The *Model Forest Approach* to Sustainable Forest Management - Experiences of the FAO/G.O.Japan Regional Model Forest Project[1]

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Introduction

The *Regional Project on Assistance for the Implementation of the Model Forest Approach for Sustainable Forest Management in the Asia Pacific Region (in short, the Regional Model Forest Project (RMFP), GCP/RAS/177/JPN),* was launched in February 2000 and will run for 36 months, i.e. until January 2003. It is funded (USD1,580,145) by the Government of Japan and executed by the Food and Agriculture Organization of the United Nations (FAO). It has four participating countries (China, Myanmar, Philippines & Thailand) and is based at the FAO Regional Office for Asia and the Pacific in Bangkok, Thailand. The main aim of the RMFP is to help to develop one *model forest*, through the implementation of the *model forest approach,* in each of the four Project countries.

Genesis of Model Forests and Regional Model Forest Project

The word "*model*" means, among other things, "*an example for imitation or emulation*", and therefore, the term *"model forest"* will mean different things to different people, depending what one wants to emulate or imitate.

However, the "*model forests*" and "*model forest approach*" being promoted by the Regional Model Forest Project have a more specific meaning. They owe their origin to the *Model Forest* (MF) concept that began in Canada in the early 1990s (Besseau 2000). The two terms are inseparable, as the *model forests* that we are promoting can only be developed through the implementation of the *model forest approach*.

In the early 1990s the Canadian Forest Service recognized that since ecological, social and economic conditions vary from place to place, there was no single, universal formula for sustainable forest management. *Model Forests* were designed as large-scale living laboratories where people with a direct interest in the forest, supported by the most up-to-date science and technology, could participate in decisions about how the forest could be sustainably managed. At the heart of each model forest is a group of partners having different perspectives on the social, economic and environmental dynamics within their forest - perspectives that are necessary to make more informed and fair decisions about how to manage the forests. These may include educational institutions, industry, Aboriginal groups, local, provincial and federal governments, community and public interest groups, environmental NGOS, recreationists, etc.

In 1991, the Canadian Model Forest Program was established to *"address the challenge of balancing the extensive range of demands being placed on the forests today and the needs of tomorrow's generations. Each model forest serves as a demonstration of partners, with a*

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[1] Based on presentations made at the *Int. Workshop on Model Forests for Field-Level Application of SFM*, 23-27 October 2000, Yamanashi, Japan, and *Int. Workshop on Model Forest & SFM*, 07 June 2002, Lin'an, China.
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diversity of forest values, working together to achieve sustainable forest management." Under this Program, a network of 10 Model Forests (MFs), representing all of Canada's major forest regions, was created by the Canadian government to facilitate the development of field-level capacity to address this challenge. The MFs would work individually toward local solutions to SFM, and also as a network to share ideas, exchange information and experiences, and collaborate to create efficient and innovative ways to deal with areas of mutual interest such as ways to develop local level indicators of SFM (Canadian Forest Service 1999). In 1994, the International Model Forest Network (IMFN) was established to foster cooperation and collaboration in the advancement of SFM through a worldwide network of landscape-level working model forests (*Johnson 1998*). The IMFN, administered by a secretariat (IMFNS), is a growing network with 11 model forests in Canada and 19 established or in development outside of the country, for a total of 30 sites in 12 countries, and several additional sites proposed or in planning stages.

In 1998, the Forestry Agency of Japan, in collaboration with the IMFNS and FAO, launched a series of *International Workshops on Model Forests for Field-level Application of SFM* in Japan that,

- *identified the roles and expectations of model forests, and how they can contribute to the goals of SFM at the field or landscape level (*March 1998 in Tokyo);
- *provided a field level case study of the model forest approach, and proposed practical options for promoting model forests, enhancing international co-operation and feeding back the results to the national land-use policy processes (*March 1999 in Mie);
- *focussed on enhancing international co-operation, and developing ways to feedback results from model forests to overall land use policies (*October 1999 in Gunma); and
- *discussed the role of model forests in achieving SFM, proposed practical options for promoting model forest projects, and ways of feeding back results of MF projects to the overall land use policy planning process (*23-27 October 2000, in Yamanashi).

Recognising that a number of countries in the Asia Pacific region had begun, or expressed interest in, developing model forests for sustainable forest management and the need to strengthen national forest programmes, the Government of Japan decided to fund a regional project on *"Assistance for the Implementation of the Model Forest Approach for Sustainable Forest Management in the Asia Pacific Region"* (FAO 1999).

What is *a Model Forest* and *the Model Forest Approach*?

Among the fundamental attributes of the *MF Approach* are (after IMFNS 2000),

i. *Partnerships*, which must include key land users and other stakeholders represented in the geographic region (e.g. industry, community groups, government agencies, NGOs, academic and educational institutions, national parks, private landowners, and others as appropriate), i.e. *the partnerships must be local and inclusive* – no agency or player can achieve SFM alone;
ii. *Commitment* of all partners to SFM. This commitment requires not only an understanding of what SFM means but also what effective partnership entails, i.e. willingness of all parties to *compromise* on what they expect to get from the *model forest*.
iii. *Magnitude*. The land base (usually based on watershed boundaries) must be large enough to incorporate the full range of forest uses and values, and for the outputs from the *model forest* to be able to influence policy.
iv. *Scope of activities* undertaken should reflect the realities and needs at the local and national levels.
v. *Organizational and governance structure* in which partners with different values can work constructively together. The management process must be participatory and transparent, and support consensus building among the partners.
vi. *Commitment to build and share* a knowledge and experience base within the partnership and with others across the network of MFs.

