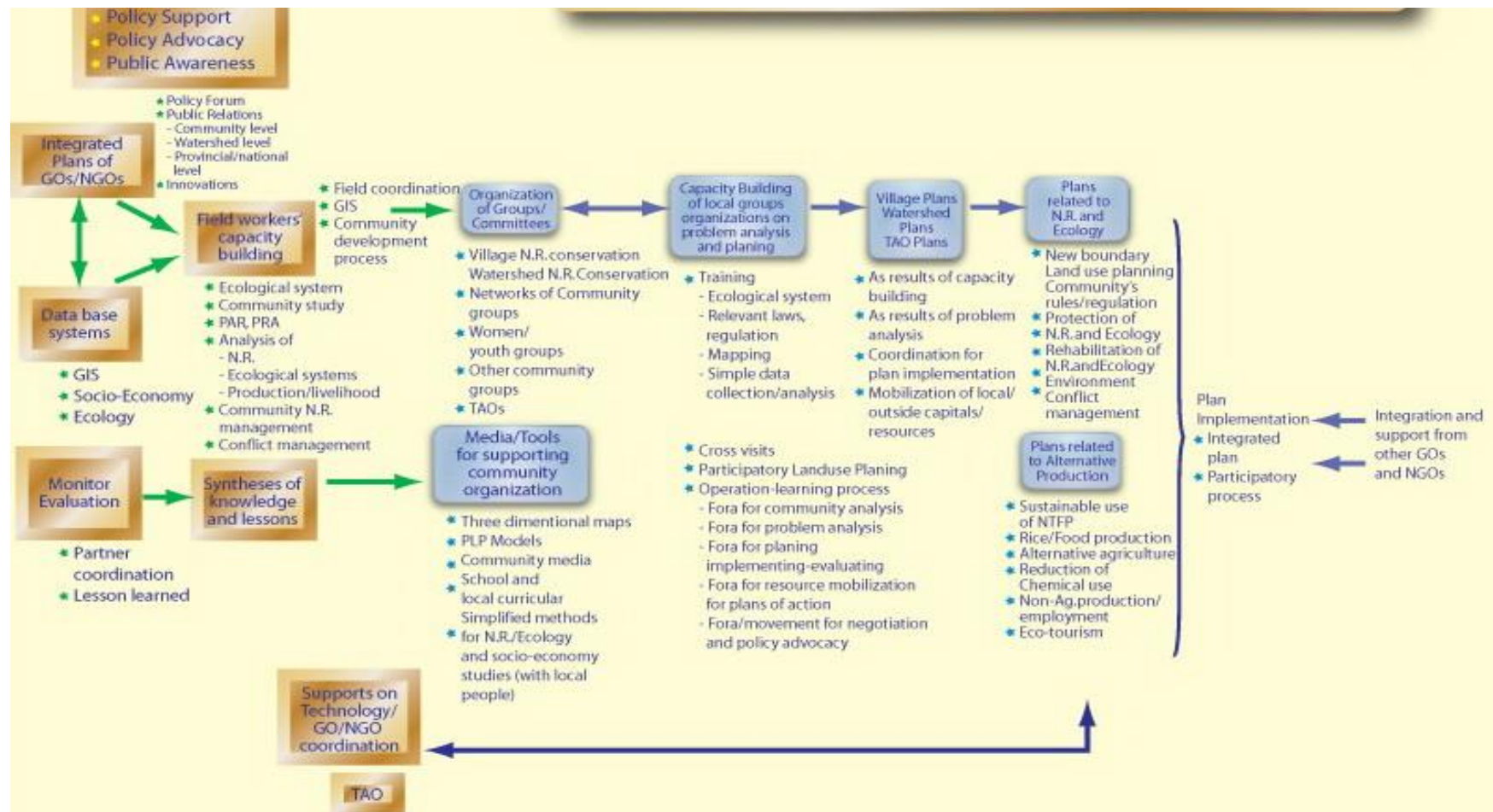


Figure 4.7 Plans &amp; Activities

Source: Sidthinat Prabuddhanitisarn, 2009: 54.



From Figure 4.7, plan and activities of the project were developed through the meeting of the participating organizations in Ob Luang National Park in 2004. It was found that the JoMPA used the central operation plan for implementation while plan and activities of Ob Luang National Park were partially implemented.

#### **4.2.6 Outputs of JoMPA project operation in Ob Luang National Park**

In the Ob Luang National Park, the parties try to develop the concept of co-management, the operating budget and the activities planned integrated with together, and troubleshooting of all parties by joining the source of the problem, analyze and find ways to address the issue seriously with the use of empirical data assembly to decide the issue. So it can be summarized that some successful outputs of the projects going on in the Ob Luang National Park and unsuccessful output that the variation occurs as follows:

##### **1) Successful outputs**

The beginning of the management of protected areas to reduce conflicts and sustainable utilization. The land demarcation that are acceptable to all parties in Ob Luang National Park. It was carried out with the participation of official and community in a new working. They are mapping the periphery of the community, data of land use household survey, land use survey, survey historical, social and economic data, capture geographic coordinates (using GPS), conducted a preliminary land use regulation and the patterns of guarantees the right. Many parties can discuss about joint approach to make a clarification on the arable land in the forest zone and lead counsel to prepare the land by the participatory of all stakeholders at the watershed. In the operation project examples as Mae Tia -Mae Tae watershed that has successful activities.

##### **1. The 2<sup>nd</sup> output: the participatory land demarcation for land use boundary**

The successful of participatory land demarcation for boundary of land use because the cooperation of all parties with the team working to coordinate, work together well and continuity. In addition, the driven operating programs simultaneously by NGO working in the area and they drive, motivate and coordinate with local groups, leaders and national park staff. The villagers coordinate the issues to the leaders, so the leaders collect the issues, present and motivate for the national park officers and the

involved agencies. The local NGO will be linked to cooperation and working for resolving the problems. Moreover, SLUSE work as technical academic support with participatory process because some issues need proof and reliable information for solving the problem and the maps are important tools for using in the process of land use boundary as color aerial photographs 1: 4,000 (2004). This map can show the detail of land use such as forest, paddy field, garden and upland field, village settlement. There are the most of currently maps that they can use by the naked eye easily for walking survey and land use boundary. Moreover, they can link the real data with this map, create a mutually acceptable and empirical data for solving the boundary problems.

The results of operations of the boundaries of land use are successful. Examples can be seen from Figure 4.8. (Boundary relief map of Ban Huai Som Poi) and Figure 4.9 demo map boundaries, land use and the involvement of Ban Huai Som Poi.

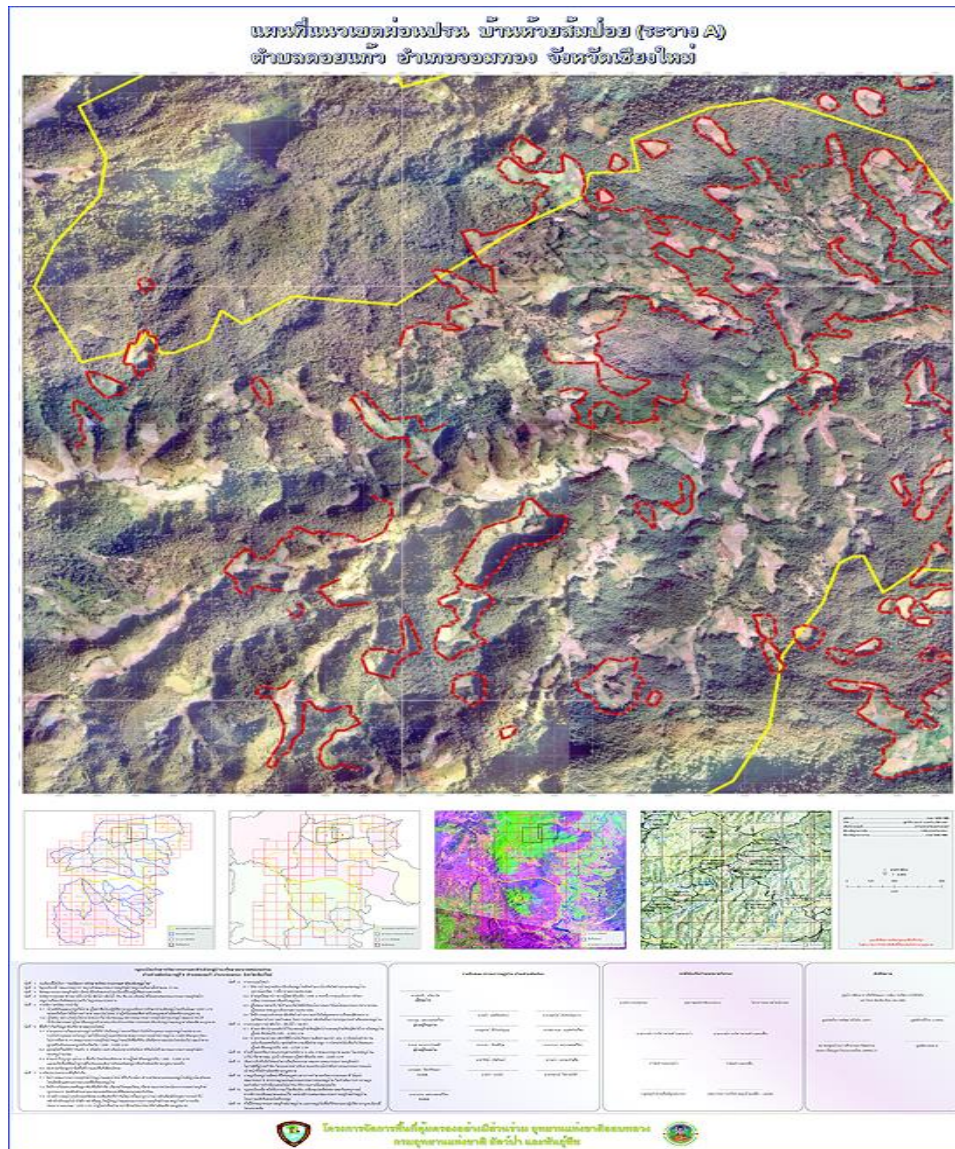


Figure 4.8 : Example Map of Special Use Zone, BanHuaiSom Poi.

Source: Wittaya Nawapramote. 2013.



