*Asia-Pacific Network for Sustainable Forest Management and Rehabilitation*

# PROJECT PROPOSAL

## Sustainable Forest Rehabilitation and Management for the Conservation of Trans-boundary Ecological Security in Montane Mainland Southeast Asia– Pilot Demonstration Project of Lao PDR, Myanmar and China/Yunnan (SFR-MMSEA)

*SERIAL NUMBER: APFNet /2012/PP/03*

The United Nations University Institute for Sustainability and Peace (UNU-ISP)
The Yunnan Academy of Forestry (YAF), China
The National Agriculture and Forestry Research Institute (NAFRI), Lao PDR
The Forest Research Institute (FRI), Myanmar

Submission date: 27September 2012

# Project Proposal General Information

**(Submission Date:27/September/2012)**

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| Project title:<br>Sustainable Forest Rehabilitation and Management for the Conservation of Trans-boundary Ecological Security in Montane Mainland Southeast Asia– Pilot Demonstration Project of Lao PDR, Myanmar and China/Yunnan (SFR-MMSEA) | |
| Project seriesnumber:<br>*(To be filled in by APFNet Secretariat)* | Receiving date by APFNet Secretariat:<br>*(To be filled in by APFNet Secretariat)* |

**Outline of the project:**

The Montane Mainland Southeast Asia (MMSEA) encompasses the northern region of Thailand, Lao PDR and Vietnam, the Yunnan Province of China, and the Kachin and Shan States of Myanmar extending to Northeastern India. MMSEA is home to a diversity of ethnic minority groups, tropical forests and endangered and endemic species of global significance. MMSEA serves as a watershed for a few large rivers in the sub-region, including the Lanchang-Mekong, the Ru-Salween, the Red River, the Yaluzangbu-Brahmaputra, the Irrawaddy, the Pearl and the Yangtze. However, MMSEA suffers from severe deforestation with negative impacts on ecology, hydrology and local livelihoods, resulting from inappropriate land use change under internal and external pressures. Past efforts to rehabilitate degraded land are often through mono-species plantations with limited contribution to restoration of ecosystem services.

The project aims to create new knowledge and alternative options for sustainable forest rehabilitation and management in the target areas among Laos, Myanmar and Yunnan of China for safeguarding the trans-boundary ecological security in the MMSEA region. The specific objectives are:

- Identify and adapt the best practice for forest rehabilitation in the target areas and around the MMSEA
- Experiment and demonstrate good practice for forest rehabilitation, especially use of locally preferred, rare and endangered native tree species as well as local knowledge
- Develop capacity in sustainable forest rehabilitation and reach out to farmers and policy makers
- Integrate project lessons and network with other initiatives for a regional strategy on sustainable forest rehabilitation

The project will be carried out through partnerships at all levels in four demonstration sites in Lao PDR, Myanmar, and Yunnan Province of China. One demonstration site is located in Northern Laos. One is in Northern Myanmar. Two demonstration sites are located in Yunnan, one in the border area with Northern Laos and the other in Northern Myanmar. The project will focus on these sites with similar ecological conditions but different capacities, approaches and socio-economic contexts in addressing forest degradation in mountainous regions, as a way of enabling exchange of experiences and knowledge, cross-fertilization of ideas and stimulation of innovative approaches and action. A minimum set of criteria is used for site selection in the participating economies. These criteria include policy relevance, cultural diversity, traditional shifting cultivation in transition toward permanent agriculture (such as plantations and agroforests) for subsistence and market, significant extent of degraded forests, consent of local villagers, endorsement of government or relevant agencies, feasibility and accessibility of the sites selected, and priority forest ecosystems along the international river watersheds in MMSEA. The selected sites in three economies represent a wide range of ethnic groups of the mountainous area in the region on a broad geographical area both within and between the economies. The sites reflect the reality of the region where the rich diversity exists, i.e., biophysical, economic, social as well as cultural diversity.

| **Project commence date:** 2012 | **Project completion date:** 2014 | |
|---|---|---|
| **Total budget:** US$ 650,000 | **APFNet's grant :** US$ 500,000 | **Counterpart contribution from UNU, NAFRI, FRI and YAF *(in cash and in kind)*:** US$ 150,000 |

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Date: 27 September 2012

**Abbreviations and acronym**

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|---|---|
| *APN* | *Asia-Pacific Network for Global Change Research* |
| *FRI* | *Forest Research Institute, Myanmar* |
| *GEF* | *Global Environment Facility* |
| *ISP* | *Institute for Sustainability and Peace* |
| *MMSEA* | *Montane Mainland Southeast Asia* |
| *NAFRI* | *National Agriculture and Forest Research Institute, Lao PDR* |
| *NTFP* | *Non Timber Forest Products* |
| *PAG* | *Project Advisory Group* |
| *PCO* | *Project Coordination Office in United Nations University* |
| *PSC* | *Project Steering Committee* |
| *REDD+* | *Reducing Emissions from Deforestation and Forest Degradation, including Conservation of forest carbon stocks, Sustainable management of forests, and Enhancement of forest carbon stocks.* |
| *SFR* | *Sustainable Forest Rehabilitation and Management* |
| *UNEP* | *United Nations Environment Programme* |
| *UNU* | *United Nations University* |
| *YAF* | *Yunnan Academy of Forestry* |

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## 1.Background and Rationale

Mountains occupy about one fifth of Earth's terrestrial surface home to 20% of the world's human population and provide humankind with multi-functional resources and services. Mountains serve as "water towers" to half of humankind in one way or the other. Mountains harbor high biological and ethno-cultural diversity. Mountain forests play a critical role in the mitigation of natural risk hazards (erosion and landslides), conservation of soil and water, and provide vital food and fodder during lean periods. Conservation and sustainable management of mountain forests are not only a necessary condition for sustainable local livelihoods, but also a key to human well-being for nearly half the world's population who live downstream. However, mountains are fragile forest ecosystems. Internal and external pressures driving land use systems towards unsustainable forms put the integrity of the fragile mountain forest ecosystems at risk in many parts of the world.

The Montane Mainland Southeast Asia (MMSEA) encompasses the northern region of Thailand, Laos and Vietnam, the Yunnan Province of China, and the Kachin and Shan States of Myanmar extending to Northeastern India and is home to some of Asia's poorest and most disadvantaged people, many of whom represent a diversity of ethnic minority groups. MMSEA contains a major section of Southeast Asia's last remaining tropical forests and harbors a diversity of endangered and endemic species of global significance. MMSEA serves as watersheds for a few large rivers in the sub-region, including the Lanchang-Mekong, the Ru-Salween, the Red River, the Yaluzangbu-Brahmaputra, the Irrawaddy, the Pearl and the Yangtze. In spite of ecological importance, MMSEA has suffered severe deforestation resulting from inappropriate land use change under internal and external pressures.

Due to rapid population growth and lack of alternative livelihoods, the over exploration of natural resources has been an approach for economic development in parts of MMSEA. The excessive deforestation and unsustainable collection of NTFPs have not only degraded the function of forest ecosystem and caused a series of social and economic problems, but also hampered the improvement of local people's livelihood and the sustainable management of nature resources in line with safeguarding the trans-boundary ecological security in the MMSEA region. Cross-border flow and exchange of agricultural and forest products have created great demand for and extraction from natural resources. Presently, many urgent problems need to be resolved, such as ecological rehabilitation, biodiversity conservation, and poverty alleviation and so on. Some specific reasons for the proposed project to be located in MMSEA include that MMSEA is:

(1) Part of global biodiversity hotspot due to the high species diversity and richness on endemic species;
(2) Home to diversity of ethnic minority and culture with poor economic condition;
(3) Under threat of continuous loss of biodiversity, fragmentation and degradation of forest habitats and international watershed, including the Lanchang-Mekong Basin;
(4) Region where civil society efforts in nature conservation have not yet been well developed and supported.

Currently, much attention is being paid to conserve rich but fragile forest ecosystems in MMSEA region. However, most reforestation projects for rehabilitation of forest vegetation launched by governments are promoting mono-species plantations with use of exotic fast-growing tree species, and many valuable, rare and endangered native species are not used for reforestation. Meanwhile, local people's indigenous knowledge and techniques on native species are not fully appreciated by those projects.