The development of effective partnerships among all stakeholders is the cornerstone of the model forest, and is crucial to the successful implementation of the *model forest approach.* The importance of such partnerships has become more apparent and critical in countries all over the world, as the extent of natural resources decline and populations increase, leading to increasing conflicts over their use. The overlooking or under-appreciation of the diverse needs, priorities and values of all the stakeholders, including forest-dependent and other local communities, and "non-forest sector" users, have led to serious conflicts between such communities/sectors and the respective "authorities", with serious adverse social, economic and environmental impacts. The wider appreciation that sustainable development is unattainable without the sustainable management of forests (Poore et al, 1998) is reflective of the need for inter-sectoral, and not only intra-sectoral, partnerships.

In the development of partnerships among the MF stakeholders, it must be emphasised that the partnership group/committee (or whatever it is called) does not carry any executive authority. It provides a forum for the stakeholders to exchange information and views on all aspects of their activities in the MF, including how they are impacted (positively or negatively) by other actions or interventions in the MF, and facilitates this process. The partnership group may set up technical sub-committees to study specific issues in order to provide sound information on which further discussions, and hopefully appropriate decisions, may be based. Therefore, each MF partner retains her/his right to act as s/he deems appropriate, and s/he cannot be compelled to do otherwise. This is an important aspect to emphasise as often stakeholders may be reluctant to become partners because of concern that they may be surrendering their decision-making right to the partnership group/committee. *However, it is hoped that over time, as the partnerships develop, the decisions taken by each MF stakeholder will take into serious consideration, and balance, the needs, priorities and values of all the stakeholders. It is expected that the experiences and processes developed in each model forest area will serve as working demonstrations that can be emulated elsewhere in Project countries, as well as in other countries. This will require a major shift from the traditional "top-down" approach to the use and management of forest resources in most countries, and a major shift in the way people think and act – which is one of the main challenges in developing MFs.*

The requirement that MFs be based on watershed boundaries, and be large enough to incorporate the full range of forest uses and values, and for its outputs to influence policy, means that we are moving beyond the traditional "forest" boundary into integrated land use. This distinguishes it from most other "model forest", and even sustainable forest management, initiatives which tend to be more narrowly "*forest-focussed*". The *MF approach* emphasises the inter-dependence of all the components of the broader eco-system, and is consistent with the increasing appreciation that the sustainable management of forests must be an integral part of sustainable development.

Rationale for the Regional Model Forest Project

Each participating country in the RMFP was selected for its particular strengths in specific aspects of the MF process. China began the development of the Lin'an MF in 1997, with the assistance of the IMFNS. Myanmar began to develop a "model forest" at Paukkhaung Township in 1999 with the assistance of the Japan International Forestry Promotion and Cooperation Centre (JIFPRO). Thailand began the process of developing a "model forest" at Ngao Demonstration Forest (established in 1964) with the assistance of the International Tropical Timber Organisation (ITTO). The decision of the Philippines to adopt a Community-Based Forest Management Strategy, and an ecosystem approach to land use management, before the RMFP started, provided a firm and consistent foundation for the development of their model forest.

The proper implementation of these initiatives will require strong government commitment and significant resources. Whilst the former has been given, the resources that can be provided by governments have been more limiting. This short-coming has been addressed by facilitating close cooperation and collaboration among the country initiatives and with related on-going regional and international initiatives (e.g. FAO on related initiatives in the region and elsewhere; IMFN on model forests in Project countries as well as from other countries; ITTO and CIFOR on C&I and model forests; RECOFTC on various community-based initiatives and training, etc), so that ideas, information, experiences and expertise can be shared, unnecessary duplication avoided, and consistent approaches (e.g. definitions, criteria/attributes) used; and by adopting a collective and coordinated approach to seeking and securing additional resources for the fuller implementation of the respective model forest initiatives.

Two key aspects of the RMFP are,

i. the implementation of the model forest project in each country is the responsibility of the respective national agency, and the role of the regional project has been primarily to assist in these national initiatives through the provision of regional training opportunities, technical support, (limited) resources (funds, specialists), information and experience from other Project countries and elsewhere, and assistance in securing additional resources from donors and other agencies for the implementation of their model forest activities, and
ii. each MF will be developed at its own pace, recognising that there is no single model and no fixed activities for MF development, and that the prevailing conditions in each country are unique, even though the MF framework is common.

Selection of Model Forests in Project Countries

In addition to the six fundamental MF attributes mentioned above, the following were also considered in selecting or confirming the sites for the model forests in Project countries,

- voluntary participation of stakeholders. Not all stakeholders may want to participate at the beginning, but the process should go ahead with a core group, which should increase in number as the benefits of the MF initiative are demonstrated.
- to demonstrate appropriate best practices and processes for operational scale SFM.
- be replicable, adaptive and responsive to continuous, long term monitoring and improvement.
- be used for research, training, education, capacity building and technology transfer.
- to develop simple and practical criteria and indicators at the project level for assessing the relevance and consistency of action taken, and for tracking progress towards SFM. Common C&I will enable comparison among Project countries, and
- to provide feed-back into national forest and land use planning and policy processes.

