

CHAPTER I

INTRODUCTION

1.1 Statement of the problem

Agroforestry is a landuse system that involves socially and ecologically acceptable integration of trees with agricultural crops and/ or animals simultaneously or sequentially so as to get increased total productivity of plant and animal in a sustainable manner from a unit of farmland, especially under the conditions of low levels of technological inputs and marginal lands (Nair, 1990).

Combe (1982) has grouped the agroforestry systems into three categories: agrosilvicultural systems (integration of forest trees with agricultural crops), silvopastoral systems (integration of forest trees and livestock) and agrosilvopastoral systems (integration of forest trees, agricultural crops and livestock (Figure 1). These different types of agroforestry systems are practised by farmers depending on diversified climates and geographical situations in Nepal. There are three major agroecological regions in Nepal, high hills (above 4,000 m), mid hills (500 - 4,000 m) and inner *terai* (below 500 m). Great variations exist in terms of climate, soils (physical variation); cropping systems (biological variations); ethnic, culture, and economic systems (socioeconomic variations) in these regions.

Approximately three-fourths of Nepal's land area fall under the middle hills and high mountain categories with elevations ranging from 300 m to 8,000 m in the Himalayas.

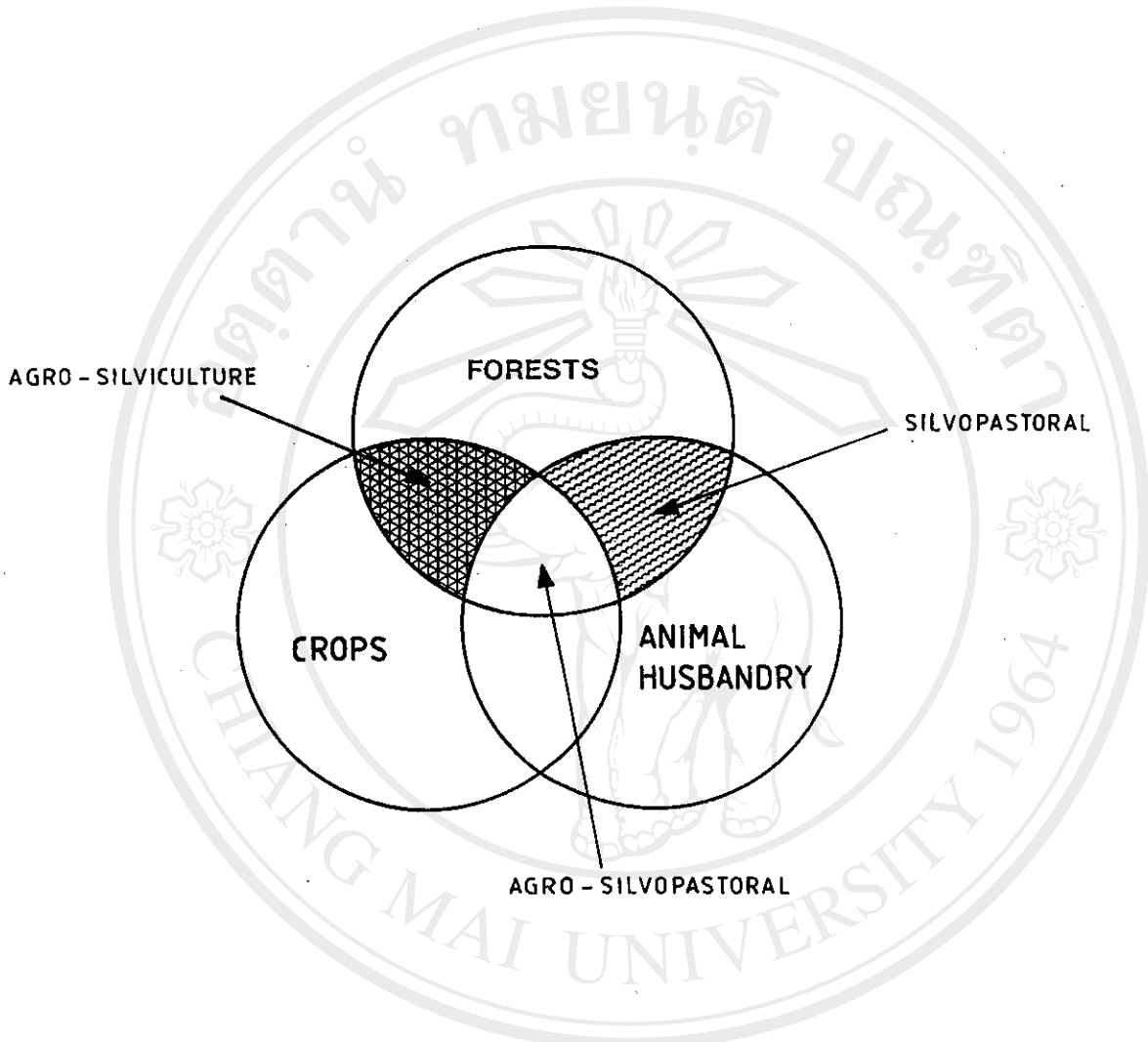


Figure 1 Land use and agroforestry systems

Source: Combe (1982)

The hill farming systems are based on strategies to manage forests, pasture and arable lands simultaneously and in an integrated fashion to obtain essential items of food, shelter and clothing (Denholm, 1991).

In the past, traditional agriculture and forestry practices were maintained in low population pressure. At present, it cannot meet the needs of current population. The hilly area is geologically unstable and every year landslides destroy the fragile hillslopes (Wallace, 1987). Landslides are mainly due to deforestation. The increasing needs of more agricultural land to feed humans and livestock, more fuelwood and felling of trees for short term gain have all contributed to a rapid rate of deforestation. Over 95 per cent of consumption of cooking energy is met by fuelwood (Denholm, 1991). The current livestock stocking rate in the hills is nine times larger than the carrying capacity (Shrestha and Evans, 1984). Some estimates suggest that in just over 10 years, from the late 1960s to the early 1980s, up to half of the forests in some hill regions have been cut down with the area under forests reduced from nearly 60 per cent to 30 per cent of the total area (Kumar and Hotchkiss, 1988). Because of heavy landslides and soil erosion in agricultural fields, a serious food deficit is being occurred.

The solutions to these problems will certainly be multifaceted and include the development of alternative, less energy intensive technologies and more efficient diversified farming systems. Agroforestry is one of proposed technological solutions to these problems (Thapa *et al.*, 1989).

