CHAPTER II

RESEARCH METHODS

2.1 Scope of the study

There are seven ecological regions in Vietnam. This study was conducted in the North Central Coast region. The region is divided into three agroecological zones, they are mountainous and hilly, plain and coastal zone. Each zone has its own farming system and production strategy. Due to budget and time limitations, this research focused only on upland area in the mountainous and hilly zone of the North Central Coastal region. The data used for this study is based on the survey.

2.2 Selection of the study area

Based on a review of literature, information from consulting agricultural and forestry technicians, district and provincial officials and visiting the potential sites, the Binh Dien commune was selected as a study site for the research. This commune is located in the hilly and mountainous region of Huong Tra district of Thua Thien Hue province. It is one of the target areas for forestry and agricultural extension workers through forest tree, rubber tree and sugarcane planting projects. The commune has more than 600 households, it is large enough to permit sample selection and effective analysis of research data. Most of the households in this commune make their living from agricultural and forestry production.

2.3 Conceptual framework

Gender analysis was applied as an analytical framework that examines male and female roles. It focuses on three set of questions:

+ Who does what, when and where?

+ Who has access to or control over resources for production?

+ Whose benefit from each enterprise?

2.4 Data collection

The data was collected by using a combination of methods as follows:

2.4.1 Collection of secondary information

To gain initial understanding of agroforestry system of the region, a review of sources of information of available literature in Hue university of Agriculture and forestry was made. In addition, reports on agricultural and forestry production by the provincial People Committee and Rural Development and Agricultural department were used. The secondary data such as geographical location, terrain, hydrology and climate, land types and use structure, infrastructure and services, marketing price of major products, and other social information (population, number of household, labor, religion, authority organizations) was collected at provincial and district level from statistical documents, and at commune and village levels by statistical papers, and interview using a sub-topic list.

2.4.2 Participatory rural appraisal (PRA)

PRA was implemented with the help of some foresters and agronomists from the Forestry Faculty of Hue University and the district and provincial Rural Development and Agricultural Departments.

Using maps, mapping and group interview

Some types of map such as geographical and administrative maps were reviewed to understand the survey area. To describe resource distribution, production systems and cultivation schedules of crops in the region, the meetings of groups of farmers were organized to map resources and transect, production seasonal calendar as well. To confirm distribution of resources shown on the maps, walking and field observation were done by the working team and two local people.

A meeting of a group of 6 women and 6 men was separately organized to collect information on gender-related indigenous knowledge, such as indigenous knowledge in improvement of soil fertility, in treating disease of animals, crops and trees, in storage of products, domestication of wild plants, and water resource conservation, as well as in health care.

Activity profiles and daily routines

"Activity profiles and daily routines" were adopted to explore daily activities and time taken for each activity. This was undertaken by interviewing and observing both men and women in three households.

Semi-structured interview with key informant groups

To understand the real situation in the survey area, with regard to land ownership and access to land and water resources, problems, potential and opportunities for development, cropping pattern, animal and forestry production and off-farm activities and relationships among them, semi-structured interview with key informants by using detail topics was applied. The group of key informants consisted of the head of the village, the representatives of the women's union, farmer's association, community council and some one having experience in production.

2.4.3 Formal survey

Random sampling method was used to choose 90 households for the interview (14.5 % of total of households of the commune). Farmer households in the region were classified into 3 groups which are high, medium and poor income groups by using indicator of income. Specifically, the average income per person per month in high income household group is above 150,000 VND; For medium income group, the average income per person per month is ranging from 80,000 to 150,000 VND; and that of poor household group is less than 80,000 VND. The households for interview

were selected randomly in each economic group, from the household lists of economic groups which were obtained from commune office.

The following number of households were interviewed by economic group:
- High income group: 30 households.
- Medium income group: 30 households.
- Poor income group: 30 households.

To obtain accurate data, preliminary testing of questionnaires was conducted in 7 households, and any changes needed were corrected. Gender bias in data collection is regarded by interviewing both men and women (41 respondents are men, occupying 45.6% of the total respondents).

A structural questionnaire was used for formal surveys. The variables collected included age, sex and education level of members of the household; land holding; income and expenditure per year; labor time spent for each activity in crop, animal and forestry production and off-farm activities; access to information, credit, extension services and decision making, and participation in agroforestry activities by gender.

2.5 Data analysis

Descriptive statistics were used to analyze data with regard to land holdings, the average income and expenditure, decision making, etc.

To calculate income separation between men and women for income sources which were contributed by both men and women, total labor days and the market weight value of labor days was applied. Based on the results of the interviews, the value of a manday in the area surveyed is about 20,000 VND and that of a womanday is about 17,000 VND. The market weight value of womanday is considered to be 1, therefore that of a manday is 1.17. This means that a manday is 1.17 times a

womanday. For income sources in kind, the opportunity cost method was used to calculate income by gender.

For sections of research which could be quantified such as labor use in crop, animal, forestry production, and off-farm activities; income contribution and personal expenditure, data was analyzed through a mean test of difference by using a "t test", specifically following:

Hypothesis H_0 : $\mu_1 - \mu_2 = 0$

H_1: $\mu_1 - \mu_2 \neq 0$

Calculating T value

$$T = \overline{Y_1} - \overline{Y_2} / S(1/ n_1 - 1/ n_2)^{1/2}$$

Where   + T is calculated t-value.

+ $\overline{Y_1}$ and $\overline{Y_2}$ are two population means,

+ Where $\overline{Y_1} = \dfrac{1}{n_1} \sum\limits_{i=1}^{n_1} y_i$; $\overline{Y_2} = \dfrac{1}{n_2} \sum\limits_{i=1}^{n_2} y_i$;

y_i is the value of the number of observation i

+ S is standard deviation, n_1 and n_2 are numbers of observations of first and second populations respectively. S is calculated following:

$$S = (S^2)^{1/2}$$

Where S^2 is variance which is calculated by follow formula:

$$S^2 = (n_1 - 1) S_1^2 + (n_2 - 1) S_2^2 / (n_1 + n_2 - 2)$$

Where $S_1^2 = \dfrac{1}{n_1} \sum\limits_{i=1}^{n_1} (y_i - \overline{Y_1})^2$ and $S_2^2 = \dfrac{1}{n_2} \sum\limits_{i=1}^{n_2} (y_i - \overline{Y_2})^2$

are variances of first and second population respectively.

After calculating the T value, by comparing calculated t-value to table t-value (t_α) taken from "t probable distribution table" using two standards following:

Significant level $\alpha = 0.05$ and DF (Degree of freedom) = $n_1 + n_2 - 2$

If the calculated t-value is greater than the table t_α-value, then H_1 hypothesis is accepted, and if calculated t-value is smaller than t_α then H_1 hypothesis is rejected and H_0 hypothesis is accepted.