Although the approaches to be used in the development of the four model forests may be similar, the primary or underlying purpose may not be the same. The underlying reasons of the four countries for developing *model forests* were,

- *Linan MF, China*
  - consolidate, improve and sustain an expanding NWFP-based economy, and
  - develop the 1st MF in the Chinese MF network.
- *Paukkhaung MF, Myanmar*
  - effect sound and practical forest/land use practices to address shifting cultivation, land/forest use conflicts, and over-intensive/illegal logging, and
  - test application of the Community Forestry Instructions.
- *Ulot MF, Philippines*
  - effect optimal and sustainable use of forest and land within the broader biodiversity conservation context, and
  - build on national CBFM strategy and existing community and people-oriented forestry projects.
- *Ngao MF, Thailand*

- effect sound and practical forest and land use practices to address shifting cultivation, forest and land use for local communities, forest and land use conflicts, and over-exploitation of forest resources, and
- test the application of the (pending) Community Forestry Act.

The general location of the four model forests are shown in *Annex 1.* Brief profiles of the model forests selected in the four Project countries are given in *Annex 2*.

Regional Activities

These have focussed on assisting Project countries in the planning and implementation of their MF activities, providing regional training opportunities for participants from Project countries, establishing contact with current and potential donors and collaborators, and publishing the quarterly Project newsletter and other Project documents.

Project Steering Committee (PSC) meetings have been held in May 2000 in Linan, China, February 2001 in Lampang, near the Ngao MF in Thailand and November 2001 in Pyay, near the Pauk-Khaung MF in Myanmar. The final PSC meeting will be held in July or November 2002 in Tacloban City, near the Ulot Watershed MF in the Philippines. A summary of the regional activities is shown in *Annex 3*.

Project Country Activities

As the MF concept is relatively new to all Project countries, except perhaps China, much of the first year was spent on establishing the groundwork, e.g. establishment of MF national-level and field-level offices; organising national inception workshops; identification of stakeholders; formation of national and local level partnership groups; discussion of stakeholders' activities, needs, priorities, aspirations and ideas; preparation of work plans; assignment/securing of resources; development of partnership working arrangements; collection of baseline data on the MF area; awareness and education campaigns; etc.

From year two onwards, MF activities gained momentum and more attention and priority were given to field-based activities. A summary of the activities carried out with the support of the RMFP is shown in *Annex 4.*

Some Lessons Learnt

Although the development of model forests in the four Project countries is still very new (the "oldest", Lin'an MF is only about three years old), nevertheless, there have been some useful lessons learnt, e.g.

- the development of partnerships of all stakeholders as the "engine" of the model forest development process will take time and much effort to achieve because it is a relatively new concept and will require significant changes in the thinking and attitudes of all stakeholders, from government and NGO officials to private sector, and local communities.
- however, the benefits and long term importance of these changes can already be seen, even at this early stage, e.g.
  - in Lin'an MF, the partnership among the Chinese Academy of Forestry, Linan Forestry Bureau, Zhejiang Forestry College, private sector, various associations, and local communities, have enabled strong technical and research support to be given to the continued development of the bamboo, hickory nut and ecotourism sectors, and also enabled new markets to be developed for the products of the model forest partners.
  - in Paukkhaung MF there has been much more cooperation and collaboration among local communities, the Forest Department (FD) and other MF partners, as well as within local communities, in activities to improve the livelihoods of the people and to protect the forests from over- or illegal use. The FD and Myanma Timber Enterprise

(MTE) are collaborating in a pilot implementation of the Myanmar Code of Forest Harvesting Practice in the MF that will lead to a revision of the CoFHP.
  - in Ulot MF, the MF Approach is providing a timely opportunity to apply the CBFM approach at a higher (i.e. watershed) level, and to coordinate the efforts of (eventually) all the communities in the Ulot watershed. It also has the opportunity to serve as a "model" for the other 12 watersheds in the UNDP/ GEF Samar Island Biodiversity Project.
  - in Ngao MF, "traditionally adversarial" parties, i.e. Royal Forest Department and local communities, are now working together on collaborative activities (e.g. management of natural bamboo forests). Local communities now have a better attitude towards RFD staff.
- voluntary partnerships take time and effort to build and sustain, and the nature and rate of development will depend on the prevailing situations and needs. Despite the encouraging progress in the four Project countries, very much more needs to be done to strengthen the partnerships so that the leadership can be transferred to the partnership groups (instead of being in the National MF Counterpart Agencies).
- ultimately, the success of a MF will depend on the economic viability/ sustainability of its component activities. Lin'an MF has made the most progress in this respect, and the other three MFs have a much longer way to go to reach this goal.
- the MF Approach can provide a forum to ensure that a reasonable balance is maintained between the financial, social and ecological objectives and impacts of all MF activities, thereby help to ensure "balanced" development in the area. For example, in Lin'an MF, the ecological and social impacts of bamboo monoculture and expansion to hill slopes, and of expanding eco-tourism development, are being assessed by the LMF Secretariat. In Myanmar, Philippines and Thailand, the impacts of over-harvesting or illegal removal of forest produce are cause for concern and being assessed.
- the partnerships (including ALL stakeholders) and networking (at local, national and regional levels) provided by the *MF Approach* can help to identify new opportunities for livelihood improvement, business development, training, resource mobilization, working together, etc.
- although development/improvement of livelihoods is of high priority in all four MFs, it is imperative that markets be properly identified and developed before embarking on the production of commodities beyond home/village consumption needs.
- lack of funds, technical/scientific information and access to new technologies will always be constraints, but are not insurmountable with dedicated and innovative staff and approaches.