## 2. Project Goal and Objectives

**Goal:**

The goal of the project is to create new knowledge and alternative options for community-based sustainable forest rehabilitation and management for up-scaling and replication in the wider MMSEA region in order to improve upland people's livelihoods and safeguard the trans-boundary ecological security in MMSEA.

**Specific Objectives:**

In order to implement a demonstration of the sustainable forest rehabilitation in the border areas among Laos, Myanmar and China, the project will have the following objectives:

1) Identify and adapt the best practice for forest rehabilitation in the target areas and around the MMSEA;

2) Experiment and demonstrate good practice for forest rehabilitation, especially use of locally preferred, rare and endangered native tree species as well as local knowledge;

3) Develop capacity in sustainable forest rehabilitation and reach out to farmers and policy makers;

4) Integrate project lessons and network with other initiatives for a regional strategy on sustainable forest rehabilitation for wider replication in MMSEA.

Myanmar has the most institutional support.
He supports the 2nd phrase.

Title: The title is big, objectives are specific, the objectives are to some extent away from what they are doing. The title is terrible, but objectives are more important.

Objectives that are achieved:

1. Forest rehabilitation, get forest back there, improve degraded forests.
    1) Reducing negative impacts of local agriculture, ensure income that doesn't decrease
    2) Increase forest ecosystem.
2. Convert forest component of agriculture. Have more trees on the field, more forest environment services.

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## 3. Expected Outputs and Outcomes

**Expected Outcomes:**

1) Knowledge of ecological, social, cultural and economic processes associated with forest degradation and rehabilitation in pilot sites is enhanced.

**Expected outputs:**

a) Assessment of the threats and issues of forest degradation and biodiversity losses in selected pilot sites among China, Laos and Myanmar through the basic field inventory of natural resources status

b) Synthesis of good practices, experiences and lessons, including local knowledge learned from past forest rehabilitation and management in MMSEA

c) Sustainable forest resources management plan, including customary forest classification and management for each pilot project site in Laos, Myanmar and China/Yunnan Province through participatory process involving local communities, authorities and scientists

2) Replicable and adaptable model for community-based rehabilitation of degraded forests practices and related toolkits are developed and demonstrated at pilot sites.

**Expected outputs:**

a) Database of locally preferred, rare and endangered native tree species, site requirements, and techniques for preparation of seedlings and planting materials

b) Techniques for soil improvement in degraded areas for tree planting

c) Agroforestry systems, including understory cultivation

d) Toolkits to facilitate social fencing of assisted natural regeneration

e) Package for alternative rural energy

f) 10-20 ha of demonstration plots established at each pilot site

3) Capacity of different target groups including local communities and authorities, and young researchers in sustainable rehabilitation and management of degraded forests through tailored made capacity building programmes is strengthened.

**Expected outputs:**

a) On-job training of young generation up to 15 junior researchers and graduate students in assessment of forest degradation and rehabilitation

b) Training of farmers, community leaders, extension workers and local officials in application of sustainable forest rehabilitation models and toolkits

4) Strategies and mechanisms for up-scaling the effective practices on sustainable rehabilitation and management of degraded forests are developed and disseminated.

**Expected outputs:**

a) A strategy for up scaling and replication of findings at local and sub-regional levels

b) An information network and website on community based sustainable forest rehabilitation in the sub-region to deepen collaboration for safeguarding trans-boundary ecological security.

## 4. Main Activities Plan

The implementation of this project includes 4 major components:

(1) Interdisciplinary assessment and participatory land use planning;

(2) Field experiment and demonstration;

(3) Capacity development and training module design; and

(4) Mainstreaming and scaling up.

This project will ensure the equitable benefit of all stakeholders and facilitate the full participation of local communities. As the project progresses, cross-cutting of these components is crucial, e.g., activities to enhance capacity of local institutions and human resources for forest rehabilitation. Each component requires different approaches and methods.

For assessment, team approach will be adopted with integrated and comparative perspective. Village forest resources will be characterized and sustainable forest development plan will be prepared with local communities and authorities at different levels. A number of approaches and methods will be applied to field demonstration. Potential key intervention or actions would be expected for on-farm experimentation and demonstration. The participation of farmers and local stakeholders in field survey, characterization of village forest resources and forest development planning process, on-farm experimentation and demonstration could serve as on-site fieldwork training for local communities and authorities. In-house training will be made in connection with the processes of questionnaire data analysis, remote sensing, forest inventory, soil analysis, documentation and reporting. Training modules and toolkits will be developed and pre-tested for future application on a wide scale.

Lessons learned from three economies will be synthesized and packaged as models and toolkits for forest rehabilitation with collaboration between local communities, practitioners and local authorities for wider replication. The project's results will be synthesized and disseminated to support mainstreaming and scaling up of the successful experiences. Concepts, techniques as well as series of cases will be integrated into university curricula for the younger generation. The effective project experiences, knowledge and techniques will be replicated and disseminated widely by the way of inter-community driven networking and participatory approaches. In addition, expertise from outside will be involved in the project implementation and exchanged with other relevant initiatives around the region.

Four demonstration sites are selected in Lao PDR, Myanmar, and Yunnan Province of China. One demonstration site is located in Northern Laos. One is in Northern Myanmar. Two demonstration sites are located in Yunnan, one in the border area with Northern Laos and one in Northern Myanmar. The project will focus on these sites with similar ecological conditions but different capacities, approaches and

socio-economic contexts in addressing forest degradation in mountainous regions, as a way of enabling exchange of experiences and knowledge, cross-fertilization of ideas and stimulation of innovative approaches and action. A minimum set of criteria is used for site selection in the participating economies. Thesecriteria include policy relevance, cultural diversity, traditional shifting cultivation in transition toward permanent agriculture (such as plantations and agroforests) for subsistence and market, significant extent of degraded forests, consent of local villagers, endorsement of government or relevant agencies, feasibility and accessibility of the sites selected, and priority forest ecosystems along the international river watersheds in MMSEA. The selected sites in three economies represent a wide range of ethnic groups of the mountainous area in the region on a broad geographical area both within and between the economies. These sites reflect the reality of the region where the rich diversity exists, i.e., biophysical, economic, social as well as cultural diversity. Communities in the demonstration site will cooperate with regard to the use of degraded forest land for experiment and demonstration.

The project outcomes will provide benefits to local communities and authorities, and training of young researchers with potential replication in MMSEA. In response to the project outcomes and outputs, the proposed project components and activities within each component are described as follow:

**Component 1:**Interdisciplinary assessment and participatory planning for sustainable forest development.

- **Activity 1.1**Basic field inventory of natural resources status to assess the threats and issues of forests degradation and biodiversity losses in selected pilot sites among China, Laos and Myanmar. A framework will be developed to collect ecological, social, cultural and economic data and analyze forest degradation and rehabilitation processes to establish a solid and holistic understanding of the forest quality and management dynamics at farm and community levels and the driving forces at various levels.
- **Activity 1.2**Reviews ofexperiences and lessons, learned from past forest rehabilitation and management in MMSEA, and to identify good practices, including local knowledge.
- **Activity 1.3** Participatory planning for sustainable forest resources management at each pilot project site. The guidelines will be prepared to carry out forest development planning with full participation of farmers and communities at the project sites.

**Component 2:** Experiment and demonstration for rehabilitation of degraded forests in pilot sites, including different approaches and methods.

- **Activity 2.1** Upland nurseries for preparing seedlings and planting materials of rare and endangered native tree species.
- **Activity 2.2** Soil improvement and rehabilitation of degraded forestland.
- **Activity 2.3** Upland agro-forestry based models, including understory cultivation.
- **Activity 2.4** Participatory social fencing for natural regeneration of degraded forests.
- **Activity 2.5** Alternative rural energy development, including bio-gas construction and improvement of energy efficiency stove at household level to reduce pressure on fuel

wood collection.

**Component 3:** Capacity building among different target groups, stakeholders and partners through the activities of training, workshop, study tours, information sharing and experiences exchange among project partners in China, Laos and Myanmar.

