



Centre
de coopération
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développement

**ENVIRONMENTAL SPECIALIST'S
7th TRIP REPORT
9 - 19 July 1997**

CIRAD-Forêt - MIDAS - Burapha

Lao ADB Piantation Forestry Project - Loan No, 1295 (SF)

19 July 1997

Trip Report Number 6
9-19 July 1997

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1. Introduction

Trip Report Number 6 covers the period 9 to 19 July 1997. The purpose of this trip was as follows:

- To complete Environmental Monitoring Report Number 1, covering the 1995 & 1996 PBPs, which includes the 1997 Compliance Report;
To undertake training of PCU/MES in Environmental Data Analysis & Environmental Reporting;
- To undertake training of PCU/MES in development of mitigation measures; and,
- Prepare a syllabus for October 1997 training program in environmental management in tree plantations.

Most of the Specialist's time was spent preparing the Environmental Monitoring Report Number 1. A half day field trip was taken to Ban Nakha, Vientiane Municipality to examine the environmental impacts of the tree plantation.

2. Environmental Monitoring Activities Undertaken

2.1 Field Trip to PBP Sites

A field trip to Ban Nakha, Vientiane Municipality was undertaken during the visit to the project. The Environmental Monitoring Specialist was accompanied by Mr. Tom Brummer, the Team Leader and the Head of the MES, Dr. Phet Phomphiphak. The purpose of the field trip was to observe environmental conditions at this PBP site, one year after establishment of the plantation and following heavy monsoon rains.

Natural vegetative ground cover had returned to the site, preventing any soil erosion. The PBP was observed as having no environmental impacts on the surrounding area.

3. Environmental Monitoring Activities Planned

3.1 Environmental Baseline Surveys

Pilot Block Plantations: The EBS for the 3-4 PBPs that were established in 1997 have been completed. The survey forms will be analyzed along with the EBS forms for the private plantations, beginning with the next visit of the Specialist to the Project in October 1997. The EBS report for the 1997 plantations is expected to be completed during the visit of the Specialist to the Project in the first quarter of 1998.

Private Plantations: As of July 1997, the Project was providing support to 785 ha of tree plantations. A total of 135 individuals and groups had borrowed funds from the Agriculture Promotion Bank for tree plantations during 1997. General data were presented in Trip Report Number 4, March 1997.

3.2 Environmental Monitoring Survey Forms

Environmental Information Management: The PCU/MES had made progress in its ability to manage environmental data; mainly data collected on the EBS and EMR forms. It had modified its information management system so that all EBS and EM survey forms were in separate files for each province. EBS and EM data also was being stored on computer diskettes for easier handling and facility in data processing.

Environmental Information Flow: As Environmental Monitoring Report Number 1 was being prepared, much discussion took place at the MES regarding the quality of the data that was being reported. Even though all PPCU had been trained on use of environmental data collection forms several times, it was felt that some of the poor quality data reported on the EM survey forms was a result of some PPCU not fully understanding the forms. Another reason offered was that the PPCU did not have the EBS data available to them when they were preparing the EM survey forms, and were thus confused what data they were supposed to be collecting. Thus, the Specialist is recommending that all relevant EBS data and the data collected from the first environmental monitoring survey, be recorded on an environmental monitoring survey form and returned to each PPCU by the end of 1997. They would then have available to them both EBS data and the EM data from the first environmental monitoring exercise when they undertook the second environmental monitoring exercise in the first quarter of 1998. The MES was in agreement with this recommendation.

3.3 Environmental Monitoring System Schedule

In the course of training of PCU staff, a review of the scheduling of environmental monitoring tasks was undertaken. The following schedule was agreed to with the MES:

| Task | Period Undertaken | Unit Responsible | Output |
|---------------------------------|--|---|---|
| Environmental Baseline Survey | <ul style="list-style-type: none"> • Prior to plantation establishment • Same time as STP • September to January | <ul style="list-style-type: none"> • PPCU responsible for EBS data collection • PCU/MES responsible for EBS data analysis • PCU/MES responsible for preparation of annual EBS report | <ul style="list-style-type: none"> • EBS for each PBP and private plantation larger than 6 ha • Annual EBS Report |
| Environmental Monitoring Report | <ul style="list-style-type: none"> • 6-12 months following plantation establishment • Same time as BME • January and February | <ul style="list-style-type: none"> • PPCU responsible for environmental monitoring surveys • PCU responsible for BME surveys • PCU/MES responsible for preparation of annual environmental monitoring report | <ul style="list-style-type: none"> • Environmental Monitoring Report |
| Compliance Report | <ul style="list-style-type: none"> • 6-12 months following plantation establishment • January and February | <ul style="list-style-type: none"> • PCU | <ul style="list-style-type: none"> • Compliance Report as appendix to Environmental Monitoring Report |

4. Environmental Reporting

4.1 Preparation of Environmental Monitoring Report Number 1

The Specialist undertook preparation of Environmental Report Number 1 during this visit. Comparing data collected on the EBS and the EM survey forms, this report summarizes the impacts of the 1995 and 1996 PBPs on the local environment. The results of the analysis shows that the PBPs have had no negative environmental impacts on the environment.