Next steps and Feed-back to Policy

Field-level (i.e. operational scale) demonstrations of sound (i.e. successful) integrated land use are the most effective means of influencing policy on land use and management at all levels. The model forests being developed are aimed at providing such field-level demonstrations.

However, the approach being used (i.e. through participatory, locally based, inclusive partnerships of all stakeholders on large watershed-based areas) to develop these model forests are processes that will require time and resources to build and sustain. As the MF approach concept is now much better understood and appreciated, the Project countries have built a sound framework so that the MF processes can continue, even after the RMFP ends, to ultimately provide operational scale outputs to feed back into forest and land use policies.

The recent terminal evaluation mission of the RMFP had concluded, among other things, that "*the core attribute of MFs, i.e. voluntary partnerships, is a workable concept that constitutes a unifying framework and important forum for communication amongst stakeholders, and is a*

sensible way forward to help integrate the multi-functional dimensions of natural resource planning and management. …. Taking into account the positive Project results achieved and lessons learnt to-date, additional funding and technical resources to support future MF initiatives be sought to fine-tune and deepen the MF Approach in the Project countries and possible extension to other countries in the region." If additional donor support is available, then the four model forests will be further strengthened, additional model forests established in the four Project countries, and new model forests established in additional countries in the region.

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Annex 1. General location of model forests in China, Myanmar, Philippines and Thailand.

Annex 2a. Project Profile - Lin'an MF, China, and Pauk-Khaung MF, Myanmar.

Annex 2b. Project Profile - Ulot Watershed MF, Philippines, and Ngao MF, Thailand.

Annex 3. Summary of regional activities of RMFP.

Annex 4. Activities in Lin'an, Paukkhaung, Ulot & Ngao Model Forests.

Annex 1. General location of RMFP-associated model forests in China, Myanmar, Philippines and Thailand.

Annex 2a. Model Forest Project Profiles

Project Profile - Lin'an Model Forest, China

Country: People's Republic of China
Location: Lin'an County, Zhejiang Province
Area: 3,126.8 km2, with 2693.3 km2 86% hilly.
Topography: Narrow E-W strip. Lowest point 9m asl in E, highest 1,787.4m asl in W.
Climate: Subtropical monsoon. Annual rainfall 1350~1400 mm. June - rains. Sept. – typhoons.
Geology/Soils: Six categories of soil. Red soil has widest distribution (59%).
Population: 510,300, density 163/km^2, growth 1.21‰. Rural popn. 439,100, or 86.0% of total.
Land tenure: State and collectives are owners of all land. Right of utilization is granted and leased. Cultivation rights recognised in agriculture.
Infrastructure: 39 towns & townships, 661 administrative villages. 3 colleges & technical schools. 1,487 km of highways to 652 villages, or 98.6% of total villages.
Per capita income for farmers: 4,199 Yuan.
Stakeholders: Partnership committee formed in 1999 with 28 partners, with Lin'an Forestry Bureau, Zhejiang Forestry College, Chinese Academy of Forestry as core partners.
Natural resources: Forest land 238,700 ha (76% of total land). *Fauna*: 2,315 species with 36 protected spp. *Flora*: 3,000 species with 35 protected spp.
Water resource: 2.663 billion m3. Source of water for Tai Hu Lake.
Mineral Resources: Over 40 kinds of metal and nonmetal minerals, mostly sodium-base bentonite, fluorite and tungsten.
Tourism resources: Cultural relics, historical interests and natural scenery (mountain peaks, forests, lakes, springs, caves, temples. tombs).
Other main projects: World Bank afforestation loan; bamboo industry devt; 100km green corridor; comprehensive forestry devt; forest protection and management; public welfare forest biology; IDRC "Integrated Farm Forestry Programme"; IDRC-CIFOR "Socioeconomic Approaches to Reclaiming Degraded Lands".
Main problems: adverse ecological impacts of bamboo monoculture & ecotourism inadequately addressed; inadequate information documentation & dissemination; lack of updated scientific & technical information & facilities; lack of funds.
MF priority activities:

- Improve partnerships.
- Pilot projects on ecotourism research and improvement; policy review; watershed management; incentives; M&E, etc
- Develop local newsletter and web-site, and facilitate information exchange..
- Demonstration sites for NTFPs including bamboo (for fresh and dried shoots), hickory, chestnut, gingko and alpine flowers.
- Provide training in sustainable forestry development using training classes, TV broadcasts and lectures.