- **Activity 3.1** On-site and in-house training/exchange for young researchers and students on interdisciplinary assessment of forest degradation and rehabilitation.
- **Activity 3.2** Design and provision of training modules and toolkits on forest rehabilitation to train farmers, community leaders and extension workers and local officials with inputs of expert farmers in demonstration sites.

**Component 4:** Integrate project experience, indigenous and scientific knowledge and network with partners to develop a regional strategy for safeguarding the trans-boundary ecological security.

- **Activity 4.1** Synthesis of the project findings for up-scaling from local to sub-regional levels, including integration into university curricula for training of young generation and incorporation into relevant regional initiatives and programmes and development of large-scale programme at sub-regional level. The results from demonstration sites will first inform sustainable forest management plan at the sub-district or township level. This will then serve as a model for the up-scaling at higher levels with active participation of stakeholders who are involved with the project to develop up-scaling plans. Drawing on local experiences, the project will formulate a strategy for up-scaling and replication of findings at sub-regional level to be discussed at a sub-regional workshop in cooperation with other regional initiatives for the wider replication of the project findings.
- **Activity 4.2** Establishment of an information network among participating institutions to exchange relevant information and experiences. The network will be also linked to other relevant initiatives in the region. The information network would extend project findings beyond the sub-regional at larger scale. UNU will also set up the webpage on community based sustainable forest rehabilitation for dissemination of the project findings beyond the project cycle.

**Potential risks and uncertainties that might impede the achievement of the project objectives:** Security risks along the border areas might arise to impede implementation of field work. Careful selection of the secure demonstration sites as well as some back-up sites in consultation with governments at all levels will help reduce the security risks. The unexpected climatic conditions might also delay and damage field demonstration. Careful distribution of demonstration plots on the village landscape as well as selection of appropriate tree species will mitigate climatic risks. Strong and active participation of local communities and governments will be essential to the success of the project. Criteria for site selection will include consultation with local communities and authorities as well as free and prior informed consensus of local communities.

Annex A and Annex B provide additional details on project framework and work plan. Annex E describes four project sites.

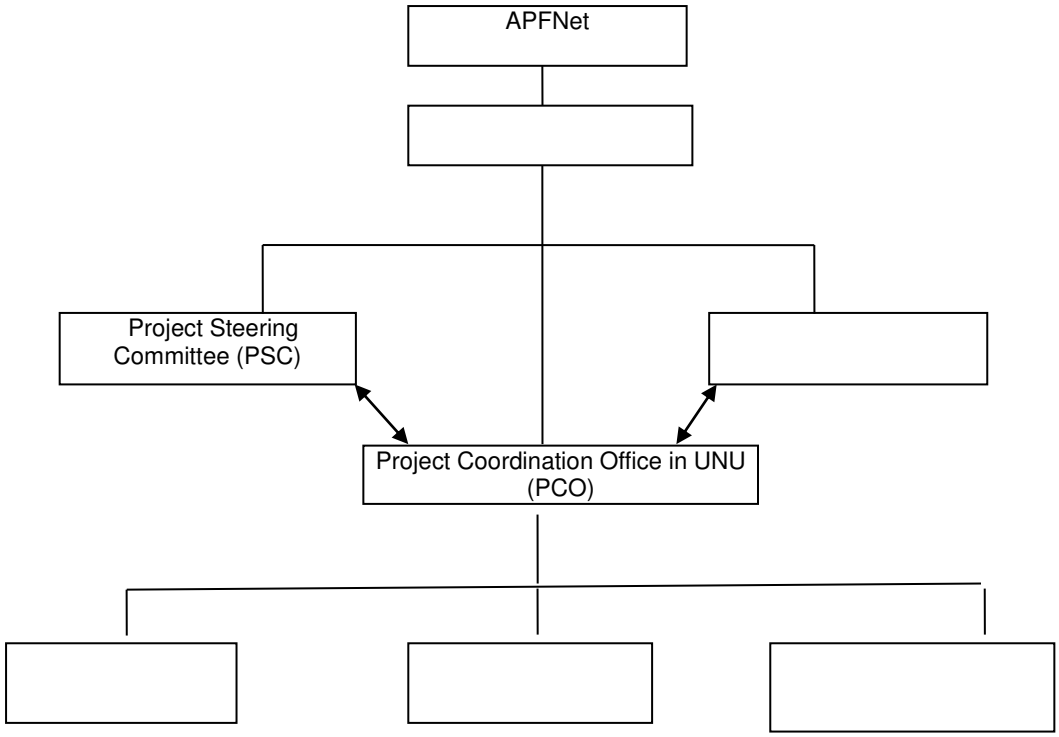
## 5. Project ManagementStructure

This project will be implemented by United Nations University (UNU) in collaboration with the Yunnan Academy of Forestry (YAF), the National Agriculture and Forestry Research Institute (NAFRI) of Lao PDR, and the Forest Research Institute (FRI) of Myanmar. A Project Steering Committee of the project (PSC) will be established and composed of the leaders of each of threeproject teams, the UNU Academic Programme Officer, as well as official representatives fromUNU, APFNet and the government authorities(Ex-Officio of PSC). PSC is especially responsible for reviewing progress, determining forward plans, and advising on the programme of cross-site activities. PSC will meet as a body once in each year. A Project Advisory Group (PAG) will be formed to offer technical support towards the harmonization of the project methodologies, the integration of the project results, and the internal monitoring of the progress in the project sites across the three participating economies, advanced training and the scientific linkages with relevant initiatives in MMSEA and beyond.The members of the Project Advisory Group (PAG) will be selected according to the expertise of across-site relevance. Both PSC and PAG will work closely with the UNU project office to ensure effective planning and implementation of the cross-siteprogramme. The organizational structure is illustrated in Figure 1.

UNU's key role is to provide project coordination and technical support to the project teams advised by the Project Steering Committee (PSC) and the Project Advisory Group (PAG). UNU will specifically, develop the project implementation plan and methodology in consultation with project teams, issue contracts and monitor the budget, regularly assess the project against its objectives and goals, coordinate the organization of cross-siteprogramme, take responsibility for final report writing, lead communications and dissemination, maintain project documentation online, and facilitate collaboration with other international institutes and networks. A Project Coordination Office (PCO) will be established at UNU.

Project collaborators with experience and expertise in ecology and forest management in China, Laos and Myanmar will be the backbone to this project. Their key roles are: coordination, field work, regular reporting, organization of project workshops and training programme, supervision of students' work and local staff, local surveying, and acting as a key focal point for engagement with local communities and authorities. Scientific contribution made by each team includes:

Figure 1: The organizational structure




Notes on members of PSC, PAG and PCO:

1) Members in Project Steering Committee (PSC):
   - OrothSengtaheuanghoung, Deputy Director, Agriculture Land Research Center, National Agriculture and Forestry Research Institute (NAFRI), Lao PDR
   - Zaw Win Myint, Director, Forest Research Institute, Myanmar
   - YangYuming, President, Yunnan Academy of Forestry (YAF);Director, Yunnan Academy of Biodiversity, China
   - Liang Luohui, Academic Programme Officer, United Nations University Institute forSustainability and Peace (UNU-ISP), Japan
   - Chair: Prof. Kazuhiko Takeuchi, Vice Rector, United Nations University, Tokyo

2) Members in Project Advisory Group (PAG):
   - Members to be determined in response to needs of the project implementation
   - Chair: Prof. Yang Yuming, President, Yunnan Academy of Forestry (YAF); Director, Yunnan Academy of Biodiversity, China.

3) Members in Project Coordination Office in UNU-ISP (PCO):
   1) Liang Luohui, Academic Programme Officer
   2) HirokoKuno,Administrative and Programme Support Coordinator
   3) Jintana Kawasaki, Researcher

Annex F and G introduce project partner institutions and project personnel.

## 6. Project Financial Management Procedure

UNU will cover effort and time invested by UNU stafffor project coordination, technical support for field assessment and land use planning and capacity building. UNU will also contribute to the project by

covering the partial expenses of the workshop, training, and monitoring missions.Project partners including the Yunnan Academy of Forest (YAF) of China, National Agriculture and Forestry Research Institute (NAFRI) of Laos and Forest Research Institute (FRI) of Myanmar will also make contributions to the project implementation in terms of staff time, research facilities and organisation of workshops. UNU has contributed staff time to meet costs related to the project's inception. The project budget is presented by activity in Annex C and by component in Annex D.