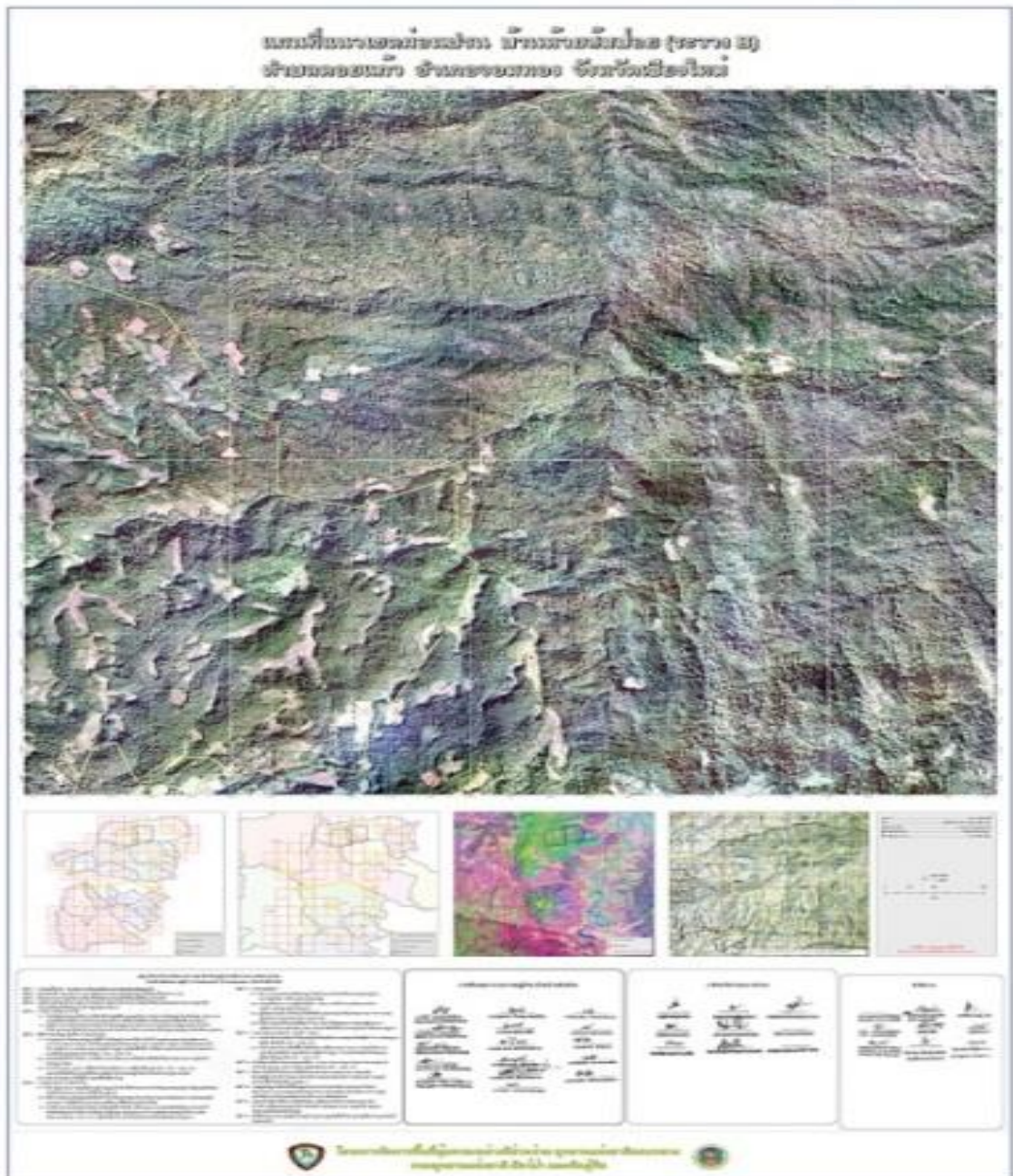


Figure 4.9 : Example Map of Participatory Land Use, BanHuaiSom Poi.

Source: Wittaya Nawapramote. 2013.

Plans and activities are mechanism that comprising the advisory committee Ob Luang National Park, Watershed Committee, Conservation Committee, a group of people share the responsibility with the operating agreement – plan – integrate plan.. From direct stakeholder mechanism already integrated by watershed committee -

through the support of PAC. The third parallel event-driven JoMPA activity has Ob Luang National Park to be host. The NGO responsibility for each watershed such as CARE -Mae Pae watershed, SDF-Mae Tia - Mae Tae watershed,Thammanart – Mae Soi, and IMPECT joined with upstream tribes,NGOs hosted for each watershed. The conference is a forum to exchange ways for solving problems and participatory management, moreover, SLUSE support in concepts and practice academic. The objective activities for solving the problems and reduce conflicts in JoMPA project area as participatory land demarcation for land use boundary and acceptable for all partners by Ob Luang National Park official, Geoinformatics Center for Watershed Management, SDF and IMPECT shared responsibility in the various mapping.

### **Successful in participatory land demarcation, case study of Mae Tia –**

#### **Mae Tae watershed: Ban Hin Leak Fire**

Since 2002 before the JoMPA project comes atBan Hin Leak Fire which Karen groups joined in Conservation of Upland Chom Thong Distict Group forcreate the rules to control and utilize the resources appropriately with initiatives requiring the use of communal land boundaries. The regulations establish rules for the use of arable land, regulation and supervision, conservation and resources utilization. It is not acceptable because of the lack of cooperation and participation of government officials, lowland communities experiments performed by the initiative of the community.When the JoMPA project comes, many parties discuss sharing for clearing the area of arable land in the forest zone and lead plan of participatory land use management by all stakeholders in the watershed. And Don Kaew Tambon Administrative Organization was to play a role in coordinating and supporting the exchange of learning communities in the watershed.Including Mae Tia -Mae Tae watershed management committee work as a mechanism for solving problem management by using the data study, knowledge and facts that occurred in the watershed and plan for fix common rationality.

Ban Hin Leak Fire, steps and operational guidance as follows: begin meeting to clarify the origin and mutual understanding at communities with all stakeholders from insider and outsiderin special use zone areas, regulations and operational guidelines sharing. They set up the working group that composed of several parties for both local organizations and community leaders from highland and lowland

communities with government officials and NGOs. Working group prepare a database of land holdings, household and communities, survey of arable plot, settlement, community and conservation forest by check in map of color aerial photographs 1: 4,000 (2004) before prior to the actual space for information to share with the community set reasonable boundaries sharing with the community to explore the boundaries of the area to be lenient in real space using color aerial photographs 1: 4000 (2004), following the preparation of an agreement on the regulation of land use types. After determining the boundary line completed The agreement of the members of the community not to expand the arable area. The agreement took effect across the community agreement on the watershed and the mechanisms to enforce the agreement. The customary use and belief in creating a shared commitment. The Following, the preparation of an agreement on the regulation of land use types after determining the boundary line completed, The agreement of the members of the community for not to expand the arable area, agreement took effect across the community, agreement on the watershed and the mechanisms to enforce the agreement that customary use and belief in creating a shared commitment. Then, there is the area of certification and land use regulation is shared between communities, Sub-district Administration Organization, Ob Luang National Park and other partners. Including the establishment of monitoring and surveillance that establishment of the mechanism for monitoring and evaluation and surveillance in three levels (community / Highland conservation groups of Chom Thong District / watershed levels) and the use of GIS systems as a control and track the changes for each year.

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Picture 4.1 Survey and check participatory land demarcation

Source: Reporting JoMPA Project,Ob Luang National Park



Picture 4.2 Use of GPS to check land and forest boundary

Source: Reporting JoMPA Project,Ob Luang National Park



Picture 4.3 Participatory land demarcation for land use boundary  
Source: Reporting JoMPA Project, Ob Luang National Park

## **2. The 3<sup>rd</sup> output: there should be a mutual agreement on utilization of the special use zone areas in the protected areas**

Assignment agreement with management after the participatory land demarcation. After determining the area of participatory land demarcation in conservation area and another key part of the management is to build a cooperative agreement. This combination of 1) the agreement between community members who need to use arable land that to prevent the expansion of arable areas further into the performed forest and to provide members with surveillance to prevent outsiders from entering the forest, and take care forest from fires forest and forest restoration measures of agreement in this regard is the perfect mix of empirical data through the boundaries together and managed using the rules of the community, which is effective management of local communities, rather than state law, 2) an agreement that took effect across the community as a result of which each community come together. If the violation occurs with any member of the community. 3) the watershed agreement by Watershed Committee and approved with SAO when there is a breach of the agreement from outside the watershed or from the watershed but the rules of the community uncontrollable. The agreement will help the surveillance system. Vandalism protected



areas are effective. It comes from the area, then spread out and also help the authorities to apply the law to those who violate the rules of the community / communities / and the entire basin. Have to enforce. 4) a mechanism to enforce the agreement, in this committee, including Conservation Community Committees, Watershed Committee and TAO.

Exemple: regulations for the natural resources conservation at Mae Tia -Mae Tae watershed.

**Regulations for the natural resources conservation at the village level (special use zone) HuaiKhanon, Village No.9, DoiKaew Sub-district, Huai Sompoi, Village No. 8, DoiKaew Sub-district, and Pa KluaiPattana, Village No.14, Mae Soi sub-district, Chom Thong District, Chiang Mai province.**

**Clause 1:** This regulation shall be called “Regulations for the Natural Resources Conservation the Village Level”.

**Clause 2:** Under this regulation, “*Committee*” refers to 21 committees assigned to conserve the community forest.

**Clause 3:** The assigned committee shall implement this regulation strictly.

**Clause 4:** Natural resources shall mean the forest, wildlife, aquatic animals, soil, rock, and mineral. It is also the main responsibility of the assigned committee to take care of this matter.

**Clause 5:** Forest resource management

1) Tree cut down and logging for sales are prohibited. Any person in breach of this regulation shall be fined at a rate of 5,000 Baht per one tree and the tree cut down is subject to seizure for public utilization.

If such a person refuses to do so, prosecution under the laws shall apply.

2) Any person in need of the logs shall make his request to the assigned committee and relevant authority. Any person in breach shall be penalized to comply with this regulation and prosecuted by the law.

**Clause 6:** Cultivation land/ residence/ public land

1) No villagers and outsiders who have their cultivation land inside the village sell their land to other outsiders except for the villagers as agreed by the assigned committee. Any breach in case of rent and

sales is subject to seizure by the assigned committee and shall be used as the public land. Any party who disagree to follow this regulation shall be fined at 1,000 – 5,000 Baht.

- 2) Any person with no land for cultivation or the reason to sell or rent the land shall seek consultation of the assigned committee.
- 3) Trespass, invasion, or clearance on the forest is strictly prohibited. Any person in breach of this regulation shall be fined at 1,000 – 5,000 Baht and the land is subject to seizure. Any party who refuses to pay the penalty shall be prosecuted under the laws.
- 4) Reforestation in the empty and deteriorated land shall be regularly carried out.

