



**SOUTHEAST ASIA NETWORK FOR AGROFORESTRY EDUCATION  
VIET NAM NETWORK FOR AGROFORESTRY EDUCATION**

# **PROJECT REPORT**

**IMPROVEMENT OF THE AGROFORESTRY SUBJECT  
CURRICULUM IN TAY NGUYEN UNIVERSITY**

Dr. Vo Hung

Dak Lak, 30<sup>th</sup> August, 2008

## Table of contents

|              |   |           |
|--------------|---|-----------|
| <b>1</b>     | <b>Foreword</b> .....   | <b>2</b>  |
| <b>2</b>     | <b>Project's objectives</b> .....   | <b>2</b>  |
| <b>3</b>     | <b>Project progress and results</b> .....                                       | <b>3</b>  |
| 3.1          | Workshop on reviewing existing Agroforestry subject curriculum.....             | 3         |
| 3.2          | Improvement of AF subject curriculum framework. ....                            | 4         |
| 3.3          | Update and development of the Agroforestry Workbook and teaching materials..    | 8         |
| <b>4</b>     | <b>Conclusion</b> .....   | <b>9</b>  |
| <b>Annex</b> | .....   | <b>10</b> |
|              | Annex 1: The list of lecturers took part at the internal Workshop. ....         | 10        |
|              | Annex 2: the old AF subject curriculum Framework of Tay Nguyen University ..... | 10        |

## 1 Foreword

Agroforestry (AF) subject puts in the forestry engineer training program since 1992 in Tay Nguyen University. This is an important specialist subject and it is taught in seventh semester of training program at University level.

The aim of AF subject: After finishing the subject, the students will be able to:

*Knowledge:* Strengthen student's awareness of the need and role in development of AF systems in order to establish a sustainable agriculture and forestry production, in particular in the slope area of the Central Highlands.

*Skill:* Analyze, evaluate the economy, social and environment effects of AF systems. Design, practice cultivation in the slope land, agroforestry technique by participatory approach way of local farmers and stakeholders

*Attitude:* Respect the traditional technique, approach new technology oriented to rural community development.

In 2002, SEANAFE collaborated with Social Forestry Support Programme (SFSP/Hevetas) to support the lecturer group of 5 universities implemented development of Agroforestry curriculum and workbook which applied method of participatory curriculum development (PCD). These are main documents for AF teaching and learning so far at the universities belong to VNAFE.

However, in the last 5 years, there has been some more change of context on socio-economic in Vietnam and the Central Highland in particular about advance in applying and developing Agroforestry technology.

There are some new concepts such as marketing for agroforestry products, AF policy impact analysis, AF in the landscape... are researching by SEANAFE/VNAFE; they should be reviewed to apply into the curriculum.

To follow innovation trend in training and teaching which has been enforced by Ministry of Education and Training in Vietnam; in detail will be replaced from yearly training system to credit training system; it demands to renew training framework, content and teaching methods as well in order improvement of education quality.

In this context, agroforestry training has a need to improve approach including contents and methods. Following this meaning, AF lecturer belong faculty of Agri-forestry, Tay Nguyen University implemented a small project "Curriculum Review to Mainstream SEANAFE's Curriculum Framework and Case Study materials on Marketing of Agroforestry Tree Products (MAFTP)" with financial support by SEANAFE, duration from 20 July to 30 August, 2008.

## 2 Project's objectives

- Review the existing Agroforestry subject curriculum including objective, contents, methods, teaching materials...
- Combine aspects of economic, social, policy, environment, and market related to Agroforestry into teaching framework.
- Use some SEANAFE's case-studies as teaching material to adapt and develop the contents and teaching materials for AF subject..

### **3 Project progress and results**

In order to reach the objectives, the project was organized with following 3 steps:

- (i) Organize a meeting at silviculture department: Review existing Agroforestry subject curriculum: objectives, contents, methods, materials, timing...
- (ii) Revise the Agroforestry subject curriculum framework.
- (iii) Develop a new Agroforestry Workbook.