This report will serve as a model for future EMRs to be prepared by the PCU/MES.

4.2 Environmental Monitoring Specialist's Reports

The Environmental Monitoring Specialist is preparing several documents during 1997 and 1998. These are listed on the following table and the status of each document is given.

**Environmental Monitoring Specialist's Reports Matrix
March 1997 - October 1998**

| Report | Period for Preparation | Tentative Date of Submission of Draft Final Report | Tentative Date of Submission of Final Report | Remarks |
|---|-------------------------------|---|---|---|
| <i>Draft Final Report, Environmental Monitoring System: Detailed Program & Reporting Format for Monitoring & Evaluation of Environmental Impacts of Tree Plantations in Lao PDR</i> | March 1997 | 29 March 1997 | 17 May 1997 | Completed and approved by the Project and the ADB |
| <i>Draft Final Report, Environmental Baseline Survey Report</i> | March 1997 | 29 March 1997 | 17 May 1997 | Completed and approved by the Project and the ADB |
| <i>Environmental Monitoring Report Number 1 for the 1995 and 1996 PBPs on the local environment</i> | May 1997 | May 1997 | July 1997 | Completed in July 1997. |
| <i>Environmental Baseline Survey Report for 1997 PBPs and Private Plantations</i> | March 1998 | March 1998 | March 1998 | |
| <i>Environmental Monitoring Report Number 2 for 1997 PBPs & private plantations</i> | October 1998 | October 1998 | October 1998 | |

5. Training

5.1 In-Service Training

The Specialist conducted in-service training for PCU/MES personnel on environmental data analysis, compliance monitoring, and environmental mitigation measures for a total of 7 PCU staff members. The training was provided as required by the terms of reference of the Environmental Monitoring Specialist, specifically: to assist the PCU to include environmental aspects in the training program for staff, and ultimately in the extension services to the farmers; to building awareness among project staff of the importance of environmental protection in effective implementation of the project; and, to introduce to PCU, PPCU, and other relevant GOL personnel details of the environmental monitoring program.

The following training schedule is being followed during 1997.

**Environmental Training Matrix
May - October 1997**

| Training Topic | Proposed Participants (Unit & No.) | Proposed Schedule & Location | Remarks |
|---|---|---|---|
| Environmental Baseline Surveys | PPCU 30 | May 1997; 4 provinces | Refresher training in use of EBS forms and introductory training for newly assigned PPCU personnel. COMPLETED |
| Environmental Data Analysis | PCU/MES 5-6 | May 1997; PCU/ Vientiane | COMPLETED |
| Environmental Monitoring | PPCU 30 | May 1997; 4 provinces | Completed for 3 provinces. PCU/MES provided training for Vientiane Municipality. |
| Environmental Reporting | PCU/MES 5-6 | July 1997; PCU/ Vientiane | Training for PCU/MES on extraction, analysis, & reporting of data from environmental monitoring forms. COMPLETED |
| Mitigation Measures | PCU/MES | July 1997; PCU/ Vientiane | Introductory course. COMPLETED |
| Environmental Protection and Conservation in Tree Plantations | PCU, PPCU, DOF (extension personnel), PAFO | October 1997; Vientiane | Training course to build environmental awareness of Project and DOF extension personnel: stress importance of environmental protection in tree plantations. |

5.2 Training Course in Environmental Management in Tree Plantations

This training course will be conducted in October 1997 for approximately 40 DOF personnel. It will be a four day program of classroom and field training in the general aspects of environment and ecosystems; environmental management in tree plantations; and the operation of the project's environmental monitoring system. The training would contribute to building an awareness among DOF personnel, at both the central office and provincial levels, of the importance of environmental protection in effective program implementation. The training is also justified in terms of providing details of the Project's environmental monitoring program, to PCU, PPCU, and other relevant GOL personnel, who may not yet be familiar with the program.