**Clause 7: Utilization of land**

- 1) The assigned committee and relevant authority shall make a survey to recognize a boundary of the village and use the visible pegs to signify the allowed boundary.
- 2) Areas for residence/ cultivation land (farm/ cyclical cultivation land), public land shall be separated from all kinds of conserved forest using the visible pegs representing the land possession of each household.
- 3) Removal of pegs or land expansion is prohibited. Warning notice shall be given in the first time. Any breach of this regulation shall be penalized at a rate of 1,000 Baht per square meter by village headman and the assigned committee. Any further breach is subject to law prosecution.

The role of village forest conservation committee as follows:

1. Resolve the conflict within between villages or communities.
2. Supervision practice regulations in forests protection.
3. Promote individuals both village insider and outsider, they have been informed.
4. Coordination with the forest officers or officials concerned about the involvement of the protection of natural resources.

### **3. The 4<sup>th</sup> output: Natural Resources Management Plan in Protected Areas**

Natural resources management at the village level and watershed committee / natural resource management plan covering issues of prevention, rehabilitation, maintenance and sustainable use. The process analysis and the basis of economic, social, environmental and land use information. There are meeting on detailed work plan and annual budget with pay and conditions in the community initiative fund, plan activities such as the sediment traps dam, check out patrols to conserve natural resources and the environment and land demarcation in special use zone area.

### **4. The 5<sup>th</sup> output: Conservative activities for restoring natural resources**

The successful activities such as project of fire break, surveillance, natural resource conservation, firefighting and reforestation by Watershed Network Committee. The disbursement of funds outside the budget statement subsidies and the funding community activities under the Joint Management of Protected Areas. The conservation and development activities supported by community participation. Theweir of trap sediment has been supported by external funding sources from Siam Cement of Thailand. The development system of watershed management fund and support the village and three watershed at Chom Thong, include Mae Tia – Mae Tae watershed, Mae Soi watershed and Mae Pae watershed. This activities are support community for conservation and natural resources protection. The project are the fire break, check out and surveillance, natural resource conservation and weirs of trap sediment.

Example in Mae Tia-Mae Tae watershed can be described as follows:

1) the scope and organizational build resident communities in the community forest, scoping of forest types in community forest, spanning community forest conservation and forest communities living. Including the creation of joint forest management rules for each category by the application of faith traditions in accordance with the regulations. The operation, maintenance and restoration of community resources in the watershed, will jointly determine activity of preservation and restoration of resources in the watershed, such as the proper ritual ordination forest. The fire break to prevent forest fires and building weirs trap sediment, etc.

2) The villagers have been working to resolve the problem of drought in the areasuch as the fire break,early burning and, the various of forest fire management

issues. Every year, the villagers will share a common fire break for all household are responsible the scope of the village themselves as convergence of all villages. All household are members of irrigation that labored to build the temporary weir, such as Mae Tae river have the number of 30 weirs in store water for use during the dry season. Moreover, the villagers build the weir of trap sediment (*Fai Mew*) that small weirs more than number of 200 weirs in the upstream area and river by improving techniques combined with local knowledge.



Picture 4.4 weir of trap sediment by villagers

Source: Activities report of Don Kaew Tambon Administrative Organization

The projects in Mae Soi watershed such as the fire break/ surveillance/natural resource conservation, the weir of trap sediment 9 weirs. Moreover, they are planting economy of bamboo project. The project in Mae Pae watershed such as the fire break, the monitoring the extent of arable area, career training programs in the protected area and the program supports the professional weaving among women group. The project in Mae Tia –Mae Tae such as the fire break 20 villages, monitoring / natural resource conservation for 20 times, the project of join management lessons in wildfire, and stage projects in collaboration with communities in Mae Cheam district which the area near by Mae Tia-Mae Tae watershed.





Picture 4.5 Villagers and fire break activities

Source: Activities report of Don Kaew Tambon Administrative Organization

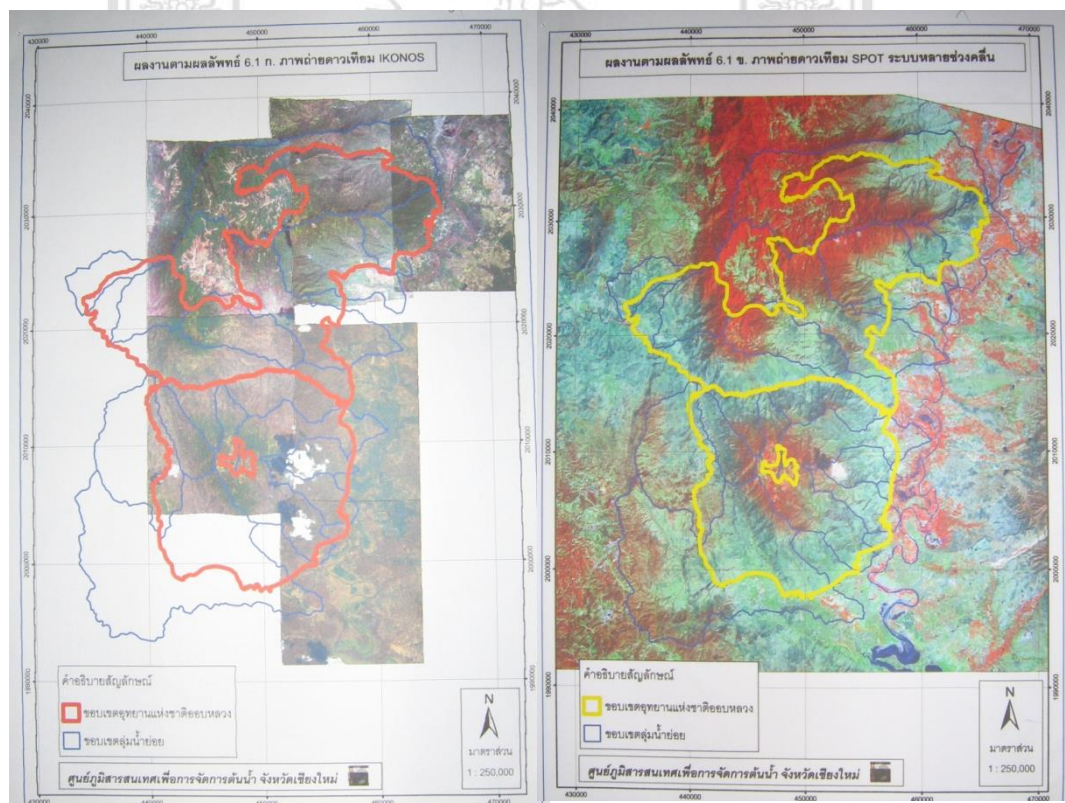
2) Since 1985, carried out the first forestry plantations in Mae Tia –Mae Tae watershed around 120 acres, and operate it until 1995 as total of forest plantations areas are 1,600 acres. The ecological condition of pine forests, the problem are the soil can not absorb water and storing them to underground, lack of biodiversity and pose a serious and widespread problem of wildfire in the dry season by deposition of pine needles. Therefore, the Commission of Mae Tia –Mae Tae watershed has initiated plans to restore pine plantations and restore natural forest through the collaboration of scholars with relevant government agencies and NGOs. The preliminary survey and collect relevant information for develop a research program to study the issue and seek appropriate solutions to restore pine forests to act as a watershed in the future.

##### **5. The 6<sup>th</sup> output: Database system that was able to be used in joint-management and planning of the ecosystem**

A database natural state Economic and map both the original data and additional information based on the Ob Luang National Park and the NGOs responsible for each watershed. A map of the area of land use, the village has a book and map for each villages and portable version at the headman.

The activities in Ob Luang National Park are as follows: They conduct the

survey data to classify property valuation and status of natural resources by IKONOS satellite imagery and SPOT imagery. They classified as forest boundaries with watershed ecosystem inside and outside Ob Luang National Park. They prepared a database on land use by analyzing from satellite images, field survey for natural resource management plan in community level. They provide training to develop the skills of local people to explore and research by the participatory of community. They analyzed based map, land use map based on watershed system, physical characteristics such as soil, water and land use, water resources and biodiversity in the watersheds as follows: 1) mapping fundamental for preparing the basic community level as the mapping imagery from Landsat-5 at the scale 1: 25,000 and mapping watershed classify overlaid on topographic maps in scale 1: 25,000. 2) Mapping IKONOS satellite imagery scale 1: 4,000 for land use survey. 3) Mapping from color aerial photos scale 1: 10,000.



Picture 4.6 IKONOS satellite imagery and SPOT.

Source: Reporting JoMPA Project, Ob Luang National Park

**6. The 7<sup>th</sup> output: local communities should be promoted on occupation and income without giving any negative effect to ecosystem.**

In Mae Tia-Mae Tae watershed, they was supported coffee agroforestry as growing coffee under treethat the villagers can learn and develop the production system with maintains the ecosystem. When the villagers have the opportunity to study and discuss with together, they can set the plan as the promoting in potential of the grown coffee in the area at the higher altitude than 1,200 meters from elevation of the sea. As the results, this coffee tastes so great with including coffee trees shade ground plantation so good quality, too. There grown without chemical fertilizers and do not use pesticides as organic coffee, fresh coffee and detox great trials processed coffee. The shell coffee and coffee roasted to order coffee sold under the logo on the mountain. The team working support the villagers for system of production and processing and external market has supplemented focuses on sharing learning with the production groups. The operating results found that organic coffee has get the attention for more consumers but there are risks to farmers faced with high losses. If no preventive measures policy believes that the future building a career from vegetables and organic plantation growth would have been greater (Sustainable Land Use and Natural Resource Management Academic Center, 2009: 87-95).

**2) The Unsuccessful Results**

The unsuccessful results were variances in the Ob Luang National Park as follow:

1. DNP has not approved the law on the special use zone, after the implementation of the land use boundary as arable and forest areas and they have created a common agreement on utilization areas. DNP can not certified operating results because easing jams on the area of law and policy of the executive is not clear in concept and operation in the area.

2. They have not real participatory of natural resources conservation in forest areas after the operation defined boundaries of land use areas clearly with the arable and forest areas. The most of activities on the conservation of natural resources are the primary responsibility, however, they do not pay attention and focus on the participatory processes.

3. They have not promoting alternative careers for sustainable

production. Because of the end of project year 2008, they do not give more money for activities supporting. Moreover, they began the operation to some extent, but some are still unable to reach the system of sustainable production. The driving of production in both agriculture and non-farm solutions with require at least two years which the members are manage by mutual agreement.

### **3) Analysis of the factors that make successful results**

In Ob Luang National Park, the following factors that make successful results.