#### **3.1 Workshop on reviewing existing Agroforestry subject curriculum.**

Internal workshop was held on 20 July 2008, at the silviculture department office, faculty of Agri-forestry, Tay Nguyen University. Participants are 7 lecturers, who are teaching different subjects that closely related to Agroforestry (*see the list of participants at index*).

Workshop's objectives:

- Determine the essential contents of economic, social, policy, environment, market and other related issues that should be developed into agroforestry subject curriculum for forestry student learning at Tay Nguyen University.
- Review and improve the existing Agroforestry subject curriculum, to make it suitable in credit training system and the Central Highlands context.

To orient development of an agroforestry subject curriculum framework based on reality conditions in The Central Highland as well as relative to market, policy, environment services aspects, there were some relative presentations at beginning the workshop as follows:

- The reason and the aim of workshop: Review the existing AF subject curriculum framework.
- Notes of new credit training system-based agroforestry subject curriculum framework: content, method, timing...
- Aspects of economic, social, policy, environment, market and technique related to designing and developing agroforestry subject in The Central Highland.
- More focus on agroforestry in the landscape, it is really essential in the slope land and watershed protection area in The Central Highland
- Interest of marketing for agroforestry products, Using some SEANAFE's case-studies as teaching material, assignment for student to research and discuss.


Lecturer who takes in charge of agroforestry subject facilitated a discussion session, base on existing AF subject curriculum framework, combine the new matters that were mentioned above, all participants have discussed and gotten the agreement of subject objectives, additional important matters, the content, structure among the chapters and suggested teaching methods, used material and allocated timing. Besides the workshop also defined the main contents for subject practicum.

Form the old version of agroforestry framework (see index 2), there are some changes of AF subject curriculum framework at Tay Nguyen University as follow:

- Agroforestry subject curriculum framework has 2 credits of equivalent 40 period (50 minute per period), which is divided into 67,5% theory time (27 period) and 32,5% time of exercise (13 period)
- Agroforestry subject curriculum framework has 5 chapters; in which chapter III and IV are absolutely new, they are built base-on addition results from market for AF product research, AF ecological effect, policy impact analyze and environment service. Specific as following:
  - o Chapter I: Agroforestry overview;
  - o Chapter II: Technique and interaction of components in agroforestry system
  - o Chapter III: Landscape-based agroforestry
  - o Chapter IV: Economic, social and environmental aspects in agroforestry
  - o Chapter V: Agroforestry development and assessment
- In each chapter there are serious addition contents:
  - o Chapter I: Agroforestry in the Central Highlands: Practices and development orientation.
  - o Chapter II: Energy and organic matter cycle of agroforestry system; Tree – soil – crop interaction and AF cultivation technique.
  - o Chapter V: Improvement of participatory agroforestry development process and evaluation.
- Based on contents the lecturers defined the appropriate teaching methods and used materials. Applying the marketing AF product case study of SEANAFE for student research and discussion when learning chapter IV.
- For each chapter it is identified the specific contents, divided into theory and exercise period, that is necessary for AF workbook development.

### 3.2 Improvement of AF subject curriculum framework.

Base on the workshop results, lecturer has repaired and completed the AF subject curriculum framework as following:

 **AF subject objectives:** After finishing the subject students will be able to:

- Present and explain agroforestry concept;
- Explain basic principle and analyze interaction among technique, economic-social and environment; relationship among the components of agroforestry;
- Develop agroforestry techniques with community and stakeholders; and analyze, evaluate efficient of agroforestry systems and models.