Project Profile - Paukkhaung Model Forest, Myanmar

Country: Union of Myanmar
Location: Paukkhaung township, Pyay District, Bago Division.
Area: 129,965 ha
Topography: Elevation 100-600m, undulating with gentle slopes.
Climate: Annual average rainfall 1,170mm, usually not exceeding 1,270 mm.
Geology/Soils: Sandy to clayey soils common, with alluvial soils in valleys.
Vegetation: Mixed deciduous ft, moist ft with bamboo, indaing, scrubland, grassland, bamboo, shifting cultivation, permanent agriculture.
Population: 108,732 persons in 21,746 households and 206 villages in 1998. Over 80% are rural.
Land tenure: State is sole owner of all land. Only right of land use is granted and leased. In agriculture, cultivation rights recognised, but not transferable without govt permission.
Infrastructure: 2 irrigation dams, Bago-Yoma Crossing Road, electricity power station, township-level hospital, 16 village health care centres, high, middle & primary schools. Sawmills, sugar mill, 2 breweries & 11 cooking oil mills.
Per capita farmers' income: 60,000 Kyats (about USD170).
Stakeholders: Includes Forest and other Govt Dept, NGOs, local villages and communities.
Forest resource: Mixed deciduous ft (best natural habitat for teak) 50,622 ha (39% of total area), moist ft with bamboo 21,907 ha (17% of total area). Includes 15,204 ha of forest plantations.
Water resource: 6,863 ha (5.3% of total area), with 3 dams.
Tourism resource: Natural and planted teak fts., ancient city site, culture and tradition of Karen and other minorities in Bago-Yoma ft. area.
Other projects: Apart from Forest Dept, the Myanmar Timber Enterprise, Agric, Irrigation, Veterinary, Livestock Breeding & Fisheries Depts., local communities & administrative bodies and NGOs are working in the area. JIFPRO began supporting the MF project in 1999.
Main problems: Shifting cultivation, migration and resettlement, firewood cutting, law enforcement.
MF priority activities:

- Dissemination of MF concept and approach to all stakeholders.
- Establish national and local partnerships committees.
- Management level forest inventory.
- Capacity building in community and agro-forestry.
- Land use assessment.
- Improve farmers' quality of life.

Annex 2b. Model Forest Project Profiles.

Project Profile - Ulot Watershed Model Forest, Philippines

Country: Republic of the Philippines
Location: Samar Island, eastern Philippines.
Area: 86,514 ha
Topography: Moderately to steeply sloping, with elevation of 100-400m asl.
Climate: Wet season Aug-Feb, "dry" season Mar-Apr. Temp. 24°-32°C. Humid.
Geology/Soils: Diorite and granitic intrusives, etc. to S. Siltstones, sandstones, etc to E. Clay to clay loam soils..
Vegetation: Closed lowland dipterocarp ft. (18%), open and semi-closed secondary ft. (46%), brushland and cultivated areas (22%), private land (14%).
Population: 12,632 persons in 2,223 households and 23 forest-edge communities. Population growth under 2%.
Land tenure: 86% state-owned and 14% privately owned. S.I.F.R. proclaimed under PP No.744 in '96. **Infrastructure:** Accessible by road through Paranas-Taft Highway and new south coastal road. Interior reached by Ulot & Can-avid rivers, or hiking along foot trails. MF Project area under 5 municipalities and 2 provinces.
Per capita income: Av. monthly household income USD65 to 99, mainly from farming/shifting cultivation.
Stakeholders: DENR & other Govt. Depts, NGOs, forest-edge and other communities, UNDP/GEF SIBP staff.
Forest resources: 15,300 ha protected closed lowland dipterocarp ft.; 39,500 ha open & semi-closed secondary ft.; 18,700 ha brushland & cultivated areas (buffer zone); 13,014 ha private land. S.I. is one of 18 Centres of Plant Diversity and Endemism in country, with 885 flowering plant spp., (406 endemic), 197 bird spp., 39 mammal spp., 25 reptile spp., 12 amphibian spp. recorded.
Water resources: Third largest of 11 major watershed areas on Samar island. One major river (Ulot/Can-avid) system with outlet in eastern S.I.
Tourism resources: Nature-based attractions. Two natural spring baths for being developed ecotourism.
Other projects: 360,000 ha SIFR is site of 8-year DENR/UNDP/GEF S.I. Biodiversity Project (SIBP). 2 DENR, 1 NGO community f'try projects; 5 integrated social f'try projects; 1 DENR-SIBP-NGO ft. use/food security study; Ph'pines eagle sanctuary.
Main problems: Conflicting tenurial instruments which includes logging rights; conflicting policy interests in logging, mining & biodiversity conservation; fragmented implementation of existing projects; lack of funds to address these issues, inadequate livelihood opportunities; inadequate SFM guidelines & policies; marketing.
MF priority activities:

- Dissemination of MF concept and approach to all stakeholders.
- Preparation and implementation of integrated land use plan.
- "Integration" of POF and other projects.
- Development/strengthening of partnerships and participatory processes.
- SFM best practices demo/documentation..
- Capacity building & institutional strengthening.