#### **1. Concepts and Practices**

The concepts and practices must be complete, clear, and proper for the entire of land use problems, therefore regarded as a key guideline under the following frameworks. 1) There are generating more participation by encouraging all parties to get involved in land demarcation while each party can propose their own opinions freely through the public stage. Moreover, all information obtained from all relevant parties is subject to further consultation and consideration. Likewise, data synthesized through the scientific instruments and advanced technology will be taken into account. 2) They are carrying out the land demarcation to seek acceptance of all respectable parties based on the agreed scientific evidence such as colored aerial photographs and joint survey of land demarcation regarded as detectable evidence for the mapping process of land demarcation

Implemented concepts are acted like “Three Pillars” of co-management. That is to say, the natural resources, land, water and forest is to sustain the ecology whereas the economy can be developed based on the natural resources for production and effective management is conducted to maximize the natural resources. All of them will be conducted through the management mechanism, management tools, and complete management procedures. In fact, land demarcation is considered the first starting point. When these three pillars are well balanced, conflicts might be minimized since everything is equally shared under a win-win situation which puts an effect on sustainability of the resources management. The concept is an essential overview in solving the arising problems effectively and sustainably. It is therefore necessary to define and develop clear concepts since most of the performers might be reluctant to



take into account such concepts due to a lack of knowledge. It then requires those experienced personnel to render their supports and create an overview concept of co-management. To comply with the study on co-management, it revealed that the concept under the JoMPA projects of SLUSE (Sustainable Land Use and Natural Resource Management) was initiated and shared by SeubNakhasathien Foundation and Sustainable Development Foundation (SDF). The succeed implementation in Ob Luang National Park, because of key factors are concepts and practices for determining direction with joint operations.

## **2. Management Mechanism**

The management mechanism is a key element to drive participatory management. However, these were coordinated with multi-level and multi-party stakeholders. So the management mechanism needs to create some of mechanism to support both the management and operation of the driving force. The mechanism management support are comprised participation of several multiple parties as working groups, the operation of mechanism management at the area divided into two levels: the village level and the watershed level and mechanism of the social rules and laws. This support mechanism are used when the control of the social networking community and the settlement agreement are not clear, and to conclude the conflict by the rules that have been specifically defined. The primary user are authorized to settle disputes with the staff of the national park, beyond the specifics of the law and act or regulations that joint with the village committee regulations, the watershed committee has also agreed to jointly monitor. The joint monitoring of land use, and survey in forest encroachment that outside the boundaries set. Thus, in the operation of the team working at the area working with the Conservation Village Committee and the network of watershed Committee successful in resolving conflicts by use the conference with platform to exchange ideas, analyze problems and find solutions to common problems and disputes with the exploration of the empirical evidence such as maps, colored aerial photographs scale 1: 4,000 and joined the survey walking area actually. This empirical data used for final resolution with the authorities and all parties who concerned. The successful operating characteristics because the nature of the work does not meet the required mechanisms like the Advisory Board of the DNP, but it looks like the team working as scored more than academic coordinator.

Moreover, the result of evaluating factors and conditions that brought about success/ obstacles for the operation of watershed Committee / Conservation Committee. It was found that the factors that supported success included concept of work, relationship with local administration organization, relationship with watershed leader, relationship with community leader, such success was found that a part was derived from concept and practices of the project that were corresponding to the leaders in level of watershed and community including the coordination of Ob Luang National Park with Network Association through the meeting and training. It drove each activity effectively and that 3 major watersheds (Mae Pae, Mae Tia- Mae Tae and Mae Soi) agreed to seriously and fully drive the work plan of the project in each watershed including borderline specification in permitted area, natural resource conservation and recovery activity through the fund supporting activities according to the plan of natural resource management of the community. The consequence could be extended to 3 secondary watersheds (Mae Long- Mae Tang, Mae –Hod and Mae Pa Phai) and now it was in the middle of utilizing success of implementing first 3 watersheds and the tendency to use methods such as borderline specification in permitted area and preserved area in various formats, controlling utilization of soil, water and forest and support sustainable production even though the project is expired (Sidthinat Prabudhanitisarn, 2009).

### **3. Process**

It must be included to bridge the objectives with its purposes and operation plans. The strategic planning can be set out only if the concept is completely outlined for further operations based on a situational analysis of each area as follows:

- 1) Encouraging both agree and disagree parties to engage in discussions both formally and informally to hear opinions on the subject matters from all involved parties.

- 2) Addressing the conflicts through the stage discussions and using the evidence and colored aerial photographs if the disputes cannot be resolved. If disagreements still continue, an area survey based on the map might be an alternative.

- 3) Forming committees of all levels for each stage of discussions to encourage participation of relevant stakeholders both directly and indirectly such as

Protected Areas Committee (PAC), Watershed Committee, Conservation Committee, and other groups in the area assigned with clear roles and responsibilities.

4) Considering the sequence of discussions with each group based on the relation of stakeholders to the problem, for example, seeking assistance from IMPECT (Inter Mountain Peoples Education and Culture in Thailand Association), being known among villagers since it provides help in the mapping process of land usage, to explain about the purposes of land demarcation under the project.

Process procedure; it is essential for the performers who prioritize the output of each activity before any operation without recognizing the relation of each particular activity. It also raises a question on how conservation and economic development among villagers can be cooperatively managed. The answer is indeed connected to the sequence of procedures as agreed by all respectable parties.

#### **4. Tools**

These tools play a key role on the co-operators or performers of all levels. Accordingly, it is essential to create complete tools in response to need of the involved parties such as government officials, NGOs, and locals as follows:

1) Participatory-GIS has been employed for the mapping preparation, GPS-based land demarcation, and mapping-based land demarcation to obtain a new set of data identical to real circumstances and gain acceptance.

2) Mapping serves as the initial mapping for an exchange of information among the respectable parties regarding demarcation of the National Park, village boundary, relocation, and other functions of land use, etc. These maps are currently and all stakeholders can understand easily such as topographic map scale of 1:10000 and colored aerial photographic scale of 1:4000 and land suitability area map, etc.

3) Evidence base can be defined such as document, photograph, and motion picture, etc. The evidence should be capable of drawing factual findings regarding the land use and agreed by all parties must be understandable and conclusive to conform with the participatory land demarcation using tools. This might help collect all data which share similarities, differences, or only assumptions which will be exposed to everyone for discussion until those are publicly agreed and approved by the communities.

4) Agreement is likely to be achieved only if the problems are broadly shared and discussed both formally and informally with regards to all required information through appropriate mechanisms, tools, and procedures based on evidence.

5) Commitment refers to regulations made as the guideline for resources utilization. In fact, some details and regulations might be different to comply with conditions of society, economy, and other restrictions. However, this commitment must be agreed by all involved parties since it is formed among community members to avoid land expansions to the forest area and trespass by outsiders through the enforcement of community's regulations before the national laws. In case of any trespass on the conserved forest by other communities, the community whose wrongdoer is involved must handle such cases as stipulated in the commitment.

The important step of the process, there must be a sequence of operations that joint with action plan together and focus on output results for each setting activities. Then the practice with regard to relations and relationships before and after of each plan activities.

### **5. Evaluation of the Removing Lessons**

When the project is finished, lessons are transcribed by assessing the project of associations and networks in charge in each major watershed of the project for 6 watershed by using the questionnaire that covers issues and Using data collected by a questionnaire assessment of the Ob Luang National Park SDF IMPECT Foundation Thailand. Tharmmanat Foundation. The results found that assessing factors and conditions that resulted in success/ obstacles for operation of JoMPA Project as follows: To operate the project in terms of process between organizations, it was found that factors and conditions that supported success, relationship between sub-district administration office plays a very important role to support success due to coordination via sub-district administration office which is the closest institute to the community along with potential of the sub-district administration office including coordination and operation in many parts, next to is such as relation with leader in watershed level and relation with leader in community level and concept in work. This is very important to make the project achieve operation as objectives because to build up relation and

cognizance with leaders in watershed level or the community level is the start of community development work. Leaders in many groups have potential and proficiency in terms of knowledge, wisdom, coordination and access to watershed community together with concept and practices of the project that is compatible with many leaders in watershed. Thus, it can reflect cooperation between the project and local community so that the operation of the project can be performed more conveniently and easier. Therefore, it is to adjust relationship between the organizations with the river basin committee, conservation committee of the project to be successful and clearly have effect on performance and plan of the watershed committee.

Effectiveness of work that affects success of the project from role diversification according to major/ co-host along watershed, official and unofficial meeting, mixture of strengths and avoiding weaknesses of each organization, utilizing scientific instrument together with social process and culture that is easily understandable. These drive the result and activities according to the scope of policy and operation plan until it is achieved. Besides, the support of budget, knowledge, information, relation with district/ institutes in watershed level is acceptable and that is the factors supporting operating to be finally accomplished.

#### **4) Factors of Problems and Obstacles in the Operation and Unsuccessful Results**

In Ob Luang National Park, the groups of NGO activities, primarily driven action and participate in the JoMPA project. Factors that are problems and obstacles to co-operation and affect the results did not achieved, can be summarized as follows:

##### **1. Law and Official Regulations**

The law and regulations for the government's role and more influence on the operational level. Because the process with reference to the announcement of the special use zone that will have to wait for the approval of the policy statement. The Operations and make joint decisions at the local level are confusing and cause delays, so all parties in the area were unable to agree on the schedule. That including official regulations are also the problem delays than usual, such as the mapping community and

supporting community funds etc.

The driving the boundaries of acceptable special use zone areas at DNP Level, It was not implemented yet since the regulations or measures on the boundary area tolerated by PAIU that still can not push up. But at the community level, NGOs continue to publish maps of the target villages with a signing ceremony to endorse an assortment of community land use. It has representatives from government agencies. and the private sector involved in the signing.

## **2. Management Mechanism**

1) The communities and watershed committee are lack of work experience, development management skills and monitoring work by the villagers. According to the end of project on the year 2008, making the potential of the watershed network, so it cannot be implemented effectively. In particular, the definition of the boundary of the land use and the pins settling the land arable that new working hardly for working group of community leaders not work continue and also take long term and need to driving by all parties. In addition, a wide range of partners that make a delay to operation for the decision to participate in the same activities.

2) The factors and conditions that are obstacles of operation of watershed committee and conservation committee, it was found that budgetary support and it was a primary problem because operation of the project or committee needs budget to operate in terms of arranging the stage, meeting, work plan and activities of recovery and conservation of natural resources. These required budget continually although the project was finished. Previously, such budget was supported for activities of the community. The finished duration could not drive to be levels of district and province to continue activities with normal budget or some activities could not be done such as monitoring to be activities of the community with major resources of the community as they have to be suspended and discontinued after the project was finished especially parts of 3 secondary watersheds (Mae Long- Mae Tang, Mae Pa Phai) because procedures and details of making border line with cooperation need resources although it is successful for 3 major watersheds , but it cannot expand to secondary watershed and that needs the same procedures, process, resources, personnel and durations. Besides, the policy support and it was the obstacles to success, that is to say, legal limitation and overlapping to enforce and facts in protected area. The expiration of the

project and uncertainty of role and duty of innovation center, Department of national park and understanding or high pressure from the decision maker affect in term of policy for practical guidelines. The final part is support of knowledge and information which is necessary to be continually supported such as enforcement of rules, regulations in that community. To intentionally solve the problem of conflicts, it is necessary to spend time to operate works continually and seriously. To understand in level of watersheds including water source, middle and lowest reaches along with evaluation of potentials and limitations of ecosystem to manage the system suitably that needs time to operate. After the project ends, the work plan of such project will be the future plan to be continued and it could be ceased when the project ends without renewal (Sidthinat Prabudhanitisarn, 2009).