 **Agroforestry subject curriculum framework, following credit training system in Tay Nguyen University**

| Objectives: After finishing the chapter students will be able to:   | Contents  | Teaching methods  | Total of University hour | Amount of time |            |
|---|---|---|--------------------------|----------------|------------|
|   |   |   |                          | Theory         | Exercise   |
| <b>Chapter 1: Agroforestry overview</b>   |   |   | <b>06</b>                | <b>04</b>      | <b>2.0</b> |
| Analyze land-use orientation for applying AF. Basis of natural resources, economic & social aspects to develop AF in the world, Vietnam and in particular in The Central Highlands. | 1.1: Reasons of agroforestry development<br>1.2: AF in the Central Highlands: Practices and development trend                   | - Presentation, pictures<br>- SWOT, 5 Whys analysis             | 1.5                      | 1.0            | 0.5        |
| Present concept & distinguish AF for area unit and in the landscape.<br>Explain the agroforestry characteristics.   | 1.3: Agroforestry concept and characteristic<br>- For area unit<br>- For landscape<br>- Agroforestry cultivation characteristic | - Presentation, pictures<br>- Group discussion<br>Phillip (XYZ) | 1.5                      | 1.0            | 0.5        |
| Identify potential benefit and analyze the challenges of AF in community's livelihood development and environmental protection.   | 1.4: The role, benefit, potential and challenge of AF development   | - Presentation, diagram, pictures<br>- SWOT analysis            | 1.5                      | 1.0            | 0.5        |
| Explain the basis for classification the AF systems   | 1.5: Agroforestry system classification   | - Group discussion, Presentation                                | 1.5                      | 1.0            | 0.5        |
| <b>Chapter 2: Technique and interaction of components in agroforestry system</b>  |   |   | <b>13</b>                | <b>9.5</b>     | <b>3.5</b> |
| Describe some traditional and advanced AF systems.<br>Analyze the profit and limitation of AF system.   | 2.1: Traditional agroforestry system<br>2.2: Advanced agroforestry system   | - Presentation, pictures<br>- Group discussion                  | 5                        | 4              | 1          |
| Present energy and organic matter cycle of agroforestry system, positive and negative relationship among the components of AF system  | 2.3: Energy and organic matter cycle of agroforestry system<br>2.4: Tree – Soil – Crop interaction                              | - Presentation, diagram, pictures<br>- Group discussion         | 2                        | 1.5            | 0.5        |
| Distinguish and select the suitable AF cultivation technique for specific local.  | 2.5: AF cultivation technique   | - Presentation, diagram, pictures<br>- Group discussion         | 3                        | 2              | 1          |
| Present some technique for soil and water   | 2.6: Sustainable land-use and water-use   | - Presentation, pictures  | 3                        | 2              | 1          |

| Objectives: After finishing the chapter students will be able to:                          | Contents   | Teaching methods   | Total of University hour | Amount of time |          |
|--|--|--|--------------------------|----------------|----------|
|  |  |  |                          | Theory         | Exercise |
| conservation in AF farm.   | methods in agroforestry  | - Brainstorming  |                          |                |          |
| <b>Chapter 3: Landscape-based agroforestry</b>   |  |  | <b>4</b>                 | <b>3</b>       | <b>1</b> |
| Present the landscape definition   | 3.1: Landscape definition  | - Presentation,<br>- Pictures                                | 0.5                      | 0.5            |          |
| Describe the structure and components of agroforestry in the specific landscape            | 3.2: Structure and components of agroforestry in the landscape   | - Presentation, pictures<br>- Brainstorming                  | 1                        | 1              |          |
| Analyze the interaction among components in agroforestry landscape                         | 3.3: The interaction among components in agroforestry landscape  | - Presentation, pictures, diagram<br>- Group assignment      | 1                        | 0.5            | 0.5      |
| Present the role, benefit and challenges of agroforestry landscape planning                | 3.4: Role, benefit and challenges of agroforestry landscape planning   | - Presentation,<br>- SWOT analysis<br>- Case study           | 1.5                      | 1              | 0.5      |
| <b>Chapter 4: Economic, social and environmental aspects in agroforestry</b>               |  |  | <b>7</b>                 | <b>4</b>       | <b>3</b> |
| Present the economic elements in agroforestry  | 4.1: Economic aspect in agroforestry<br>- Diverse income of agroforestry system<br>- Method to calculate in-put cost and out-put production; economic efficiency                   | - Pictures<br>- Samples of case studies<br>- Brainstorming   | 1                        | 1              |          |
| Applying the suitable methods and tools for analyzing market chain of specific AF product. | 4.2: Agroforestry products market<br>- Market chain<br>- Effect factors  | - Presentation<br>- SEANAPE case study research              | 1                        | 0.5            | 0.5      |
| Describe the social elements in agroforestry development.                                  | 4.3: Social aspect in agroforestry<br>- Learning, promoting indigenous knowledge<br>- Effect of social elements on developing agroforestry (job chances, agreement/willingness...) | - Presentation<br>- Brainstorming<br>- Problem tree analysis | 1                        | 1              |          |
| Study and describe some important policies impacted on AF development at specific local    | 4.4: Effect of policy on developing agroforestry<br>- Policies related to agroforestry   | - Presentation<br>- Group assignment                         | 1.5                      | 0.5            | 1        |