Project Profile - Ngao Model Forest, Thailand

Country: Thailand
Location: At watershed of Ngao River, Lampang Province, about 600 km north of Bangkok..
Area: 175,159 ha
Topography: Mountainous with intercepting plains and valleys. Elevation 200-1,300 m asl.
Climate: SW and NE monsoons. Av.temp. 25.6°C; monthly av. 19.3°C in Dec. and 30.2°C in Apr. Ann. aver. rain 1,117.3mm.
Geology/Soils: Recent alluvial and old alluvial terraces, from original limestone and sandstone.
Vegetation: Evergreen (*Anisoptera,* dipterocarp spp, 2.4% of area), mixed deciduous (*Tectona grandis, Xylia kerrii, Dalbergia ovata*, 44.5%), dry dipterocarp ft. (dipterocarp spp., 13.8%), teak ptns (4.0%), non-ft (34%, with 28% shifting cultvn).
Population: About 48,000 persons in 5,170 households and 62 villages. Local people mostly in lowland area along main rivers; hill tribal groups scattered around mountainous area.
Land tenure: About 80% of area State-owned, 20% privately-owned. 40% of area under 2 national parks.
Infrastructure: Traversed by national highway no.1. and provincial highway no. 103.
Per capita income for farmers: Mainly from agric. NTFP-gathering impt. subsistence activity. Recent survey showed 28% with savings; 59% in debt.
Stakeholders: Includes Govt. (forestry and non-forestry sectors), NGOs, land owners, local villagers, forest dependents and other resource users.
Forest resource: Mixed deciduous ft (77,894ha) dry dipterocarp ft (24,191ha) and teak ptns (7,052ha). 1987 survey estimated over 61 bird spp. of 31 families. Serow, bears, wild pigs, wild cats, barking deer, civets, monkeys, squirrels reported by villagers.
Water resource: Includes three main rivers all draining into Mae Yom, the main river in N.Thailand.
Tourism resource: Limestone caves, ancient paintings on limestone, old teak trees and plantations.
Other projects: ITTO MF/SFM & SFM monitoring projects. RFD watershed rehabilitation, teak improvement & ptns., national park, arboretum, elephant care center, UNESCO Biosphere Reserve, community forestry center, etc.
Main problems: Encroachment, illegal logging, over-extraction of NTFPs, conflicts between forest managers and local villagers.
MF priority activities:

- Dissemination of MF concept and approach, and SFM to all stakeholders.
- Preparation and implementation of MF management plan and 5-year working plan.
- Development/strengthening of partnerships and participatory processes.
- Demonstration and documentation of sustainable livelihoods and income-generating activities, and SFM "best practices".
- Capacity building & institutional strengthening.

Annex 3. Summary of regional activities of RMFP
(*activities organised by RMFP shown in italics*)

1. *Regional Inception Workshop*, 21-25 May 2000, at Linan Model Forest, China. RMFP sponsored 3 participants per Project country. 10 resource persons from various national and international agencies (e.g. INBAR, CIFOR, JIFPRO) also attended. Co-sponsored by IMFNS, Chinese Academy of Forestry and Linan Forestry Bureau.

2. International Training Workshop on Sustainable Bamboo Management and Processing Techniques for Small-size Bamboo Enterprises, 04-16 October, Hangzhou, China, organised by INBAR. RMFP sponsored 2 participants each from Myanmar, Philippines and Thailand.

3. 4th workshop on "Model Forests for Field-level Application of Sustainable Forest Management", 23-27 October, Kofu City, Yamanashi Prefecture, Japan, organsied by Forestry Agency of Japan, Yamanashi Prefecture, FAO and IMFNS. Two (2) participants each from Myanmar, Philippine and Thailand MF projects, and 1 from China MF project sponsored by. Forestry Agency of Japan.

4. International **e**cotourism planning and management workshop, 30 Oct.-02 Nov, Chengdu City, Sichuan Province, China. RMFP/USDA Forest Service sponsored 4 participants from Lin'an MF.

5. JICA international training course on "Practical case studies on Sustainable Forest Management" 14 Aug-04 Nov, 2000, Japan. One (1) participant each from the China, Myanmar and Thailand MF projects sponsored by JICA.

6. Community Level Criteria & Indicators Workshop, 16-24 February 2001, in Nepal. One (1) participant each from Philippines and Thailand was sponsored by CIFOR through the RMFP.

7. *2nd PSC meeting and RMFP on "Participatory Processes – Developing Partnerships That Work"*, 19-22 February 2001, in Lampang, Thailand. RMFP sponsored 3 participants per Project country (the 3 RMFP-sponsored participants from Myanmar were unable to attend because of unavoidable circumstances). IMFNS co-sponsored the workshop and 2 additional Philippine participants. Resource persons from IMFNS, RECOFTC, JIFPRO.

8. RECOFTC Facilitation skills for community forestry training course, 21 May-01 June 2001, Bangkok, Thailand. RMFP/IMFNS sponsored 2 participants each from China, Myanmar and Philippines, and 1 from Thailand. 2nd participant from Thailand unable to attend.

9. *Regional Workshop On Field/Model Forest Level Criteria And Indicators For Sustainable Forest Management*, 10-15 June 2001, in Lin'an, China. RMFP sponsored 3 participants per Project country. USDA Forest Service co-sponsored the workshop and provided a resource person. IMFNS provided the lead-facilitator. CIFOR, RECOFTC and CAF provided 1 resource person each.

10. International Conference on Community Forestry - Innovations and Experiences, 25-28 Sept. 2001, Chiang Mai, Thailand. RMFP sponsored 2 participants each from Myanmar, Philippines and Thailand, and 1 from China. 2nd participant from China unable to attend.

11. RECOFTC International Training Course on Managing Conflicts in Forest Resource Management, 05-20 November 2001, Bangkok, Thailand. RMFP sponsored 2 participant each from Myanmar, Philippines and Thailand, and 1 participant from China. 2nd participant from China unable to attend.