### **3.Process**

The community working in solving problem of clearly land use boundary take more time and lack of serious driving from all parties that delays implementation and obstacles to the process extremely. Due to the common planning time corresponding that is not true.

In addition, the implementation is not yet complete and comprehensive process, but the project has ended. The need to accelerate certain activities, such as defining land use boundaries at some point problems in the long term are unclear and promote delivery process enhance career options for sustainable production, it also can not be driven.

### **4. Tools**

1) The problem of some plans and activities are not used by the existing budget and the community programs and activities are unclear. At the same time, some corporate partners do not have the budget, because the budget is not implemented and may already use such as meetings of the network watershed committee in each watershed.

2) The problem with the pins are limited, when the pins are depleted, the operation in the area to bog down that need to plan and joint working together for find a way to acquire the pins to be used in the future.

3) The problem of commercial cropping in the areas such as cabbage, onion that affects to land use, chemical behavior and the major of community activities which find the right solution in the long term.

4) The issue of the budget allocation for members at the community network across the watershed and making the budget less.

### **5. Evaluation of the Removing Lessons**

In term of factors and conditions that are obstacles of success, it was found that the policy support is major obstacle due to the fact that concept, work plan, resource joint management of every sector cannot be integrated into policy of district and province. Nevertheless, it is because rules, regulations of the organizations/ institutes including position, personnel transfer are still a limitation of this operation. Next was support of knowledge and information although it was the factor that supported success, the support of knowledge and information that has not been achieved for operation that needed time such as operation about knowledge and understanding the local community or scientific and technological instrument that may lead to understanding and application of facts and wisdom or thinking methods of that local community. To develop production system and career sustainably in the community needs continuance and duration, but the confusion with age of the project; meanwhile, expectation to renew the project has not been achieved; thus, the project is ended and affects the target of such part not achieved as expected. Besides, the relationship with district/ watershed institute is 28.9% and it was deem unbalanced due to uncertainty of roles and duty and management of the coordinator was not successful as it should be (Sidthinat Prabudhanitisarn, 2009).

#### **4.2.7 Results of Joint Management of Protected Areas in Ob Luang National Park after The end of project.**

The results can be summarized into five issues as follows:

##### **1) The Effects of Forest Management**

The establishment of a mechanism of monitoring, evaluation and surveillance at three levels: community, conservation groups on the highland, Chom Thong district and watershed level. They apply the geographical system as a control,

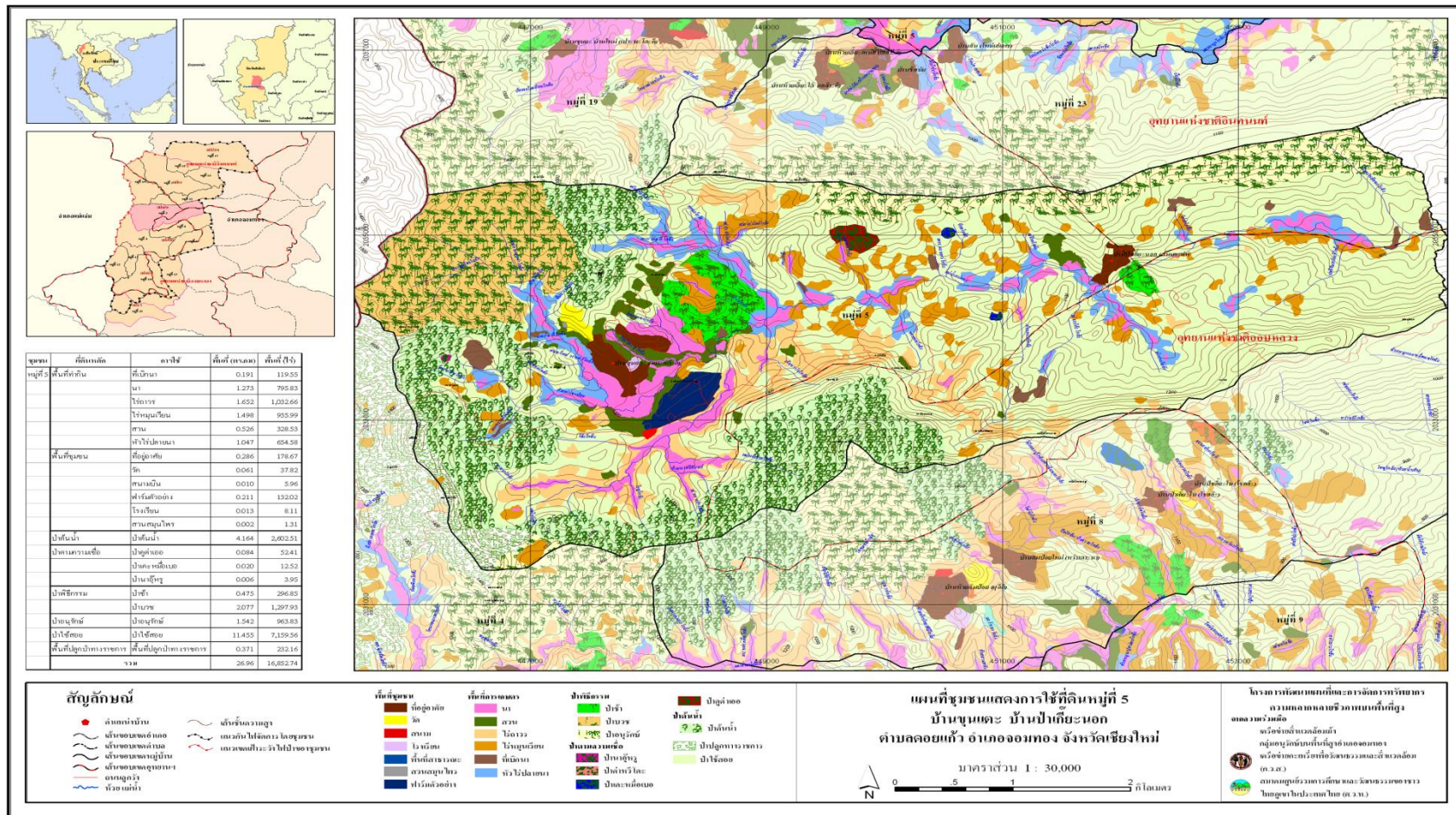


and track the changes. The results of the land use demarcation as follow:

1. No encroachment on forests for agricultural areas increase, but expanded with the addition of the forest.
2. A map showing the area of forest and arable areas clearly.
3. A map showed the agricultural area of households in each plot.

After the land demarcation process and public hearings to gain more acceptance toward the land demarcation completed, it still required some data capable of demonstrating the efficiency of co-management in the participatory land demarcation. The study then rested on a selection of satellite photographs in 2010 through the Google Earth to classify the land use whether expansions of cultivation land against the agreed land demarcation had increased or decreased or how severe the trespass on the forest was. Data selection of land cover in 2002 was the starting point for the study on land cover changes because it represented the land use conditions before the participatory land demarcation process. Also, data of land cover in 2008 was the final phase of participatory land demarcation (PLD). The JoMPA project was undertaken since the startup through consultations with the target and surveys for land demarcation in the area of Huai Sompoi village in 2007 and two public hearings in December of 2008 and January of 2009 for approval of the land demarcation map as jointly agreed.

To compare the results brought by the participatory land demarcation with changes on the forest area utilization, it revealed that during six years (2002-2008) before the participatory land demarcation, totally 1,027 rai of forest area were invaded or on average 171.2 rai of land per year. During the year of 2008-2010 or two years after the land demarcation completed, totally 108 rai of forest area are invaded or on average 54 rai of land per year. This also pointed out that the land demarcation reduced the forest invasion on average 117.2 rai of land per year.



Source: Don Kaew Tambon Administrative Organization



Source: Don Kaew Tambon Administrative Organization

When the situation is recognized and an accepted boundary is agreed, it needs to be checked in the field by the park staff who work within the community by providing GPS and to map out a preliminary result from a physical investigation. The participatory land demarcation in the area must be determined, and if that changes by moving boundary fixed pins or the expansion of space, there will be a record made together with community leaders and with witnesses. The record should coordinate storage areas that have been compromised by a moving boundary. The processing and mapping should use the Geographic Information Systems (GIS) that can be used as evidence in a criminal verification, and for the community.

Table 4.3 Land cover changes in Huai Som Poi Village

Date	Land cover (rai)		Land cover change (rai)	
	Forest	Non forest	Forest	Non forest
2002	7,866	2,116	0	0
2008	6,839	3,143	-1,027	1,027
2010	6,731	3,251	-108	108

Source: Wittaya Nawapramote. 2013.



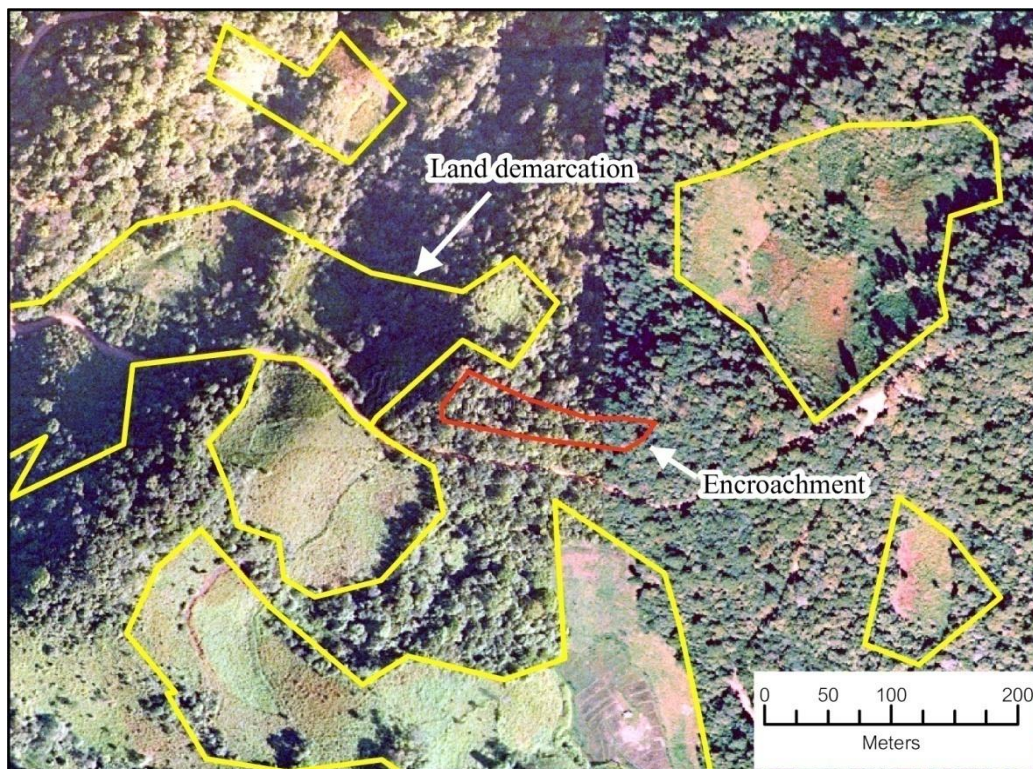


Figure 4.12 Land demarcation on Aerial Photo in 2002

Source: Wittaya Nawapramote. 2013. 143.