The Specialist prepared a draft syllabus of the subject matter to be covered under three topics, namely: introduction to the environment and ecosystems; environmental management in tree plantations; and, operation of the environmental monitoring system. The draft syllabus is attached as Appendix 4 of this Trip Report.

6. 1997 Schedule for the Environmental Monitoring Specialist

The Environmental Monitoring Specialist is following the schedule below during 1997.

1997 Work Schedule for the Environmental Monitoring Specialist

| Dates | Person-Months | Tasks | Outputs | Remarks |
|---------------------------------|----------------------|--|--|---|
| 20-29 March 1997 | 0.30 | <ul style="list-style-type: none"> • Complete draft final EBS and EMS reports • Training of PCU/MES on environmental benefits arising from reforestation, related to carbon offset and carbon sequestering. • Assist PCU/MES to plan an Environmental Monitoring Training course for Project personnel and DOF staff • Prepare a first draft of environmental guidelines for establishing tree plantations | <ul style="list-style-type: none"> • Completed draft final EBS and EMS reports • Trained 7 PCU staff • Proposed a framework for an Environmental Monitoring training course • Prepared a first draft of environmental guidelines | <ul style="list-style-type: none"> • <i>Completed</i> • <i>Completed</i> • <i>Completed</i> • <i>Completed</i> |
| 5-17 May 1997 | 0.50 | <ul style="list-style-type: none"> • Complete final EBS and EMS reports • Field visits to verify EBS for 1997 PBPs • Prepare draft Environmental Monitoring Report for 1995 & 1996 PBPs • PPCU training: EBS, EM • PCU/MES training: Environmental Data Analysis & Environmental Reporting | <ul style="list-style-type: none"> • Submission of final EBS and EMS reports • EBS data at 3-4 PBP sites verified • First draft of Environmental Monitoring Report • PPCU training in 4 provinces for 30 staff • PCU/MES training for 5-6 staff | <ul style="list-style-type: none"> • <i>Incomplete</i> • <i>Completed for 3 sites</i> • <i>Incomplete</i> • <i>Completed for 17 staff</i> • <i>Completed for 2 staff</i> |
| 9-19 July 1997 | 0.37 | <ul style="list-style-type: none"> • Complete final EBS and EMS reports • Prepare final Environmental Monitoring Report for 1995 & 1996 PBPs • PCU/MES training: Environmental Data Analysis & Environmental Reporting • Prepare for October training on environmental protection & conservation | <ul style="list-style-type: none"> • Draft Final Reports submitted to ADB in April 1997 • Environmental Monitoring Report for 1995/1996 PBPs completed • 4 PCU/MES trained • Syllabus for October 1997 training completed | <ul style="list-style-type: none"> • <i>Completed reports accepted & submitted</i> • <i>Completed</i> • <i>Completed</i> • <i>Completed</i> |
| 6-18 October 1997 | 0.50 | <ul style="list-style-type: none"> • PCU, PPCU, DOF, PAFO training: Environmental Protection & Conservation in Tree Plantations | <ul style="list-style-type: none"> • 30-40 DOF personnel trained in aspects of environmental protection in tree plantations | |
| Total 1997 Person-Months | 1.67 | | | |

7. Conclusions and Recommendations

7.1 Conclusions

1. The quality of the data on the EBS and EM survey forms requires significant improvement. Additional training of PPCU personnel will be required to ensure that accurate environmental data is being collected. The PCU/MES will begin a program of quality control of data for which the MES is responsible.
2. The PCU has a high level of awareness and considerable experience in handling environmental data. Quality control of environmental data being received from the PPCU should be undertaken by the PCU.
3. Although environmental information flow and management continue to be seen as obstacles to the smooth operation of the MES in the future, the MES has made progress in the organization and management of its data.
4. The Environmental Monitoring Report form, as well as environmental data analysis and compliance reporting forms were revised based on comments and feedback from the PCU.

7.2 Recommendations

- 1) All relevant EBS data and the data collected from the first environmental monitoring survey should be recorded on an environmental monitoring survey form and returned to each PPCU by the end of 1997. The PPCU would then have available to them both EBS data and the EM data from the first environmental monitoring exercise when they undertake the second environmental monitoring exercise in the first quarter of 1998. This recommendation has been discussed with the MES.
- 2) The EBS forms completed by the PPCU at the 1997 PBPs, as well as those for private plantations should be submitted to the PCU/MES as soon as possible. The PCU/MES should check the quality of the data on these EBS forms prior to the Specialist undertaking his review and analysis of the EBS forms.