12. *3rd Regional Model Forest Workshop on Criteria &Indicators for Sustainable Forest Management in Model Forests*, 25-29 November 2001, Pyay, Myanmar. RMFP sponsored 5 participants per Project country. Resource persons provided by RECOFTC (1), ITTO (1), MTCC (1), FORSPA, JIFPRO (2) and CIFOR (2).

13. International Training Course on Community-based Tourism for Conservation and Development, 04 February – 01 March 2002, RECOFTC, Thailand. RMFP sponsored 1 participant per Project country.

14. *Terminal evaluation of RMFP* by 3-person team. 14 April to 11 May 2002.

15. *Regional Workshop to Develop Guidelines for Measurement of Model Forest Level Indicators for SFM.* 22-27 April 2002, Lampang, Thailand. Organised in collaboration with the Royal Forest Department of Thailand, and IMFNS. RMFP sponsored 4 participants per Project country. One resource person each provided by IMFNS and FMB/DENR.

16. *Regional Workshop on "best practices" for bamboo and hickory cultivation and management, and eco-tourism development in Lin'an MF*. 31 May-12 June 2002, Lin'an, China. Organised in collaboration with the Chinese Academy of Forestry, Lin'an Forestry Bureau, Zheijang Forestry College, Lin'an Model Forest Secretariat and International Network for Bamboo and Rattan (INBAR). RMFP sponsored 3 participants per Project country (the 3 invited participants from Myanmar were unable to attend owing to unforeseen circumstances).

17. *Workshop on forest and related legislation, policies and practices and their impacts on sustainable forest management, and the model forest approach*. 29 July-02 August 2002. Tacloban, Philippines. RMFP to sponsor 3 participants from each MF Project country.

18. *4th & final Project Steering Committee (PSC) meeting & RMFP workshop (theme of "What Next?"* 5 to 6 days in November 2002, in Tacloban, Philippines.

Annex 4. Activities in Lin'an, Paukkhaung, Ulot & Ngao Model Forests.

China

Partnership development

- Establishment of Lin'an MF Cooperation Committee (November 2000), and adoption of LMFCC constitution (March, 2001).
- LMFCC/partners' meetings (quarterly)
- Hickory partners' group, and bamboo partners' group meetings (as needed).
- Lin'an MF partners visits to Nanjing and Shanghai to promote LMF products, including non-pollution vegetables.
- Promote awareness and appreciation of MF concept, objectives, and benefits among stakeholders at all levels, and importance of their contributions

Other activities:

- Review of forest policy changes and their impacts on forest and land use practices and management in Linan County (one year study).
- Assessment and improvement of eco-tourism in Linan MF (one year).
- Assessment of impacts of bamboo mono-culture on the conservation of biodiversity, soil and water (one year).
- Development of pilot GIS-based mapping and integrated planning tool
- Development of best practices guidelines for cultivation and management of bamboo (including general description, distribution, biology, cultivation, tending, silviculture, pests and diseases, management, etc.); cultivation and management of hickory (including description, distribution, propagation, cultivation, management, etc.); eco-tourism development in Lin'an MF; and partnership development.
- Participatory approach to refine and identify selected indicators at field/model forest level, including training workshops.
- Training workshops for MF partners in various aspects of their respective livelihood improvement.
- Training workshop on WTO for Lin'an MF Partners.
- Monitoring and reporting and documentation of Model Forest activities and processes.
- Translation, printing and distribution of (IMFNS) MF Development Guidelines; and RMFP Guidelines for Field-Level Criteria and Indicators for Model Forests.
- Publication and dissemination of PKMF Publication Series, MF Newsletter (in Chinese and English), brochure, pamphlets, etc.
- Development of Video CD (VCD) on Lin'an model forest development.
- Establishment and maintenance of internet web-site for Linan MF.

Myanmar

Partnership development

- National inception workshop & dissemination of Proceedings of National MF Inception Workshop.
- Establishment of Paukkhaung MF partnership committee (August 1999).
- PKMFPC meetings (quarterly).
- Paukkhaung MF community-level partners' (2 to-date) meetings..
- Promote awareness and appreciation of MF concept, objectives, and benefits among stakeholders at all levels, and importance of their contributions

Other activities:

- Review of forest and related policies, legislation and regulations, and their implications on SFM and the MF Approach.
- Socio-economic survey of North Na Win catchment area.