The deterioration of forests and grazing lands across high and mid hills brings hardships to all of its inhabitants whose very survival is so tenaciously linked to forest-farm inter-relationships (Denholm, 1990). The gender-based division of labor that exists in hill societies indicates that caretaking of the family hearth and livestock

is primarily the responsibility of women. More than three-fourths of household time expended on collection of forest products is done by women (Kumar and Hotchkiss, 1988). As deforestation is high and tree species considered useful for daily needs become increasingly scarce, it is the women who must walk further distances to fetch fuelwood and fodder supplies, adding hours to their already long work days.

Kumar and Hotchkiss (1988) mentioned that where deforestation is high, time needed to collect one load of fuelwood increases by 75 per cent and less time allocated to agricultural activities.

Daily activities performed by men and women in Nepalese agroforestry systems reflect the prevailing sexual division of labor, skill, responsibility, and control within the larger society. The success or failure of research efforts depends on the ability of researchers to serve the social objectives of diverse groups of rural producers and to reconcile or accommodate the conflicts between men and women and between classes of rural clients (Rocheleau, 1987). In Nepalese context, generally, participation of the people for the public welfare activities is a sort of tradition in the society. Where, people are courteous and respectful in nature. They possess their own view on life, have natural dignity and respect that makes community based developmental activities into action. Those include use of natural resources, education and some primary health care services. However, the problems and opportunities inherent in the gender division of access and control to agroforestry activities, present a special challenge which must deal with women's relationship to

the community as well as between groups of women, based on caste, ethnicity and source of livelihood.

Moreover, as Nepal is culturally diversified country, the status of women rather varies from one ethnic group to another and in relation to the social status of different families. The major ethnic groups are Brahmin, Chhetri, Magar, Gurung etc. Despite the general view of women's role on agroforestry management, there is a great variation found in the access and involvement of women, with respect to ethnicity.

1.2 Objectives

Given the above background, this study has the following objectives:

1. To describe the various components and their interrelationships in the existing agroforestry system.
2. To identify and compare the participation of male and female farmers in the existing agroforestry and household activities.
3. To evaluate the constraints, opportunities and impact of the PAC's Private Tree Planting Program toward a sustainable agroforestry system using gender-based analysis.