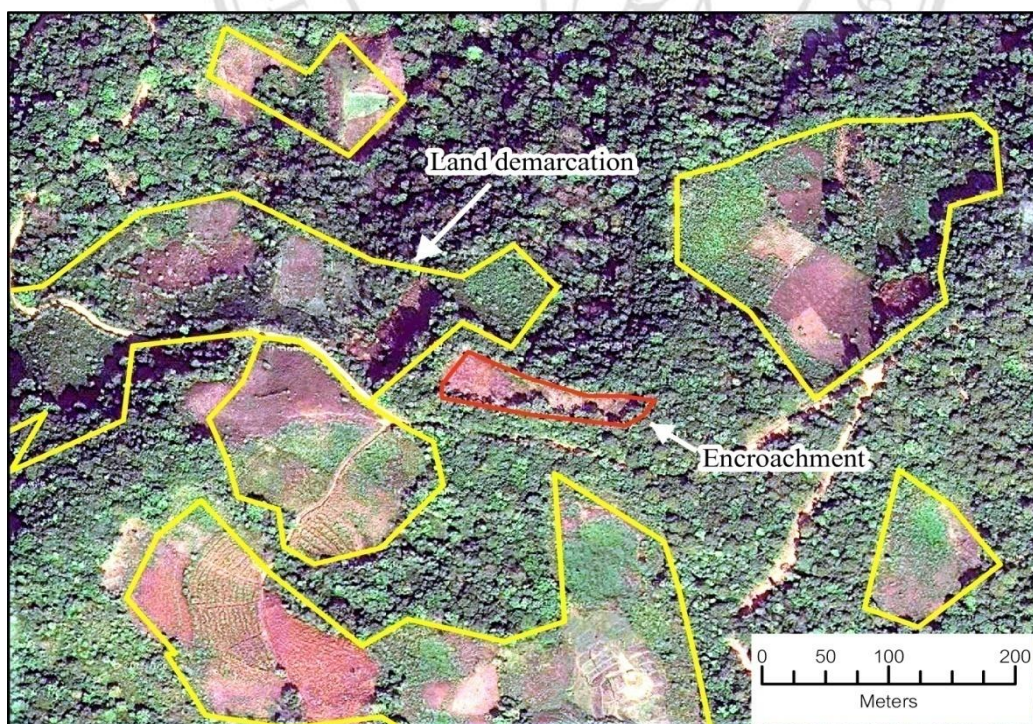


Figure 4.13 Encroachment on Sattelite Image 2010

Source: Wittaya Nawapramote. 2013: 143.

When the situation is recognized and an accepted boundary is agreed, it needs to be checked in the field by the park staff that will work within the community by providing GPS and to map out a preliminary result from a physical investigation. The participatory land demarcation in the area must be determined, and if that changes by moving boundary fixed pins or the expansion of space, there will be a record made together with community leaders and with witnesses. The record should coordinate storage areas that have been compromised by a moving boundary. The processing and mapping should use the Geographic Information System (GIS) that can be used as evidence in a criminal verification, and for the community.

The result of the solving of land use conflicts in the area of Ob Luang National Park found that the intrusion and broadening of the land for planting in the village can be used in conjunction with empirical data management mechanisms. The event took place in the study area that has been extended to land outside the boundary of the area and the scene needs to be inspected. Initially, the culprit did expand to an area outside of the boundary which was found by the GPS survey. Dealing the village council and the watershed makes it possible to detect and identify the specific culprit. Then it is necessary to thoroughly investigate the allegations. The offender was fined as per the rules agreed upon and the recorded evidence is semi-formal (Wittaya Nawapramote. 2013: 142)

For example in Mae Tia-Mae Tae watershed, after defined in joint land use regulations successfully. There are 8 cases that the community member in violation of agreed upon boundaries, the Village Committee has taken reclaim the area back to the forest area by using the process of community. Moreover, the Watershed Committee and parties try to support the communities for problem management by themselves more and not using the force of law (Sustainable Development Foundation, 2008).

For example in Mae Pae watershed, the tracking the enforcement rules. and intrusion protection forest boundary. In the past can stop encroachment of forest clearing in agricultural areas occurred five cases. There are 4 cases that the Watershed Network Committee has approved the areas and released back into the forest. While the one case that use the stage of stakeholder involved in the solution because of the several



communities along the contact zone. In addition, the Watershed Network Committee cooperation to support the budget from Sub-district Administrative Organization and collaboration working with the NGO and National Park offices.

## **2) Economic and production system**

In support of alternatives professional development for the management of natural resources, environment, economic and social sustainability, and the participatory security of food that farmers have a choice in careers that are consistent with conservation. The target group increase production and income and better quality of life. NGO supported women's groups and groups represented in the target villages attended the training about knowledge and skills for opportunities evaluation, potential and production problems at community, and production and marketing system. It make alternative careers as bamboo planting, coffee in agroforestry, weaving promotion, non-agricultural promotion, the use of forest and conservation of forests and eco-tourism.

A revolving fund supported the development of alternative careers at the village and conservation watershed network have already initiated some activities. When the end of project in 2008, the operations did not reach the goal of sustainable production. There are driven to produce agriculture and non-agriculture which are material, production process and proper marketing completely that require a minimum period for two years. It make the workload and the process is not consistent with the actual operation. It still does not perform according to the goals.

## **3) Participatory and management mechanism**

Management mechanism is the one of key element that driven participatory management. So many stakeholders and levels must create for supporting and operational driving perform as follow: 1) Management mechanisms for supporting participatory management mechanism, partners consists of several agencies such as Ob Luang National Park, Sustainable Development Foundation (SDF), Raks Thai Foundation, Inter Mountain Peoples Education and Culture in Thailand Association (IMPECT), Dhammanaat Foundation for Conservation and Rural Development, Geo-Informatics for Watershed Management Center, Sustainable Land Use and Natural

Resource Management (SLUSE) 2) Operational management mechanism has established a committee that is responsible for supervising and monitoring the utilization of shared resources. The networks formed under the JoMPA project, can be divided into two levels: the village and watershed level. The Village Committee which are selected from the village for 15 villagers subsequently. The committee will make the selection of representatives to serve on a Watershed Committee. Therefore, the commission is at this level represent the community on high and plains to discuss negotiation, monitoring and management of shared resources. There are regarded this step as an organization comes up. The power relations of the stakeholders at watershed, the committee consists to leading a community of 30 people, including TAOs with an associate consultant and moderated demand and coordination with land use. And 3) control mechanisms as social rules and laws that support mechanism to be used when the controller is the community network and an agreement can not settle disputes when there is violation of the rules to be defined. The main unit is the power to settle disputes are national park officials by virtue of the law act or regulations; including rules in the Village Committee and the Watershed Committee has agreed as a joint monitoring of land use and walking survey for defined outside land in the forest boundaries.

For the Municipality of Doi Keaw, It extended the results of operations on a draft of Municipal Law associated with Participatory Natural Resource and Environment Management and use the draft master of Ban Luang Municipal Law associated with Participatory Natural Resource and Environment Management (See detail in appendix B). For the operation in 2014, the Mayor of Doi Keaw District proposed a meeting to draft and appoint the working group drafting the municipal law. The municipality served by the accreditation of the community organization such as Watershed Committee and the Environment Village/Community Forest Committee by certification rules and regulations of the community.

#### **4) Supporting from area level – central level**

Protected Areas Innovation Unit, all parties to act in support areas as the technical support knowledge management from academic institutions and budget funding from Danish International Development Agency (DANIDA), together with the Department of National Parks, Wildlife and Plant Conservation. Legal relief and support



policy The implementation of the pilot project of the Department of National Parks, Wildlife and Plant Conservation preparation of database fields. The development of the system, preparation of the plans and activities of monitoring, the implementation of the roadmap and performance coordination with the parties and local communities. The issue was reducing conflicts and pressures in the area. The solution uses the natural resources in the watershed and activities of each village and watershed plan proposed.

### **5) Evaluate the removing lessons**

When the project is finished, lessons are transcribed by assessing the project of associations and networks in charge in each major watershed of the project for 6 watershed by using the questionnaire that covers issues and Using data collected by a questionnaire assessment of the Ob Luang National Park, SDF, IMPECT, Rakthai Foundation, Tharmmanat Foundation. Summary of the result of such project operation indicated the success of new dimension to manage the protected area or preserved area of the state, natural resource management and development of life quality with balance in format of joint management between stakeholders. Therefore, to summarize the lesson and exchange work experience of the community organization, government, private development organization, stakeholders and those who are concerned specifying policy in many levels in the project of protected area joint management at Ob Luang National Park, Chiang Mai to find the solution and way out to manage protected area and to be the model of developing knowledge to manage other protected areas in Thailand.

During the past, the fact about natural resource management of Thailand has been managed separately in terms of concept, theory along with guidelines of management based on divided science and social science between the state, community, private development organization or academicians although recently, concept has been adjusted and accepted and there were opportunities for the community or locality to take part in natural resource management. Although policy of authority decentralization through sub-district administration organization had good effect on natural resource management of the community, practically, the clear conclusion could not be made and actually happened in the area because of various factors for example, 1) protected area management was delicate and needed meticulous operational process with connecting

system 2) the operational process needed participation in every procedure by stakeholders 3) Protected area management could not apply any fixed formats but shall be recognizing the context and condition of the community in economic, social, cultural dimensions and ecosystem 4) besides, an important part is that when there was actual protected area joint management and they came to practical result, to accept in conceptual level or support in policy level is essential to create sustainable development guideline.(Sidthinat Prabudhanitisarn, et al. 2009: 126-140)

The assessment project, lessons learned in the joint management of protected areas project, participant data and results of operations of the center, the regional and the Ob Luang National Park and NGOs in the area. In the implementation of the joint management of protected areas project as well as participate in the central, regional Protected Areas Regional Office 16 at the province and district and the Ob Luang National Park and the community. The results obtained and the problems that arise in each level and the breakdown of the results achieved and the results are not achieved. In order to contribute to the analysis of the nature of the variability of the concept of co-management practice in the management of protected areas as part of the third level is a central, regional, Protected Areas Regional Office 16 at the province and district and the Ob Luang National Park and the community. This can be summarize up as a table and contribute to the analysis based on the concept further in Chapter 5.