## 7. Reliability and Reproducibility

Through the project implementation, local communities and authorities are expected to make more responsible land use decision through enhanced awareness of their upstream positions in the international watersheds. This will ensure the environmental sustainability of the project interventions. Institutional strengthening will be a key to the project implementation. The project partners in Lao PDR, Myanmar and Yunnan Province of Chinawill help integrate the project lessons into the ongoing implementation of forest rehabilitation action plans under various line agencies. The main support of the governments and international community at all levels for sustainable forest rehabilitation and management (SFR) in the region is expected to continue and expand along with the rapid integration of regional economies.

The project will bring synergy between local skills/initiatives and the implementation of sustainable development program for achieving the policy objectives on poverty reduction and forest conservation. The lack of such synergy in policy implementation would result in costly operational costs and would be counter-productive in terms of contributing to the well being of local people and the conservation of natural resources. Networking with relevant projects in the participating economies as well as other economies in the region would also prevent costs related to duplication and enable prompt sharing of lessons learned. Finally, the project will start with identification and demonstration of local good practices so as to reduce the cost and time needed for the conventional process of experimentation-extension-replication.

The project will develop the community-based SFR model with toolkits with potential replication in the MMSEA region and other similar mountainous regions. The replication and extension of the project ideas and lessons in other similar areas in the participating economies will be achieved by educating trainers. The training will be based on the SFR model and toolkits, and other project findings and the demonstration activities. Policy forums with the support of project teams in each of three economies will help advocate the project ideas and approaches at a wider scale. The training materials on the SFR model and toolkits will be integrated into the existing mainstream training programmes and the extension system at sub-regional, provincial and local levels.

The exchange with other initiatives and other partners through the networks of UNU and other partners will provide an important channel for the dissemination of the project findings in various part of the region. The project will also develop a strategy from local to sub-regional levels to further mainstream the SFR in the MMSEA region. The new knowledge will be incorporated into the postgraduate and professional training programme of the participating institutions. This international partnership developed through this project will also serve as an example for other initiatives to foster the regional cooperation.

**Annexes**

Annex A: Project logical framework

Annex B: Project work plan

Annex C: Project budget by activity

Annex D: Project budget by component

Annex E: Project sites map and general information

Annex F: Capacity assessment of the project executing agency and partnership organizations

AnnexG: Curriculum Vitae(CV) of Project Management Board and Technical AssistancePartner

**Annex A: Project Logical Framework**

| | Intervention logic | Objectively verifiable indicators of achievement | Sources and means of verification | Assumptions/Risks |
|---|---|---|---|---|
| **Goal** | To create new **knowledge** and alternative **options** for community-based sustainable **forest rehabilitation** and management for up-scaling and replication in the wider MMSEA region in order to improve upland people's livelihoods and safeguard the trans-boundary ecological security in MMSEA. | By end of project:<br>1. **Guidelines and training materials** for sustainable forest rehabilitation prepared, disseminated and applied at local, and sub-regional levels;<br>2. At least 100 ha of **degraded forest land** are rehabilitated with increase in net primary productivity, biodiversity and carbon stocks at project sites and potential sites for replication identified in MMSEA region;<br>*3.* Local communities at project sites to have **an improved and more diversified livelihood** base and to benefit from forest rehabilitation. | 1. **Final evaluation** of the project;<br>2. **Published guidelines** and training materials;<br>3. Improved **policy implementation** plans;<br>4. **Participatory rural appraisal (**PRA) at project sites. | **Assumption:**<br>Strong commitment and active participation of the project partners, local governments and communities<br><br>**Risks:**<br>Security of demonstration sites along the border areas, and normal climate |
| **Objectives** | 1.Identify and **adapt the best practice** in the target areas and around the MMSEA<br>2.Experiment and **demonstrate good practice** for forest rehabilitation<br>3.**Develop capacity** and reach out to farmers and policy makers | 1. Interdisciplinary **dimensions of forest degradation** and rehabilitation and best practices analyzed and compiled into a synthesis and local forest management plans developed;<br>2. Various **sustainable practices** for forest rehabilitation demonstrated; | Thematic reports on 1) Best practices and participatory forest management planning; 2) Field demonstration and PRA; 3) Capacity building; 4) Up-scaling and replication. | **Assumption:**<br>Strong commitment and active participation of the project partners, local governments and communities |

| | Intervention logic | Objectively verifiable indicators of achievement | Sources and means of verification | Assumptions/Risks |
|---|---|---|---|---|
| | 4.Integrate project lessons and network with other initiatives for a **regional strategy** on sustainable forest rehabilitation for wider replication in MMSEA | 3. **Target groups trained** in forest assessment and rehabilitation;<br>4. A **regional strategy** and web site for up-scaling developed | | **Risks:**<br>Security of demonstration sites along the border areas, and normal climate |
| **Expected outcomes/ outputs** | 1. **Knowledge of ecological, social, cultural and economicprocess** associated with forest degradation and rehabilitation in pilot sites enhanced<br>**Expected outputs:**<br>a)Assessment of the threats and issues of forests degradation and biodiversity losses in selected pilot sites<br>b)Synthesis of experiences and lessons from past forest rehabilitation and management in MMSEA<br>c)Participatory forest management plan, including customary forest classification and management for each pilot project site in three participating economies | 1.Characterization of the **threats** and issues of **forests degradation** and **biodiversity losses** at pilot project sites;<br>2. **Guidelines** for forest degradation assessment<br>3. **Interdisciplinarydimensions** of forest degradation and rehabilitation and best practices collected, analyzed and compiled into a synthesis;<br>4. **Guidelines** for participatory forest management planning<br>5. Local forest **managementplans** developed. | Thematic report on 1) The threats and issues of forests degradation and biodiversity losses at pilot project sites; 2) Synthesis of past experiences and lessons, and best practices; 3) Participatory forest management planning. | **Assumption:**<br>Strong commitment and active participation of local communities and governments<br><br>**Risks:**<br>Stable security of demonstration sites along the border areas |

| | Intervention logic | Objectively verifiable indicators of achievement | Sources and means of verification | Assumptions/Risks |
|---|---|---|---|---|
| **Expected outcomes/ outputs** | 2.Replicable and **adaptable model** for community-based rehabilitation of degraded forests practices and related toolkits are developed and demonstrated at pilot sites<br>**Expected outputs:**<br>a)**Database** of locally preferred, rare and endangered native tree species, site requirements, and techniques for preparation of seedlings and planting materials<br>b)**Techniques** for soil improvement in degraded areas for tree planting<br>c)**Agroforestry systems**, including understory cultivation<br>d)**Toolkits** to facilitate social fencing of assisted natural regeneration<br>e)**Package** for alternative rural energy<br>f)At least 10 ha of **demonstration plots** established at each pilot site | 1.**Site requirements** and techniques for<br>2.Preparation of **seedlings and planting** materialsof locally preferred, rare and endangered native tree species assessed and demonstrated;<br>3.Techniques for **soil improvement** in degraded areas for tree planting experimented and demonstrated;<br>4.**Agroforestry systems**, including understory cultivation experimented and demonstrated;<br>5.**Toolkits** to facilitate social fencing of assisted natural regeneration identified and demonstrated;<br>6. **A manual** of the forest rehabilitation models and toolkits<br>7.Package for **alternative rural energy** devised;<br>8.At least 10 ha of **demonstration plots** established at each pilot site | 1.Thematic report on field demonstration<br>2. PRA at project sites against the baseline data. | **Assumption:**<br>Strong commitment and active participation of local communities<br><br>**Risks:**<br>Stable security of demonstration sites along the border areas, normal climate |