Appendices

- Appendix 1: Environmental Monitoring Specialist's Terms of Reference
- Appendix 2: Itinerary: 9-19 July 1997
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Appendix 1: Terms of Reference

Terms of Reference
for the Environmental Monitoring Specialist

(from the Project Administration Memorandum
dated May 1994)

1. Review the environmental aspects of the Project area and carry out a baseline environmental survey. Prepare a comprehensive baseline survey report.
2. Prepare guidelines for environmental protection in industrial tree plantations.
3. Assist the PCU to include environmental aspects in the training program for staff and the Community Organizers, and in the extension service to the farmers.
4. Strengthen awareness among the Project staff and Community Organizers of the importance of environmental protection in effective implementation of the Project
5. Prepare a detailed program and reporting format for the monitoring and evaluation of environmental impacts of tree plantations.
6. Assist the PCU and PPCUs coordinate activities with NGOs, village committees, and other organizations to achieve the necessary level of community involvement in environmental protection.

Appendix 2: Itinerary

(Work Plan)

9 - 19 July 1997

Work Plan for the Environmental Monitoring Specialist
for the Period 9 - 19 July 1997

Following discussions with Mr. Thomas Brummer, Team Leader, and Dr. Phet Phomphiphak, the chief of the MES, the following work plan and schedule of field trips to project sites during the period 9 - 19 July 1997 was followed:

Wednesday, 9 July
Morning: Met with Team Leader; prepared work plan for project visit and field trips; prepared materials for preparation of Environmental Monitoring Report
Afternoon: Preparation of First Environmental Monitoring Report

Thursday, 10 July
Preparation of First Environmental Monitoring Report

Friday, 11 July
Morning: Field visit to PBP at Ban Nakha, Vientiane Municipality
Afternoon: Preparation of First Environmental Monitoring Report

Saturday, 12 July
Preparation of First Environmental Monitoring Report

Monday, 14 July
Morning: Preparation of First Environmental Monitoring Report
Afternoon: Discussions with MES regarding Environmental Training Program scheduled for October 1997

Tuesday, 15 July
Preparation of materials for Environmental Training Program scheduled for October 1997

Wednesday, 16 July
Preparation of materials for Environmental Training Program scheduled for October 1997

Thursday, 17 July
Morning: Preparation of materials for Environmental Training Program scheduled for October 1997
Afternoon: PCU/MES Training: Environmental Data Analysis & Environmental Reporting

Friday, 18 July
Morning: PCU/MES Training: Mitigation Measures
Afternoon: Preparation of Trip Report

Saturday, 19 July
Morning: Preparation of Trip Report and Wrap-up Meeting at PCU/DOF
Afternoon: Travel to Bangkok

Appendix 3:
Revised Environmental Monitoring Report Form

Environmental Monitoring Report

Name of District: _____

Name of Village: _____

Basic Information:

Plantation area: _____ ha

Closest village: _____ km

Closest water body: Name: _____, _____ km

Species planted: () Eucalyptus camaldulensis () Acacia mangium

() Eucalyptus tereticornis () Anthocephalus indicus () Alstonia scholaris

() _____ () _____ () _____

| Factor Impacted (Corresponds to EBS Number) | Affect (Observable impacts) | Significance ¹ (Villagers' Perspective) | Remarks (PPCU/PCU Personal Observations) | Additional Investigation (Yes/No) ² | Mitigation Necessary (Yes/No) ³ |
|---|--------------------------------|---|---|---|---|
| | <u>Comments</u> | <u>Comments</u> | <u>Comments</u> | | |
| 8. Land | | | | | |
| Location and use of the plantation site | | | | | |
| 9. Site Location Data | | | | | |
| 9.2 Impacts on nearby water bodies | | | | | |
| 9.3 Impacts on land use surrounding the plantation site | | | | | |
| 10. Land Use Data | | | | | |
| 10.1 Change in area of flood prone land | | | | | |
| 10.2 Change in area of saline soils | | | | | |
| 10.3 Change in area used for grazing | | | | | |
| 10.5 Source of non-timber forest products | | | | | |

| Impact | Affect | Significance¹ | Remarks | Additional Investigation (Yes/No)² | Mitigation Necessary (Yes/No)³ |
|---|---------------|---------------------------------|----------------|--|--|
| 10.6 Change in average number of trips to forest for non-wood forest products | | | | | |
| 10.7 Changes in types of non-timber forest products most frequently obtained | | | | | |
| 10.9 Changes in villager use of plantation site | | | | | |
| 11. Wildlife | | | | | |
| 11. Changes in number of species and size of wildlife population | | | | | |
| 12. Unique Areas | | | | | |
| Changes in status of unique areas | | | | | |
| 13. Physical Conditions | | | | | |
| 13.1 No. of new sloped areas | | | | | |
| 13.2 Total no. of sloped areas great than 15 degrees | | | | | |
| 13.2.1 Changes in water body/ land use to which sloped land leads | | | | | |
| 13.3 Changes in no. of drainage channels | | | | | |