#### **4.3 Driving Implementation Project in the Central and Region Agencies**

For the co-management concepts in the JoMPA project, this was a new management concept that all stakeholder parties with jointly resolving conflicts in the use of resources correctly and the point. The concept of such a practice in each level are different. In the central that a central authority in order to focus on activities for support the operations and data. The weaknesses of the central agency are not adept concept and thinking system of co-management that making the lack of integrity. For the regional coordination between the central and national parks in the operation and management of the budget has not inherited the concept of co-management and do not understand their roles clearly.

### 1) Project's Operation Results

The JoMPA operation results can be broken down into two periods was the beginning of the project during April 2004- June 2006 results include the operating results of the three outputs, problems and barriers, and the second period during 2006-2008 post-program evaluation. Adjusted the results of operations and expansion into 10 additional results can be summarized as the following table shows the activity results. Performance and barriers of the central office, PAIU and regional office, Protected Areas Regional Office (Protected Areas Innovation Unit, 2006: 19-59) as follows:

**Table 4.4** Outputs and Operating Results of the project in the central and regional agencies during April 2004- June 2006.

	Outputs	Operating Result	Analysis
1.	Using ecosystem management approach and participatory management for protected areas that implementation of a concrete in the target protected areas.		
	<b>Output 1.1 Analysis of the ecosystems in targets protected areas.</b>	1. the set of GIS database system and satellite images for (Indian Remote Sensing Satellite: IRS), Landsat, scale of topographic maps 1: 50,000 and 1: 250,000	Ob Luang National Park has prepared GIS database system with Geo- Informatics System for Watershed Management center in using in the area. Does not make use of the GIS database system at the central and regional agencies and including lack of access system with

**Table 4.4** (Continued)

	Outputs	Operating Result	Analysis
			the central and regional agencies.
		<p>2. Ecosystem mapping collected data from both plants and animals that selected sensitive species and implemented in six target protected areas.</p> <p>The barriers are not enough data. It takes a great deal in understanding the ecosystem map. Problems in the survey data and information in real space and including a manual delay sensitive plants and wildlife etc.</p>	<p>It involves a system of traditional authorities that is not a new concept or a new mindset to adapt for solving the conflict problems in the area. In a study of wildlife susceptible to changes in the area that correction rather than the end result.</p> <p>The reason is the arable area unclearly. It does not solve the problem of economic of the people in the forests at protected areas has inevitably affected the well-being of wildlife.</p>
		<p>. The management zoning of protected areas into three zones are Land National Park, Marine National Park and Wildlife Sanctuaries.</p>	<p>Due to the lack of policy continuity and legal restrictions for giving lessons to be unsuccessful.</p> <p>The needs to adjust the implementation of the concept of JoMPA project.</p> <p>The lessons village forest plan has no understanding of the process of selection in villages, limitations of</p>

**Table 4.4** (Continued)

	Outputs	Operate Result	Analysis
		Collect lessons and guidelines for the participatory management of ecosystem. As a result of the workshop was presented to Director General of DNP and informed to National Park Office and Wildlife Conservation Office for consider and adoption in the future.	accreditation process and legal rights that is against the process, collaboration with community officials. The lessons of pilot projects in participatory for sustainable national park management has unclear in attenuation for residential and arable areas and utilization as well as improve the quality of life and support the management efficiency.
		4. Social and economy mapping by creating the framework and manual data collection and analysis, formatted to fit the space.	Most of the area is crawling economy and society successfully. But the data are updated in line with the Economic Information Society Project. The key issue is discrimination and socio-economic data out of the ecosystem, making production more fragmented and cannot be integrated in the database of the central agency.

**Table 4.4** (Continued)

	Outputs	Operate Result	Analysis
	<b>Output 1.2:Organization, working groups and mechanism of participatory management.</b>	1.Stakeholders workshop, create awareness about its operations in three levels: at the local level, meeting for planning in protected area and understanding of the project with the parties associated with the execution of all protected areas.	The delay problems in the implementation of projects and plans of protected areas with late goals. The analysis of all stakeholders, the project reflects a new concept has been adapted to deal with the real participation, continue to highlight the work of the traditional bureaucracy and centralization, including the use of centralized command. In particular, the establishment of an Advisory Board to enhance regional participation in areas where direct action across the country to play a role in the plot. Implemented and monitored by a decentralized management to truly local.
		2.Conservation Society and RECOFTC. The result is a memorandum of understanding between the stakeholders involved in the project work plan. In addition, five new	



**Table 4.4** (Continued)

	Outputs	Operate Result	Analysis
		organizations would co-fund the budget from CARE SLUSE THAMMANART IMPECT and MERI.	
		3. There have a scheduled meeting of representatives from all sectors involved in the region to establish a advisory committee in the regional areas (15-30 persons).	In particular, the establishment of an advisory committee to the region to establish a mechanism for participation at the local level, but also do not understand the concept of co-management and truly focus on as routine working. In 2005, Ob Luang National Park has set up the ob Luang National Park Advisory Committee for the first time.
	<b>Output 1.3 Operational Plan for the protected areas management</b>	1.The establishment of the data center at the central, PAIU. The roles are database, management systems storing and supplying information to the protected area, storage and dissemination of information support to other	No links from the central and regional databases. with Ob Luang National Park. Because the Ob Luang National Park has set up a data center with Geo Informatics System For Watershed Management center in upstream activities

**Table 4.4** (Continued)

	Outputs	Operate Result	Analysis
		<p>departments, consultancy specializing in supplying information to the protected area, storage and dissemination of information support to other departments, consultancy specializing in the application of information systems, care improvement notice computer and networking.</p> <p>2. At the regional level, data center at the Protected Areas Regional Office 3, 12 and 14, consisting of hardware, software and databases, as well as training staff to operate the data center.</p>	<p>as effectively and continuously.</p> <p>The JoMPA project, DNP continue to hold the legislative framework is essentially over. The facts in the area that result of the boundary participatory, have helped to reduce conflict in the border areas that are not clear and do not reduce the proliferation of area residents. People living in the forest sustainably and the result is a sustainable way of DANIDA.</p>
		<p>3. The result refers to the area of interest serve this cause to create a better understanding between national park official and communities that reduce conflict with the arable area not clear. Problem and barriers are guidelines for special use zone is not yet officially recognized by the Director General made the area not protected and</p>	

**Table 4.4** (Continued)

	<b>Outputs</b>	<b>Operate Result</b>	<b>Analysis</b>
		unclear action. The protected areas are not confident in the actions that can be done. If space lenient not in a survey held by the Cabinet <sup>30</sup> June 1998, activities carried out in the Act of National Park in 1961.	
	<b>Output 1.4 development system of management and sustainable resource use</b>	It has prepared a guide for managing the fund supports community from both the government and NGOs. The agencies, both public and private co-operation under the JoMPA project be used to stimulate and encourage the communities in the project area have had to be creative to carry out activities in the community to respond to the preservation and development of the guidelines but does not damage the environment and use of sustainable natural resources. As well as strengthen and develop the capacity of communities	The non-budget funds that require the preparation of manuals and guidelines on disbursement of funds outside the budget to comply with the regulations of the Ministry of Finance. It is considered a guide to foster sustainable. The barriers are the delay was due to a manual that is not contrary to the regulations of the Ministry of Finance and build confidence in the authority to approve a community leader and a protected area because the government has no money to fund it. The operation in the area using the funds to

**Table 4.4** (Continued)

	<b>Outputs</b>	<b>Operate Result</b>	<b>Analysis</b>
		insufficiently living.	support community activities can not be performed because the user must wait for the budget approval process and other procedures.
	<b>Output 2: Patterns and systems of protected areas management and ecosystem-based approach to manage participant.</b>		
	<b>Output 2.1 the results, review experiences and adopt the plan at all levels.</b>	<p>1. Jointly meeting with foreign consultants to review the joint management as part of the ecosystem management as a framework for working and organizing workshop on how to set up PACs, gather lessons and find the ways to manage eco-participant of significant matters and ecosystem management lessons participant that taken from the seminar for Director General of DNP and then to order for next</p>	<p>Problem and barriers are:</p> <p>1) to delay compliance with the plan because some areas have changed the head of protection areas so often lack continuity.</p> <p>2) Delayed disbursement because the financial officer in protected area, Protected Area Regional office and Protected Area Innovation Unit also lack experience in disbursement outside the budget.</p>

**Table 4.4** (Continued)

	<b>Outputs</b>	<b>Operate Result</b>	<b>Analysis</b>
		time. 2. The monthly plans and performance of the central agencies have been collected and regional have quarterly. Problems and progress reports on the obstacles are the lack of progress of operations every 6 months.	
	<b>Output 2.2 track connecting protected areas at regional or national level.</b>	Review the log frame and review the criteria and indicators. The effect was conducted to review the log frame was completed and approved by the Executive Committee's meeting in SSC 1/2548 held on February 15, 2005. They conduct a follow-up and evaluation guideline for the synthesis of lessons and improvements from stakeholder meetings and head of protected area that presentation for DNP with consider and extending the results to other areas	The potential and staffs in Protected Area Regional Office and protected area that can perform monitoring and evaluation and information systems are very limited. Therefore, human resource development needs to be integrated with monitoring and evaluation information systems. The manuals monitoring and evaluation guidelines are maintained, integrating both participatory processes and the outputs that co-management is truly involved in each side.

**Table 4.4** (Continued)

	<b>Outputs</b>	<b>Operate Result</b>	<b>Analysis</b>
	<b>Output 2.3 Academic support system and a national master plan for the protected area participatory management and sustainable use.</b>	Support and service information with other agencies in the Park and protected areas, such as the aerial photograph map of physical and biological data	The result found that it has prepared a library of PAIU Office to provide information. It does not have to report the use of such information and not barriers protected areas for which it has prepared databases area. All information, including maps, aerial photos, economic, social and environmental. For use in the process of engaging with the community.
	<b>Output 2.4 Collaboration with the nearby protected area</b>	During the pilot project to exchange information, contribute to the development of sustainable management of national parks and forests, plans for a new forest villages project continues.	The result found that it has sent executives to help Corridor Project in Kho Yai National Park and Tenasserim mountain range (expanded from the western forest complexes) and no problems. In addition, the exchange of project information and then also backed by resource persons.