| | Intervention logic | Objectively verifiable indicators of achievement | Sources and means of verification | Assumptions/Risks |
|---|---|---|---|---|
| | 3.**Capacity of different target groups** in sustainable rehabilitation and management of degraded forests<br>**Expected outputs:**<br>a)On-job **training of young generation** up to 15 junior researchers and graduate students in assessment of forest degradation and rehabilitation<br>b)**Training of farmers**, community leaders, extension workers and local officials in application of sustainable forest rehabilitation models and toolkits | 1.Up to 15 **junior researchers and graduate students** participated in on-job training of young generation in assessment of forest degradation and rehabilitation carried out;<br>2. **Farmers, community leaders**, **extension workers and local officials** joined field training and school in sustainable forest rehabilitation models and toolkits organized. | 1.Thematic report on capacity building<br>2. Research reports of students and young researchers | **Assumption:**<br>Strong commitment and active participation of local communities and governments<br><br>**Risks:**<br>Stable security of demonstration sites along the border areas |
| | 4. **Strategies and mechanisms** for up-scaling the effective practices on sustainable rehabilitation and management of degraded forests are developed and disseminated.<br>**Expected outputs:**<br>a)**A strategy** for up scaling and replication of findings at local and sub-regional levels | 1.**A regional strategy** for up scaling and replication of findings at local and sub-regional levels prepared;<br>2. **An information network** and website on sustainable forest rehabilitation in the sub-region established. | Thematic report on up scaling and replication. | **Assumption:**<br>Strong commitment and cooperation of project partners and stakeholders at local and sub-regional level |

| | Intervention logic | Objectively verifiable indicators of achievement | Sources and means of verification | Assumptions/Risks |
|---|---|---|---|---|
| | b) **Aninformation network** and website on community based sustainable forest rehabilitation in the sub-region to deepen collaboration to safeguard trans-boundary ecological security. | | | |
| **Activities** | **Component 1:**Interdisciplinary assessment and participatory **land use planning**:<br>Activity 1.1 Basic **field inventory** of natural resources status to assess the threats and issues of forests degradation and biodiversity losses in selected pilot sites among China, Laos and Myanmar.<br>Activity 1.2 **Reviews** of experiences and lessons, learned from past forest rehabilitation and management in MMSEA, and to identify good practices, including local knowledge;<br>Activity 1.3**Participatoryplanning**for sustainable forest development at each pilot project site. | 1.Forest ecologist/botanist consultant<br>2.Per diems of 12 interdisciplinary researchers (3 personnel per site)<br>3.12 participatory village workshops (3 per site)<br>4. Equipments (computer, GPS, Digital camera)<br>5.Lab work and satellite imaging<br>6. Staff time of all partners | **Costs : US$117,200**<br>Regular progress report to UNU and consolidated project report to APFNet | **Assumption:**<br>Strong commitment and active participation of local communities and governments<br>**Risks:**<br>Stable security of demonstration sites along the border areas |

| | Intervention logic | Objectively verifiable indicators of achievement | Sources and means of verification | Assumptions/Risks |
|---|---|---|---|---|
| | **Component 2:Experiment and demonstration** for rehabilitation of degraded forests in pilot sites, including different approaches and methods:<br>Activity 2.1 **Upland nurseries** for preparing seedlings and planting materials of rare and endangered native tree species;<br>Activity 2.2 **Soil improvement** and rehabilitation of degraded forestland;<br>Activity 2.3 Upland **agro-forestry** based models, including understory cultivation;<br>Activity 2.4 **Participatory social fencing** for natural regeneration of degraded forests; | 1. Four field staff (one at each site) and one community forestry specialist<br>2. Collection and purchase of seeds and planting materials<br>3. Labor for plot preparation<br>4. About 20 field demonstrations/schools (5 times per site)<br>5. Provision of seedlings and planting materials<br>6. Fuel-saving stove, solar heater, and bio-gas construction<br>7. Per diems of four researchers in the field (one at each site)<br>8. Four motorcycles or car rental (one at each site)<br>9. Staff time of all partners | **Costs : US$247,800**<br>Regular project progress report to UNU and consolidated project report to APFNet as well as monitoring missions | **Assumption:**<br>Strong commitment and active participation of local communities<br><br>**Risks:**<br>Stable security of demonstration sites along the border areas, normal climate |
| | Activity 2.5 Alternative rural **energy development**, including bio-gas construction and improvement of energy efficiency stove at household level to reduce pressure on fuel wood collection. | | | |

| | Intervention logic | Objectively verifiable indicators of achievement | Sources and means of verification | Assumptions/Risks |
|---|---|---|---|---|
| | **Component 3:Capacity building** among different target groups, stakeholders and partners through the activities of **training, workshop**, study tours, information sharing and experiences exchange among project partners among China, Laos and Myanmar.<br>Activity 3.1 On-site and in-house **training/exchange** to young researchers and students on interdisciplinary assessment of forest degradation and rehabilitation;<br>Activity 3.2 Design and provision of **training modules and toolkits** on forest rehabilitation to train farmers, community leaders and extension workers and local officials with inputs of expert farmers in demonstration sites. | 1. Field work of 12 young researchers (3 in each site)<br>2. Three training courses for graduate students,young researchers and practitioners (three local training courses)<br>3. Project advisory group (once per year)<br>4. Cross-site study tours (three times)<br>5. Consultants to prepare and teach modules and toolkits<br>6. international outreach workshop (one in Year 3)<br>7. Research facilities<br>8. Staff time of all partners | **Costs : US$135,000**<br><br>Regular project progress report to UNU and consolidated project report to APFNet | **Assumption:**<br>Strong commitment and active participation of local communities and governments<br><br>**Risks:**<br>Stable security of demonstration sites along the border areas |
| | **Component 4:** Integrate **project experience**, indigenous and **scientific knowledge** and network with partners to develop a regional strategy for safeguarding the trans-boundary ecological security. | 1. Project officer to prepare progress reports, organize workshops and maintain web site<br>2. Project steering committee ( once per year)<br>3. External evaluation<br>4. Research facilities.<br>5. Staff time of all partners | **Costs : US$150,000**<br>Regular project progress report to UNU, project report to APFNet and evaluation report | **Assumption:**<br>Strong commitment and cooperation of partners and stakeholders at local and sub-regional level |

| | Intervention logic | Objectively verifiable indicators of achievement | Sources and means of verification | Assumptions/Risks |
|---|---|---|---|---|
| | Activity 4.1 **Synthesis of the project findings** for up-scaling from local to sub-regional levels. The results from demonstration site will first inform sustainable forest management plan at the sub-district or township level. This will then serve as a model for the up-scaling at higher level with active participation of stakeholders who involve with the project to develop up-scaling plans, including inputs from external evaluation;<br>Activity 4.2 Establishment of **an information network** among participating institutions to exchange relevant information and experiences. The network will be also linked to other relevant initiatives in the region. The information network would extend project findings beyond the sub-regional at larger scale. | | | |

**Annex B: Project Work plan**

| **Project Title:** Sustainable Forest Rehabilitation and Management for the Conservation of Trans- boundary Ecological Security in Montane Mainland Southeast Asia – Pilot Demonstration Project of Lao PDR, Myanmar and China/Yunnan (SFR-MMSEA) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Activities** | **Year 1** | | | | | | | | | | | | **Leading partner** |
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | |
| Overall management/M&E, etc | | | | | | | | | | | | | |
| **Component 1: Interdisciplinary assessment and participatory planning for sustainable forest development** | | | | | | | | | | | | | UNU, FRI, NAFRI, YAF |
| **Activity 1.1**Basic field inventory of natural resources status to assess the threats and issues of forests degradation and biodiversity losses in pilot project sites | | | | | | | | | | | | | |
| **Activity 1.2**Reviews of experiences and lessons on forest rehabilitation | | | | | | | | | | | | | |
| **Activity 1.3** Participatory planning for sustainable forest managementat each project site | | | | | | | | | | | | | |
| **Component 2: Experiment and demonstration for rehabilitation of degraded forests in pilot sites, including different approaches and methods** | | | | | | | | | | | | | YAF, NAFRI, FRI, UNU |
| **Activity 2.1**Prepare seedlings and planting materials of rare and endangered native tree species | | | | | | | | | | | | | |
| **Component 3: Capacity building through the activities of training, workshop, study tours, information sharing and experience exchange among project partners in China, Laos and Myanmar** | | | | | | | | | | | | | UNU, FRI, NAFRI, YAF |