| Impact | Affect | Significance ¹ | Remarks | Additional Investigation (Yes/No) ² | Mitigation Necessary (Yes/No) ³ |
|---|--------|---------------------------|---------|--|--|
| 14. Natural Vegetative Cover Data | | | | | |
| 14.1 Change in quality of vegetative cover | | | | | |
| Changes in tree and shrub cover percentage | | | | | |
| Changes in composition and density of natural vegetation of the plantation site | | | | | |
| 15. Soils Data | | | | | |
| 15.2 Evidence of topsoil loss | | | | | |

Notes

1. The significance of change depends in part upon input provided by villagers obtained through consultations in the process of conducting annual BME and environmental monitoring field work.
2. The monitoring technician (expected to be a PPCU staff member) will decide if additional investigation is required, including a visit to the site by a PCU staff member or an environmental specialist.
3. If the monitoring technician decides that serious environmental damage has resulted from plantation establishment and operations/management and that mitigation measures are required, he/she will make a recommendation that will be considered by the PCU and authorized by the PCU.

Impact Analysis

Significance

Recommended Mitigation Measures

Appendix 4:
Training Syllabus for Environmental Management
in Tree Plantations

Lao-ADB Plantation Forestry Project

Draft Syllabus

Training in Aspects of Environmental Monitoring of Tree Plantations

Training in Environmental Management in Tree Plantations

October 1997

Training will focus on introducing the potential of both positive and negative environmental impacts from planting of fast-growing tree plantations and introduction and use of the Environmental Monitoring System (EMS). The training will include both classroom training in environmental management of tree plantations and field training in the use of the EMS forms.

Part 1: Introduction:

General Understanding of the Environment and Ecosystems

The discussion of the environment and ecosystems includes a general overview of the **natural balance existing in a forested area**. The **concept of ecosystem** is introduced, and the interdependent, mutually beneficial, and symbiotic relationships are described. The role of **human intervention** in an ecosystem is discussed in some detail.

- **Introduction of key words for general understanding of the environment:**
natural balance ecosystem human intervention
- **Definition of technical words related to environmental management in tree plantations are identified, defined, and discussed, including:**
environment environmental degradation
impacts . mitigation measures
ecology/ecosystems
- **Ecosystems and their relationship to tree plantations**
trees as part of an ecosystem people as part of an ecosystem
forest plantations as part of an ecosystem . wildlife as part of an ecosystem
watersheds: floods, droughts

Part 2: Environment Management and Tree Plantations

- **Environmental context of the project**
location of tree plantations
potential impacts of tree plantations
socio-economics impacts of tree plantations
agro-ecological impacts of tree plantations
- **Best and worst case scenarios of large scale tree plantations**
best: well planted, well managed, healthy plantations, with farmers and private sector benefiting from plantations
worst: negative environmental impacts on local ecosystems, disrupting existing socio-economic systems, resulting in losses to villagers

Part 3: Environmental Monitoring System (EMS)

EMS as part of the Socio-Technical Profile (STP)
description of the STP and the EMS as part of the STP

- **EBS, Environmental Monitoring, Environmental Reporting**
description of the EBS
description of Annual Environmental Monitoring
description of Environmental Reporting

Environmental Baseline Survey (EBS)

Elements of the EBS: Highlights

Who carries out the EBS: PPCU at same time as STP

Where are EBSs carried out: At each potential tree plantation site

How are EBSs carried out: Using EBS form

When are EBSs carried out: At same time as STP

How often are EBSs carried out: once, at same time as STP

- **Environmental Monitoring**

Compliance Reporting

What is compliance reporting? Follow environmental guidelines (PAM)

Why do we do compliance reporting?

Review compliance reporting form

Environmental reporting: PPCU -> PCU

Data collected by PPCU; sent to PCU for analysis; PCU prepares reports for GOL and ADB (during project).

Environmental Analysis

- Undertaken by PCU/DOF/Vientiane

Environmental Reporting

- Undertaken by PCU/DOF/Vientiane
- Report to GOL and ADB

Recommendation of mitigation measures

- Annual Environmental Monitoring Report
- Inclusion of mitigation measures

Community Involvement

Participation in responding to EBS

Collection of data not immediately available

Role in environmental protection

Role in environmental management

Ideas from PPCU and PCU