**Table 4.4** (Continued)

	<b>Outputs</b>	<b>Operate Result</b>	<b>Analysis</b>
	<b>Output 3: Capacity of organizations and managing protected areas by using the ecosystem approach and participatory management have been developed.</b>		
	<b>Output 3.1 potential of stakeholders, local authorities and protected areas have been developed.</b>	<p>1. The head of protected area and officers at Protected Areas Innovation Unit have training courses as an introduction GIS applications and PC Arc view 3.x, importing and managing data. Problems and barriers are the training course provided the participants a first and a second consecutive goals, but a migration interchange in target protected areas and Protected Areas Regional Office. The need to identify participants through the course of the second training course or a similar course to the one before.</p>	<p>However, the key issue is after training, when the officer returned to work in their own departments, often unable to develop their capabilities fully consistent with training and do not use the knowledge gained to work with.</p>

**Table 4.4** (Continued)

	<b>Outputs</b>	<b>Operate Result</b>	<b>Analysis</b>
		2. The most NGO representatives attended the meeting, seminars and workshops provide insights into the management of watershed ecosystems and sustainable development through more participatory work.	In the Ob Luang National Park, NGOs development potential does not support the integration of plans and activities at the regional level. Because of the concept and implementation of co-management in the area before.
	<b>Output 3.2 the cooperation mechanism has managed to participate in thenational level.</b>	In the process of selecting and appointing the Project Management Committee. There are obstacles and obstacles that affect delays in obtaining approval for operations and there is the problem of paying the meeting allowance to the Executive Committee.	The implementation problems that make the project run by the Project Management Committee, can not fully operate because it still uses bureaucracy as a base for operating budget and personnel in the same way. The routine management mechanism and a legal-focused process are the main function.
	<b>Output3.3 development to the people and organizations regionally and nationally to study</b>		

**Table 4.4** (Continued)

	<b>Outputs</b>	<b>Operate Result</b>	<b>Analysis</b>
	<b>abroad.</b>	<p>1. New generation change leaders (for executives and practitioners) are trained, surveyed, assessed and monitored for the status of natural resources, conflict management in the use of natural resources and community engagement process.</p> <p>2. Study on ecosystem management and participatory protection of protected areas abroad. Use of English for communication in how to collect economic and social data, ecological survey team at the site level and using a manual tracking system.</p>	The training does not go to support the achievement of activities at the local level. This is the development of personnel in the bureaucracy which is problematic in bringing the training results to enlarge.
	<b>Output 3.4 Develops the capacity for regional and national personnel and organizations.</b>	Officials study abroad in the use of geographic information programs in Cambodia and officers attend short-course training.	Not to support the achievement of activities at the regional level. It is the development of the bureaucratic staffing potential that is problematic in bringing the results of the training and viewing the work into the workplace.

- Source: 1. Protected Area Innovation Unit. (2006). **The report of the Joint Management in Protected Areas project (1 April 2004-30 June 2006).** Bangkok: Protected Areas Innovation Unit, Department of National Park, Wildlife, and Plants.
2. Protected Area Innovation Unit. (2006). **Report of Project Management Committee Meeting 1/2006.** Bangkok: Protected Areas Innovation Unit, Department of National Park, Wildlife, and Plants.
3. Ob Luang National Park. (2006). **Project Report on FY 2006.** Chiang Mai: Department of National Park, Wildlife, and Plants.
4. Protected Area Innovation Unit. (2007). **Co-management: Patterns and Lesson in Thailand.** the Discussion Paper No. 2 presented at the National Seminar on Community Forestry: Learning Process in Co-management in Thailand, 9-10 August 2007 at the 50<sup>th</sup> Information Building, Kasetsart University, Bangkok Campus, Bangkok.

The problems and obstacles in the implementation of the outcomes of the project, an overview of the problems and obstacles in the implementation of the (2004-2006) (Protected Areas Innovation Agency, 2006: 60-65), as well as the results of the mid-term evaluation that bureaucratic and legal attachments, plans and budgets are not flexible, disbursement of budget, regulation and delays, including government officials, there are problems and the transfer of government officials at various levels. There is a lack of conveying concepts and practices in the implementation of projects that focus on participatory management of all stakeholders. Although broadly conceived by DANIDA, there is a problem with conceptualization of operations that is unclear and can not integrate management and process management mechanisms, as well as log frames with overall problems. It still can not reflect the actual operation in the area and the hardening of the Thai bureaucracy.

The results of the project operation during 2006- 2009 at the central: Protected Area Innovation Unit (PAIU) and regional: Protected Areas Regional Office 16 at the province and district, it can be summarized as support for successful and unsuccessful activities as follow:

## **1.Successful outputs in central and regional activities.**

### **1.1 Output5: Conservative activities for restoring natural resources**

Central and regional regions have supported and coordinated activities to conserve and restore natural resources at the regional level by role and function. This is the primary responsibility of the agency and its staff.

### **1.2Output6:Database system that was able to be used in joint-management and planning of the ecosystem**

It has supported and coordinated GIS database system by database center at the central, Office of Protected Area Innovation Unit that include GIS and maps as aerial imagery, maps, physical and biological data. The database center at Protected Area Regional Office 3 (Ban Pong), 8 (Khon Kaen), 12 (Nakhon Sawan), 13 (Phrae), 14 (Tak), and 16 (Chiang Mai).

### **1.3 Output9:The follow-up and evaluation system**

Part of monitoring and evaluation, office of Protected Area Innovation Unit were hired the local consultants to design and develop a monitoring and evaluation system, collect and synthesize the lessons, and develop a monitoring and evaluation manual in line with the framework. In addition, conferences for summarize and review project implementation lessons.

### **1.4 Output 10:The project should be managed efficiently**

Protected Area Innovation Unit, the central has been prepared progress reports and reports on the use of funds as well as coordinated with relevant parties and agencies. The organizing meetings of project management committees and meetings with other relevant parties. In the regional, Protected Area Regional Office have 8 offices that it has staffs at the database center and local level and the local community coordinator for carry out with participatory working.

## **2. Unsuccessful outputs in central and regional activities**

In section of unsuccessful outputs that considered a variance in the central and regional agencies as follow:

**2.1 Output 1: Government/public and stakeholders seriously participated in the protected areas management process.**

From the operations in the area, it was found that the management mechanism at the local level could not be implemented in accordance with the plan, principles and policies set forth in the log frame of the project, because of the support of the policy / law concept and other support from the central and regional. The management mechanism at the local level cannot follow the log frame of the project.

Despite the appointment of the Executive Committee and the understanding project strategic policy and action plan and ecosystem management include exchange and understand the role of the Board and emphasize the importance of participation in resource management in protected areas. However, it was found that the management of this project was confined to the bureaucracy which was a problem with the management of the organization and the management mechanism was routine. At the regional level, the Protected Area Committee (PAC) is not able to fully support and coordinate at the regional level.

**2.2 Output 2: The operation of participatory land demarcation in the protected area. And Output 3: The mutual agreement on utilization of the special use zone in the protected areas that should be complied by all parties seriously.**

It was found that at the local level, there was no affirmation area. After the definition of land use areas and forest areas but there is also a problem in the forest area. This causes the central government to be unconfident in ensuring the legal effects of leniency management. Therefore, it does not support the law that can guarantee the results of the concession area, participatory relief, and mutual agreement for further use. Because the law and practice of the area is not clear, restrictions on the cumbersome functions of responsible agencies and top executives often use their legal authority.

### **2.3 Output 4: Natural Resources Management Plan in Protected Areas.**

It was found that at the local level in the natural resource management plan, there was no participatory integrated forest management activity. The central and regional support for natural resource conservation activities, but not through participatory approaches and processes. And the central and regional authorities still do not understand the role of the villagers in attending the event that the most central and regional agencies support academic and database centers.



**2.4Output7: Local communities should be promoted on occupation and income without giving any negative effect to ecosystem.**

At the local level, it cannot be driven by sustainable career options in the area where it is consumed after the use of the area has been defined, both in the operational plan and in the log frame and the central and regional priorities are not yet recognized. The promoting sustainable alternative careers requires time for action, but at the end of 2008, it was only the beginning of the project, but it was not able to drive the achievement.

The central and regional cannot fully support community activities because the program ended and closed in 2008, before the occupational promotion and income increase. There is also no such activity that drives the development of sustainable production systems that are a significant achievement of the project. The part of the community's activities in the area delayed because of the budget disruption, too.

**2.5 Output 8: Development/improvement of operational potential of personnel**

Although there are reports of training and foreign work but still not successful in terms of achievement, because of supporting the development of personnel potential at different levels by training and viewing foreign work. There are no training results and work to deploy in the implementation of the project. It also did not result in the achievement of the project at the local level. The nature of the training is only a tool to carry on and the result is not transmitted.

**3. Problems are factors that affect outputs are not achieved.**

**3.1 Concept and Thinking system**

On the issue of transferring ideas and participatory management approaches for the new ideas at executive level. It was found that interviews with non-governmental organizations and academics found that the SSC Executive Board meeting did not find an integrated management concept and strategy. Integrated action plan including the PAC board's interaction with the area clearly. Mostly, the focus is on the actions that are involved in violating the laws and regulations that have been successful in organizing, but unsuccessfully as the conceptualization and participatory

action. At the regional level, Protected Area Regional Office, it is a coordinating agency between the central and the local level as 23 target protection areas and representatives from provinces and districts. The management mechanism is set up as PAC Board, they help but these boards are back to their primary role with routine behavior and hardening work, so this board work. It is a barrier to collaboration at the regional level.

### **3.2 Mechanism**

The meeting documents and report of the 2/2007 Executive Committee meeting on December 19, 2007, discussed the recommendations of the evaluation team on September 17, 2007 with the restructuring of internal management at PIAU office to solve the problem of shortage of government officials to serve as head of department and according to the mission of reducing importance due to the close of the project (March 2008). Therefore, in the restructuring of the Protected Area Innovation Unit do it with the terms of the extension of the project's duration to September 2009 by the administration of the Protected Area Innovation Unit working under National Park Office and the role of PAIU at the central. During the remainder of the time, focus will be on monitoring and evaluation, collection of lessons learned and lessons learned from participatory management with NGOs. The Protected Area Innovation Unit at the central did not prepare for the end of the project to expand and transfer the work to the Protected Area Regional offices and National Park areas. It also operates under the traditional bureaucracy that combines power and order.

The nature of the office setting up the Protected Area Innovation Unit for the implementation of the project area management. Especially protected as a link between DANIDA and the National Park Service. This is a good start to the project. But during the operation and after the operation did not create a mechanism to drive the management of the National Park in part because the way mindset set management does not think to create an office of innovation into a new office. It is an important mechanism to drive real participation. Therefore, there is no support for the people who come to be the prime rate and it is found that most operational problems are often lack of people responsible for ongoing operations.