| Objectives: After finishing the chapter students will be able to:  | Contents  | Teaching methods   | Total of University hour | Amount of time |             |
|--|---|--|--------------------------|----------------|-------------|
|  |   |  |                          | Theory         | Exercise    |
|  | developing: land, forestry, capital, tax, market policy...<br>- Policy impact analysis  | - Combining field practice   |                          |                |             |
| Describe the ecological –environment effectiveness of AF cultivation   | 4.5: Environmental element in agroforestry<br>- Soil and water conservation<br>- Climate/landscape improvement<br>- Environmental services of agroforestry      | - Presentation<br>- Documental movies  | 1                        | 1              |             |
| Find out and describe the relationship among economic – social and environmental elements in AF development              | 4.6: Analyzing relationships among economic, social and environmental elements in agroforestry developing   | - General introduction<br>- Reading and discussing some case studies         | 1.5                      |                | 1.5         |
| <b>Chapter 5: Agroforestry development and assessment</b>  |   |  | <b>10</b>                | <b>6.5</b>     | <b>3.5</b>  |
| Explain the necessity of participatory approach for AF technology development.   | 5.1: Participatory agroforestry development approach  | - Introduction, handout<br>- Brainstorming                                   | 2                        | 2              |             |
| Apply the suitable methods and tools for participatory AF technology development.  | 5.2: Participatory agroforestry development process   | - Introduction, handout<br>- Brainstorming                                   | 4                        | 2              | 2           |
| Select the suitable criteria and indicators for AF system evaluation; focus on economic – social and environmental area. | 5.3: Agroforestry system evaluation (Objectives, Contents and Methods)<br>- Ecology, environment aspect<br>- Growth/Productivity value<br>- Society and economy | - Introduction, handout<br>- Case study<br>- Individual and group assignment | 4                        | 2.5            | 1.5         |
| <b>TOTAL</b>   |   |  | <b>40</b>                | <b>27</b>      | <b>13</b>   |
| <b>Percentage (%)</b>  |   |  | <b>100</b>               | <b>67.5</b>    | <b>32.5</b> |

## The main contents for AF subject practicum.

In forestry engineer training program, students who learn AF subject must practice in the field combining 3 related subjects such as Extension, social-forestry and social-forestry project management. The practicum is a separated subject with 2 week period. The end of subject each student has to write and submit a report, this is a main result for examination of the student's result.

The workshop has identified the main contents for AF subject practicum are:

- Classification and evaluation of the AF systems
- Agroforestry in the landscape.
- Analyse the relationship among economic – social and environmental elements in AF models.
- Participatory Agroforestry technology development



*AF lecturer is presenting at the internal workshop.*

### **3.3 Update and development of the Agroforestry Workbook and teaching materials.**

Updates and development of the Agroforestry Workbook, teaching materials following the new AF subject curriculum framework is really necessary in order to implement teaching in the next year.