| Project Activities | Year 1 | | | | | | | | | | | | Leading partner |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| **Activity 3.1**On-site and in-house training/exchange to young researchers and students on interdisciplinary assessment of forest degradation and rehabilitation | | | | | | | | | | | | | |
| **Component 4: Integrate project experience, indigenous and scientific knowledge and network with partners to develop a regional strategy for safeguarding the trans-boundary ecological security.** | | | | | | | | | | | | | UNU, YAF, NAFRI, FRI |
| **Activity 4.1**Synthesis of the project findings for up-scaling from local to sub-regional and regional levels, including inception meeting of Project Steering Committee,and inputs from external evaluation | | | | | | | | | | | | | |

| Project Activities | Year 2 | | | | | | | | | | | | Leading partner |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| **Component 2: Experiment and demonstration for rehabilitation of degraded forests in pilot sites, including different approaches and methods** | | | | | | | | | | | | | YAF, NAFRI, FRI, UNU |
| **Activity 2.1** Upland nurseries for preparing seedlings and planting materials of rare and endangered native tree species | | | | | | | | | | | | | |
| **Activity 2.2** Soil improvement and rehabilitation of degraded forestland | | | | | | | | | | | | | |
| **Activity 2.3** Upland agro-forestry based models, including understory cultivation | | | | | | | | | | | | | |
| **Activity 2.4** Participatory social fencing for natural regeneration of degraded forests | | | | | | | | | | | | | |
| **Activity 2.5** Alternative rural energy development, including bio-gas construction and improvement of energy efficiency stove at household level to reduce pressure on fuel wood collection | | | | | | | | | | | | | |
| **Component 3: Capacity building among different target groups, stakeholders and partners through tailored made programmes** | | | | | | | | | | | | | UNU, FRI, NAFRI, YAF |
| **Activity 3.1**On-site and in-house training/exchange to young researchers and students on interdisciplinary assessment of forest degradation and rehabilitation | | | | | | | | | | | | | |
| **Activity 3.2**Design and provision of training modules and toolkitson forest rehabilitation to train farmers, community leaders and extension workers and local officials. | | | | | | | | | | | | | |

| Project Activities | Year 2 | | | | | | | | | | | | Leading partner |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| **Component 4: Integrate project experience, indigenous and scientific knowledge and network with partners to develop a regional strategy for safeguarding the trans-boundary ecological security.** | | | | | | | | | | | | | UNU, YAF, NAFRI, FRI |
| **Activity 4.1**Synthesis of the project findings for up-scaling from local to sub-regional and regional levels, including Annual meeting of Project Steering Committee and inputs from external evaluation | | | | | | | | | | | | | |
| **Activity 4.2**Establishment of an information network among participating institutions to exchange relevant information and experiences. | | | | | | | | | | | | | |

| Project Activities | Year 3 | | | | | | | | | | | | Leading partner |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| **Component 2: Experiment and demonstration for rehabilitation of degraded forests in pilot sites, including different approaches and methods** | | | | | | | | | | | | | YAF, NAFRI, FRI, UNU |
| **Activity 2.1** Upland nurseries for preparing seedlings and planting materials of rare and endangered native tree species | | | | | | | | | | | | | |
| **Activity 2.2** Soil improvement and rehabilitation of degraded forestland | | | | | | | | | | | | | |
| **Activity 2.3** Upland agro-forestry based models, including understory cultivation | | | | | | | | | | | | | |
| **Activity 2.4** Participatory social fencing for natural regeneration of degraded forests | | | | | | | | | | | | | |
| **Activity 2.5** Alternative rural energy development, including bio-gas construction and improvement of energy efficiency stove at household level to reduce pressure on fuel wood collection | | | | | | | | | | | | | |
| **Component 3: Capacity building among different target groups, stakeholders and partners through tailored made programmes** | | | | | | | | | | | | | UNU, FRI, NAFRI, YAF |
| **Activity 3.1**On-site and in-house training/exchange to young researchers and students on interdisciplinary assessment of forest degradation and rehabilitation | | | | | | | | | | | | | |

| Project Activities | Year 3 | | | | | | | | | | | | Leading partner |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| **Activity 3.2**Design and provision of training modules and toolkitson forest rehabilitation to train farmers, community leaders and extension workers and local officials, including international outreach workshop. | | | | | | | | | | | | | |
| **Component 4: Integrate project experience, indigenous and scientific knowledge and network with partners to develop a regional strategy for safeguarding the trans-boundary ecological security.** | | | | | | | | | | | | | UNU, YAF, NAFRI, FRI |
| **Activity 4.1**Synthesis of the project findings for up-scaling from local to sub-regional and regional levels, including final meeting of Project Steering Committee, and inputs from external evaluation | | | | | | | | | | | | | |
| **Activity 4.2**Establishment of an information network among participating institutions to exchange relevant information and experiences. | | | | | | | | | | | | | |

## Annex E Project sites map and general information

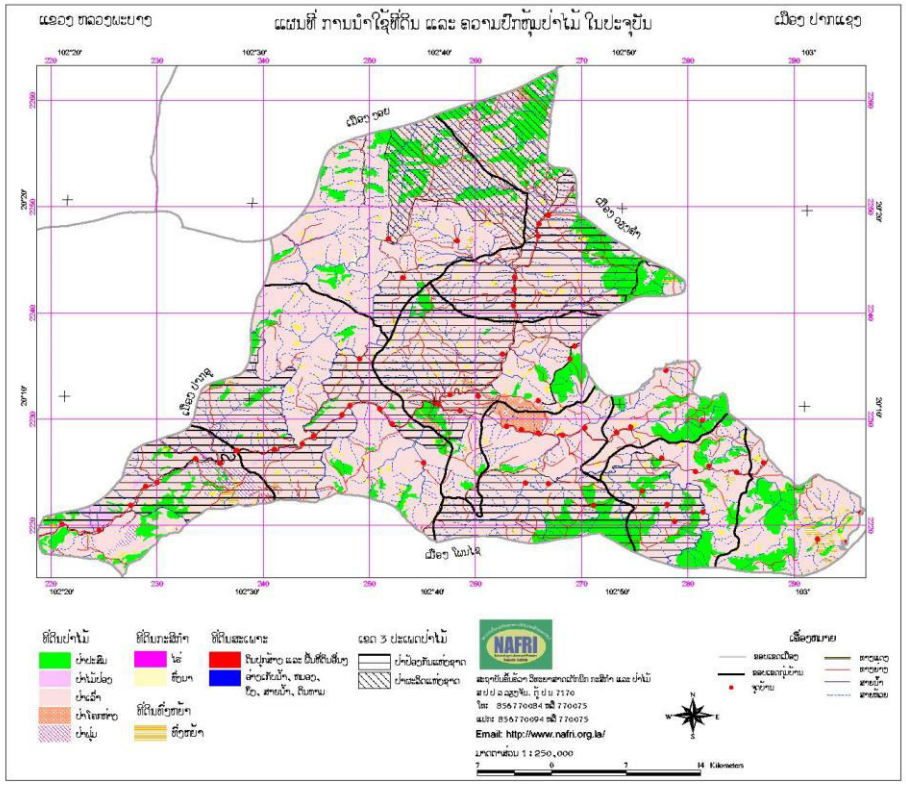
1. NATIONAL AGRICULTURE AND FORESTRY RESEARCH INSTITUTE (NAFRI), LAOS

Pakxeng District is located in Northeast of LuangPrabang Province. It is far from the city around 84 km with laying between 200°00′55″-200°27′06″ and 1,020°18′40″-1,030°03′18″. It is characterized by mountainous areas with steep slope, its elevation ranging is from 350-1000 meters (ASL). Total natural land area covers 139,450 hectares, out of which degraded fallow land occupied 77% of total area. Total population in Pakxeng District is about 22,627 persons, with 3 ethnic groups including 85% for Kheumu, 5% for Hmong, and 10% for Laolum. Shifting cultivation is predominant forms of agriculture.