- Preliminary assessment of the extent and severity of degraded forests with a view to recommending the type of rehabilitation needed: A case study from Kyat Kone Reserved Forest, Paukkhaung MF Area
- Rehabilitation of 40 ha of degraded dipterocarp forests.
- Assessment of the effectiveness of the rehabilitation measures
- Assessment and documentation of current land use practices and their long term implications
- Upgrading two forest nurseries to provide free seedlings of fruit trees and other species to local communities.
- Establishment of network of village-level self-reliance nurseries; 5-acre bamboo demonstration plantation; 15-acre village agroforestry demonstration plot; mushroom demonstration farm at FD compound, PKMF office; and model village to demonstrate efficient wood fuel utilization and establishment of fuelwood stands.
- Training workshops on nursery practices; woodfuel utilization; construction of energy-efficient woodfuel stoves; bamboo cultivation & production of value-added bamboo products; mushroom cultivation; post-harvest processing of crops (e.g. groundnut, sesame, etc.);
- Improvement of livelihoods – construction of wells in 5 villages in North and South Nawin Dam catchment areas within Paukkhaung Township; provision of 2 manual sewing machines each to 5 villages in North and South Nawin Dam catchment areas within Paukkhaung Township; distribution of 100 A-1 energy-efficient stoves to selected villages.
- Preparatory and field level workshops on development of field level C&I in PKMF.
- Pilot implementation of National Code of Forest Harvesting Practices (CoFHP) in PKMF , and review and revision of CoHP.
- Training workshops on pilot implementation of National CoFHP, and on forest road opening, maintenance and decommissioning.
- Monitoring and reporting and documentation of Model Forest activities and processes.
- Documentation of guidelines for "*best practices*" for silviculture and management of natural teak forests; CoFHP implementation; Thanakha cultivation; mushroom cultivation.
- Translation, printing and distribution of (IMFNS) MF Development Guidelines; and RMFP Guidelines for Field-Level Criteria and Indicators for Model Forests.
- Publication and dissemination of PKMF Publication Series, MF Newsletter (in Myanma), pamphlets, posters, cartoons, etc.
- Summer camp for students.
- Production of video on PKMF.

Philippines

Partnership development

- National inception workshop & dissemination of Proceedings of National MF Inception Workshop.
- Establishment and operation of project management team
- Consultations with multi-stakeholders, and Ulot Watershed MF stakeholders' workshop.
- Establishment UWMF Stakeholders' Federation (March 2001) and adoption of constitution.
- UWMFSF meetings (BoD monthly, partners quarterly).
- Promote awareness and appreciation of MF concept, objectives, and benefits among stakeholders at all levels, and importance of their contributions

Other activities:

- Review of forest and related policies, legislation and regulations, and their implications on SFM and the MF Approach.
- Upgrading of *barangay* San Rafael multi-purpose hall into MF field information centre
- Project reporting and monitoring.
- Provision of technical assistance and support services to MF partners.
- Collaboration with other agencies/programmes and resource mobilization

- Training workshops on bamboo nursery and plantation establishment, care & maintenance, & proper harvesting; rattan nursery & plantation establishment; *almaciga* resin tapping.
- Establishment of 1 *"central"* bamboo nursery; 1 *"central"* rattan nursery;
- Planting of 5 ha of bamboo (1 ha/*barangay*); and 5 ha of rattan (1 ha/*barangay*).
- Documentation of "*best practices"* for almaciga resin tapping and split rattan production in the Ulot watershed model forest.
- Improvement of livelihoods: training and provision of tools for proper tapping of almaciga resin; training and upgrading of rattan furniture processing in Ulot watershed model forest.
- Development of C&I for SFM in UWMF - Orientation of UWMF stakeholders on field level C&I for SFM; formation of C&I field teams, data gathering tools and analysis guide; training of field teams; initial feedback on data gathering results and experiences; testing feasibility of selected indicators and review of data analysis guide; follow-up training of C&I field teams; and final screening of indicators and completion of the data gathering and analysis guide.
- Perimeter Survey at Barangay Lawaan, Casandig, Cantato and Lokilokon, Paranas, Western Samar and Issuance of Community-Based Forest Management Agreement (CBFMA)
- Publication and dissemination of UWMF Publication Series, local MF Newsletter (in *Waray* and English), pamphlets, posters, cartoons, etc.
- Monitoring and reporting and documentation of Model Forest activities and processes.

Thailand

Partnership development

- National inception workshop.
- Identification of, and consultations with, stakeholders.
- Establishment of interim Ngao MF Partnership Committee (Oct. 2001), adoption of draft constitution (April 2002).
- Visit to successful NGO initiatives in Nan and Phrae Provinces.
- Promote awareness and appreciation of MF concept, objectives, and benefits among stakeholders and importance of their contributions.

Other activities:

- Review of forest and related policies, legislation and regulations, and their implications on SFM and the MF Approach.
- Socio-economic survey of Ngao Demonstration Forest.
- Collaborative management of "wild bamboo" with local communities.
- Establishment of bamboo "*best practices*" demonstration plantation.
- Establishment of seed/clone bank for local bamboo and medicinal plants.
- Preparation of guidelines/manual for bamboo cultivation and management; and production of bamboo sticks and charcoal.
- Development and Monitoring of Criteria and Indicators for Ngao MF; refinement and screening of selected indicators.
- Establishment of nursery and training on promotion of economic NTFPs
- Assessment and promotion of planting and use of rain tree (*Samanea saman*) for wood carving, lac-production, etc.
- Assessment and promotion of utilization and cultivation of Paper Mulberry (*Brousonetia papyrifera*).
- Promotion of rearing edible insects and scorpions to support local income.
- Visit by Ngao MF partners to successful bamboo enterprises/organisations outside Ngao MF.
- Summer camp in Ngao MF for local youths.
- Publication and dissemination of Ngao MF Publication Series, MF Newsletter (in *Thai*), pamphlets, posters, etc.
- Inventory of Ngao Demonstration Forest (ITTO-funded activity).
- Rehabilitation of mixed deciduous forest.

- Monitoring and reporting and documentation of Model Forest activities and processes.