With consultant and support from Assoc.Prof.Dr. Bao Huy – VNAFE Chairman, lecturer of AF subject expensed half of month to refer the related document, translated the books and another research projects related to AF in order to apply and develop the Agroforestry Workbook, up to now the AF workbook is nearly finished. Some new contents are added as follows:

- Tree – Soil – Crops interaction in agroforestry system
- Agroforestry in the landscape.
- Economic, social and environmental aspects in agroforestry

However, in my opinion the whole teaching contents has not yet perfected and concised. The main reason here is limited time and lack of the documents for reference, especially some new issues such as AF in the landscape, the impact of economic, social and policy elements to AF development. In the next time the AF lecturer is going to develop continuously the AF workbook.

For teaching materials, besides the materials is gathered for long time ago, AF lecturer is developing by translation of the market AF product case studies of SEANAFE, using the good AF models practice in different ecological areas of Vietnam such as hand out for research, study in student group working.

## **4 Conclusion**

Complete the project, there is an important improvement in the AF subject curriculum framework in Tay Nguyen University, not only subject objectives, contents, methods, materials but also teaching period follow advanced and realistic trend.

The new AF subject curriculum framework is suitable for the credit training system, it has 2 credits and structuralizes 5 chapters

The new concepts of AF such as AF in the landscape, environment service of AF, policy impact analyze...are supplemented into the teaching contents with different levels.

The teaching methods also are improved by strengthening the student's participatory such as group discussion, self-research, case study...

Diversify the content for subject practicum and combination with AF product status of The Central Highlands

Inherit form many document resources for teaching material development.

Finishing the project, expectation result is achieved basically. However, in the near future the AF lecturer will develop continuously the AF workbook and teaching materials.

## Annex

### Annex 1: The list of lecturers took part at the internal Workshop.

| ID | Nam             | Sexual | Subject teaching              | Department                                 |
|----|-----------------|--------|-------------------------------|--|
| 1. | Võ Hùng         | Male   | Agroforestry; Extension       | Silviculture                               |
| 2. | Nguyễn Văn Thái | Male   | Industrial Crop               | Crop Science                               |
| 3. | Nguyễn Đức Định | Male   | Botanic; NTFP                 | Silviculture                               |
| 4. | Nguyễn Thị Mừng | Female | Seed; Forest plantation       | Silviculture                               |
| 5. | Cao Thị Lý      | Female | Forestry animal, Biodiversity | Forest resource and environment management |
| 6. | Hoàng Thị Lương | Female | Extension; Annual crop        | Crop Science                               |
| 7. | Lê Thị Lý       | Female | Social Forestry               | Silviculture                               |

### Annex 2: the old AF subject curriculum Framework of Tay Nguyen University

| ID | Chapter   | Period |
|----|---|--------|
| 1  | <b>Chapter 1: Agroforestry general</b><br>The challenges in natural resources sustainable management<br>Agroforestry - A mode of land-use sustainable management  | 5      |
| 2  | <b>Chapter 2: Agroforestry principle</b><br>Agroforestry concept and characteristic<br>The role of tree in AF<br>The role of forest in AF   | 11     |
| 3  | <b>Chapter 3: Description and analysis of AF systems.</b><br>Traditional agroforestry system<br>Advanced agroforestry system  | 10     |
| 4  | <b>Chapter 4: Agroforestry technology</b><br>AF cultivation technique<br>Soil – water conservation cultivation in AF.<br>Agroforestry cultivation in The Central Highlands  | 9      |
| 5  | <b>Chapter 5: Application and development of AF technology.</b><br>The necessity of participatory AF technology development.<br>Participatory AF technology develops principle.<br>Participatory AF technology develops process.<br>Evaluation of AF systems. | 10     |