Table: Land use of Pakxeng District, LuangPrabang Province

| Land use | Land areas (ha) | % of total area |
|---|---|---|
| Forest | 25,323 | 18 |
| Degraded fallow land | 109,450 | 77 |
| Degraded grass land | 1,343 | 1 |
| Upland rice field | 2,506 | 1,8 |
| Low land rice field | 224 | 0.15 |
| Upland crops | 601 | 0.45 |
| Water body | 555 | 0,40 |
| Residential areas | 394 | 0.30 |
| Total | 139.450 | 100 |

Figure: Land use of Pakxeng District, LuangPrabang Province



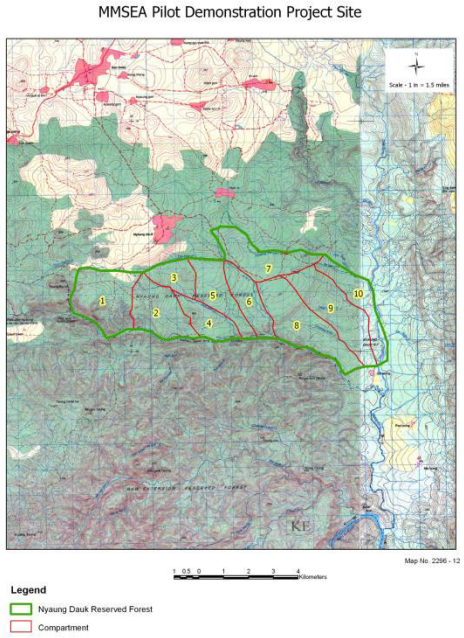

2.FOREST RESEARCH INSTITUTE OF MYANMAR (FRI), MYANMAR

The topography of major Myanmar mountain ranges can roughly be divided into three regions, among them the Eastern Plateau mountain range bordering with

China, Laos and Thailand where this proposed project will be situated. The proposed project site will be located in Nawnghkio Township in Shan State. The basic conditions of the Township are described as follows:

| | |
|---|---|
| Coordinates: | 22°20′N 96°40′E |
| **Division** | **ShanState** |
| **District** | Kyaukme |
| **Township** | Nawnghkio |
| **Capital** | Nawnghkio |
| **Total Area** | 488.44 sq mi (1,265.06 km$^2$) |
| **Elevation** | 2,750 ft (840 m) |
| **Population** | 126,143 |

The township lies between 22° 45' and 23° 15' north latitude and 96° 00' and 97° 00' east longitude. Nawnghkio Township is bordered byThabeikkyin Township and Mogok Township to the north,Kyaukme Township to the northeast and east,Lawksawk Township to the south andSingu Township, Madaya Township, Pyinoolwin Township and Kyaukse Township to the west and southwest. Altitude ranges from 700 feet above the sea level in the lowest to 4300 feet in the highest with an average of 2750 feet. Occupying nearly half of the center of the land is highly productive plane surrounded by mountains in north, east, south and west. Mountains of the southern region are the highest. More than half of the surface area is covered by rain forests. Average number of raining days range from 90 to 130 days per year and annual rainfall varies from 47 to 70 inches. Thunder storms struck the area in the rainy season (May to October). Being in the temperate zone, the temperature varies from 43°-81°F in the cold season to 61°-96°F in the hot season.Nawnghkio Township was organized with the 6 wards and 35 village-tracks of 249 villages. The selected project site is NyaungDauk Reserve Forest area and NyaungDauk village, Nawnghkio Township. The location of the project site is showed in the following map:





3. YUNNAN ACADEMY OF FORESTRY (YAF), CHINA

YAF will implement two project sites in Yunnan Province of China, one each in Xishuangbanna Prefecture close to Northern Laos and in Dehong Prefecture close to Northern Myanmar. Both sites include a YAF research &experimental station and several demonstration communities surrounding the experimental station so as to enhance collaboration between scientists and local communities.The location of both project sites is indicated on the map as below:

The first project site in Xishuangbanna Prefecture combines the Tropical forestry institute of YAF and two surrounding villages in Puwen, Jinghong City, Xishuangbanna Prefecture. Puwen town is located at 101 ° 23 ′ E and 22 ° 33 ′ N, 109 km to the north of Jinghong city.It is bounded on the east by Mengwang township, the south by Dadugang, the west by Jinna and the north by Nanpingtown of Pu'er city. Through the213road, Puwen is an important entry point from the rest of China to Xishuangbanna, known as "North Gate of Xishuangbanna ". Puven has good road connection and convenient communication with outside. The total population was 14,426 in 2008, of which agricultural population is 12,479. There are Dai, Han, Yi, Hani, Jino and other 13 ethnic groups. Puwen consists of 4 administrative villages including Chengzi, Chenggan, Manfeilong and Pojiao and 39 villager groups.The land area of Puwen is 554 square kilometers, among them the area of the plain in the basin is 38 square kilometers and the mountainous 516 square kilometers. The highest elevation is 1,292.3 m (Boluo Hill) and the lowest elevation is 222 meters (Puwen river).The climate type belongs to the north subtropical and plateau monsoon climate. The average annual temperature is 20.2 ℃, the highest temperature is 39 ℃ and the average annual rainfall is 1675.6 mm. The natural conditions of soils, water and climate are well suitable for the growth of rice, rubber, sugar cane, tea, coffee, fruits and other economic crops. The municipal natural protection areas cover 7000 hectares. The forest coverage rate is 76.4%.The native vegetation of Puwen is tropical montane rain forest, valley rainforest and monsoon ever-green broadleaved forest.

Tropical forestry institute (TFI) was initiated as the Mengwang experimental forest farm in 1960. On the basis of the experimental forest farm, TFI was established by the relevant departments in 1996. TFI has 52 staff, including 15 professional and technical personnel (7 senior and intermediate, and 10 junior professional staff). TFI owns 6000mu of all kinds of experimental forests and plantations. The lowest altitude is 840 m and the highest is 1,354 m. TFI is located at the junction of the north tropical and south subtropical zones with good climatic conditions and abundant plant resources. The annual average temperature is 20.2 ℃ , annual average precipitation 1673.5mm, extreme low temperature -0.7 ℃, extreme high temperature 38.5 ℃, the average relative humidity 80%. The main vegetation types are montane rain forest, valley rain forest and monsoon evergreen broad-leaved forest. Soil type is laterite. Most soils are deep, light sandy loam.

As part of the project site in Xishuangbanna, Wandaohe and Lianhevillages surround the tropical forestry institute in Puwen.Wandaohe village consists of the

immigrants from Mojiang County at the end of the 70's. Currently there are about 290 villagers living in the village, most of them are Han, Hani and Yi nationalities. The income per capita was more than 6,000 Yuan last year. The village owns a total land area of 4000 mu (15 mu equal to 1 hectare), of which mainly are mountainous and only a small amount of paddy field. The main crops are rice and corn and the economic crops are rubber, tea and coffee. The main income comes from tea and coffee. As rubber plantation is still young, it has not become the main income. However, the villagers' income will increase considerably with the increasing area of tapping rubber trees.Lianhe village has about 140 villagers; most of them are Han, Dai, Hani and Jinuo nationalities. The village has land area of 3000 mu, most of which are mountainous and only a small amount of paddy field. The main crops are rice and corn and the main economic crops are rubber, tea and coffee. Rubber has been planted for long time in this villager and the prices of coffee and rubber are rather high in recent years. As a result, the income per capita has more than 10,000 Yuan last year.

The second project site in DehongPrefecture combinesDehong Prefecture Forestry Research Institute, Santaishantownship and Mangshi 818 Bamboo Farmers Professional Cooperative in the township.Dehong Prefecture Forestry Research Institute,a new branch of YAF in Dehong,is situated in Mengmao town, 7 km away from Ruili. The institutemainly undertakes experiment, demonstration and extension services for forestry development. There are 40 staffs working in the institute, including 17 scientific professional personnel, 23 technical workers. The institute has a land area of 8,715 mu. It is funded by government and under Dehong Prefecture Bureau of Forestry. Recently, the institute has carried out projects on “Breeding of rare and valuable timber species in Dehong”, on “Breeding of fast-growing and high-quality tree species in Southwest Yunnan”, etc.

Santaishan, the only township for De’ang ethnic minority in China, is located 22 kilometers to the southwest of Mangshi along the 320 road in Dehong Prefecture, Yunnan Province. Santaishan covers land areas of 158 square kilometers with four village committees, and 31 natural villages and 34 village groups. The main inhabitants in Santainshan are De’ang，Jingpo and Han ethnic groups. There is a total population of 1,631 households with 6,907 people, of which there are 19 De’ang minority village groups and totally 981 households with 4,111 people; 7 Jingpo village groups and 291 households with 1,192 people; 8 village groups of Han people and 359 household with 1,604 people. The entire township of Santainshan has arable land areas of 39,799 mu, of which: paddy fields 4,154 mu, upland fields 35,645 mu. The arable land per capita is 5.76 mu, among them: paddy field 0.6 mu, upland 5.16 mu. The forest land areas are 89,973.1 mu. The forest coverage rate is 63%. In 2010 the per capita net income of local farmers was RMB2,489 , and the per capita grain production 342 kg.Mangshi 818 Bamboo Farmers Professional Cooperative is located in SantaishanTownship. The Cooperative covers land areas of 40,000mu in the elevation of 800 to 1000m. The main soil type is laterite. The main bamboo species cultivated and managed in the Cooperative include *Dendrocalamusgiganteus, DendrocalamuspeculiarisHsuch, Dendrocalamusbrandisii, Dendrocalamusaffinis* .

## Annex F Capacity assessment of the project executing agencyand partnership organizations

1. UNITED NATIONS UNIVERSITY (UNU)

*History and Mandate*

The United Nations University (UNU) was established with adoption of its Charter by the United Nations General Assembly in 1973. The mission of the United Nations University is to contribute, through collaborative research and education, dissemination and advisory services, to efforts to resolve the pressing global problems of human survival, development and welfare that are the concern of the United Nations, its Peoples and Member States. The overarching goal of the United Nations University is to contribute to global sustainable development. In doing so, UNU pays due attention to the social sciences and the humanities as well as the natural sciences.

The academic work of the United Nations University is carried out by a worldwide system of research and training institutes and programmes. The UNU Institute for Sustainability and Peace (UNU-ISP) in Tokyo seeks to achieve and promote a better understanding of three of the most pressing issues on the UN agenda: global change, peace and security, and development. UNU-ISP takes an innovative approach to sustainability, bridging these cross-cutting themes through research, educational and collaborative initiatives with the aim of solving current problems and anticipating future challenges.

*Personnel*

As of year-end 2010, the global UN University system had staff of 576.

*Relevant projects have included:*

- Project on People, Land Management and Environmental Change (Yunnan Province of China, Thailand, Papua New Guinea, Tanzania, Kenya, Uganda, Ghana, Guinea, Brazil, Peru, Jamaica and Mexico) funded by GEF through UNEP
- Project on Sustainable Land Management in Mountainous Regions: Thailand, Lao PDR and China (Yunnan Province) funded by GEF through UNEP
- Project on Critical analysis of effectiveness of REDD+ for forest communities and shifting cultivation, based on lessons learnt from conservation efforts in Laos and Thailand funded by APN (Asia-Pacific Network for Global Change Research)
- Project on Land use management for sustainable agriculture and forest conservation in the mountainous areas of Laos funded by the Mitsui Environment Fund
- Strategy to enhance resilience to climate and ecosystem changes utilizing traditional bio-production systems in rural Asia (Indonesia, Sri Lanka and Viet Nam) funded by Ministry of Environment, Japan.
- Project on Developing eco-system based adaptation strategies for enhancing resilience of rice terrace farming systems against climate change (Philippines and Yunnan Province of China) funded by APN

2. NATIONAL AGRICULTURE AND FORESTRY RESEARCH INSTITUTE, LAO PDR

*History and Mandate*

The National Agriculture and Forestry Research Institute (NAFRI) was established in 1999 in order to consolidate agriculture and forestry research activities within Laos and develop a coordinated National Agriculture and Forestry Research System.

NAFRI is mandated to undertake integrated agriculture, forestry and fisheries research in order to provide technical information, norms and results which help to formulate strategy in accordance with the government policies. NAFRI has four main functions including carrying out adaptive research, developing methods, tools and information packages, providing policy feedback, and coordinating and managing research. Over the last 7 years, NAFRI has significantly improved its capacity to provide a range of service to Laos (e.g. extension, farmers, NGOs) and international agencies (donors, research and development organizations).

*Personnel*
NAFRI is currently comprised of 11 research centres based around Laos and three research support division based at the NAFRI Headquarters.

*Relevant projects have included:*
NAFRI research program focuses on three interlinked areas: improving efficiency in agriculture production, improving land use and land management processes and feeding back the impacts of rapid agrarian change to policy makers at different levels. There are 5 research thrusts with 23 research areas in total as follows:

- Project on Maximizing return per land unit through productivity improvement
- Project on Improving land use planning and management procedures
- Project on Improving enabling environment and mechanisms to support agriculture and forestry production for increased land use effectiveness
- Project on Marketing and quality requirements for agriculture and forestry products
- Project on Sustainable management, utilization and conservation of natural resources

*Key Partners Involved in the Project and their Respective Roles*

| STAKEHOLDERS | ROLE/S |
|---|---|
| NAFRI and/or Agriculture Land Use Research Centre | NAFRI will be the main executing agency for this project. It is identified that the “Agriculture Land Use Research Centre”. This centre will focal agency in its role as implementing focal agency in Lao PDR. They will be primarily responsible to ensure that project outcomes and outputs are achieved. |
| LuangPrabang PAFO and DAFO | The Provincial Agriculture and Forestry Office of LuangPrabang Province. They will guide the District Agriculture and Forestry Offices for the actual field implementation of project activities |
| Northern Agriculture and Forestry Research Centre (NAFReC) | The role of NAFReC is to support the work of Provincial and District levels such as organising staff training and providing technical information in accordance with the needs of farmers. |

| | |
|---|---|
| Souphanouvong University in LuangPrabang | Faculty of Forestry in the Souphanouvong University will be involved in relevant capacity building activities for government staff and local communities |
| Local communities | The project will work closely with local communities. At least 300 households will be directly benefiting from this project. |
| International Organizations, GOs and NGOs | The project will work closely with French Research Institute for Development (IRD), CIFOR, which are two international agencies working in LuangPrabang Province. The project will build on the work that they are undertaking and will ensure that there is strong coordination and cooperation with their work in the province. The project will also ensure strong coordination and cooperation with non-profit organizations operating in the project area. |

3. FOREST RESEARCH INSTITUTE (FRI), MYANMAR

1) Background:

Name: Forest Department, Myanmar

Location: Nay Pyi Taw

Year of establishment: 1856

Fields of expertise: Expertise in all forestry fields are available especially, natural forest management, plantation establishment, etc.

2) Infrastructure:

FRI has facilities for carrying out the work related to the project proposal, such as laboratories, experimental facilities, training facilities, etc.

3) Personnel:

Total number of personnel in relevant fields is as follows:

- Number of personnel with postgraduate degrees 89
- Number of personnel with graduate degrees 3356
- Number of personnel with middle-level technicians 2888
- Numberof administrative personnel 134

4. YUNNAN ACADEMY OF FORESTRY, YUNNAN

*History and Mandate*

The YAF is the center of forest research in Yunnan Province. It is a comprehensive and professional forestry institute engaged in study of varied fields related to forestry. Yunnan Academy of Forestry has complete facility and professional staff who can sufficiently meet the forestry requirements. It is composed of several research sections and experimental stations, namely Institute of Forestry, Institute of Forest Protection, Institute of Economic Forest, Institute of Tropical Forestry, Institute of Forest Product Industry, Institute of Forestry Information, Kunming Arboretum, Tropical Arboretum of Xishuangbanna, Yangbi Institute of Walnut, and Research Station of Guangnan.

*Personnel*

The number of staff in Yunnan Academy of Forestry is 260, among whom 178 were professional staff. Forty-two of them have professional titles of research fellow or associate research fellow.

*Relevant projects included:*

Since the establishment in 1959, Yunnan Academy of Forestry has accomplished almost 400 forest research projects through multiple channels of funding, such as Ministry of Science and Technology, State Forestry Administration, Yunnan Department of Science and Technology and some international funding agencies as well. Yunnan Academy of Forestry hosts Yunnan Laboratory for Conservation of Rare, Endangered & Endemic Forest Plants, Public Key Laboratory of the State Forestry Administration, and Yunnan Provincial Key Laboratory ofCultivation and Exploitation of Forest Plants.