1.3 Rationale of the study

To have a concrete knowledge about the agroforestry situation before recommendation and to improve the existing situation, it is essential to identify and analyze the underlying components of the system and their inter-relationships.

Both male and female farmers are responsible for maintaining and altering the components of agroforestry systems. But their distinct roles in different agroforestry activities have not been assessed so far. As actors to successful agroforestry activities, the analysis of their involvement in such typical situations will reveal important problems, areas of concerns, constraints and productive intervention points.

The problems and opportunities inherent in the gender division of access to land, labor, cultivated and wild plants, products present a special challenge to agroforesters. Gender-based differences in legal status, use of and access to space, type of activities, and control over labor and resources, all have a direct bearing on what type of crops can be planted, managed, used and harvested in terms of place, person, purpose and benefit (Rocheleau, 1987).

Despite the fact that women are involved in most of the farm and forestry activities regarding the agroforestry management, their roles have not been recognized. As women bring specific skills, resources and priorities to farm production, to ignore them is to ignore half or more of the system in which decisions

about farming are made (Feldstein *et al.*, 1987). Fortmann (1983) stated that most planners still think of the farmers as men and they simply fail to consider the impact of agroforestry projects on women or the role of women in implementing them.

The extent of female participation in agroforestry activities depends on different geophysical (hills and terai) and socioeconomic situations (age, ethnic group, size of landholding, farm mechanization, access to and control of land, labor and technologies etc.). So, a study done in one part may not give reliable representation for another part having different situations. Heavy housework and child care are also important factors for constraining women's participation (Shinawatra *et al.*, 1987). So, study on household and time consuming activities is also important for making women's work efficient and productive.

Many of the NGOs in Nepal have started recognizing the key role women play in activities related to cropping systems, forest use and livestock maintenance. Some of them have achieved success in forming user groups and eliciting the participation of women (Denholm and Rayachhetri, 1990). Pakhribas Agricultural Centre, one of the multidisciplinary semi-governmental organizations (established in 1972 through funding by the Overseas Development Administration of the British Government), located in the Eastern hills of Nepal, has encouraged farmers on private tree planting in the Salle village of Dhankuta since 1977. In late 1987, PAC helped farmers in planting trees on about 30 ha of *nagiland* (grass land located at above 1800 m) at the top of their farms. According to Thapa *et al.*, (1990), the

impact of this program on farmers resulted in stall feeding system of livestock management and reduction in livestock holdings. However, this impact has not been assessed to differentiate between male and female members of the affected households. This study is supposed to explain and analyze the gender roles in this regard.

The evaluation of PAC's activity on the agroforestry system based on gender analysis will strengthen future programs by highlighting its weaknesses and suggesting possible appropriate recommendation.

1.4 Literature review

It is found that in Nepal, women are involved in various agricultural activities including fuelwood, fodder and livestock management as much as if not more than men. Women farmers do at least half the work with animals - cutting and carrying fodder. They are also involved in carrying fuelwood and splitting logs for cooking purpose (Bhattarai *et al.*, 1989).

Women constitute 48.7 percent of total population in Nepal. Women outnumber men in the hills but not in *terai* (Acharya, 1980). Since agricultural system in the hills is more diverse and intensive and female participation in agroforestry activities is also higher in the hills than in *terai*, government priority is focussed on development of integrated farming systems like agroforestry in the hills

(Acharya and Benett, 1981; Timsina *et al.*, 1989; Timsina, 1990). It focusses on requirement of separate study for hills and *terai* women farmers. Furthermore, Axinn (1990) indicated that in the complex social systems of hills, the "who" of gender concerns is also a complex issue and women's participation in agriculture varies tremendously from one to other social groups. Khan (1992) added that different cultural values, beliefs and norms of different social groups have so pervasive influence on the behaviour of the people that it is necessary to understand them well before setting up of project in the rural areas.

Ojha (1989) and Tiwary *et al.*, (1988) emphasized that Nepalese women work harder than men. Authors further stated that the most tedious and tiring jobs, that is, collecting fodder, fuel and other products have traditionally been mainly performed by women. Axinn (1977) concluded that women play an active role both as decision makers and as participants, emphasizing that women share responsibility for obtaining supplies (wood and water), carrying grains to mill for grinding, collecting grass for domestic animals, planting and transplanting crops, weeding and harvesting and so on. It is mainly women who feed large animals such as cows and buffaloes (Acharya and Bennett, 1981). Women also play major role in the use of tree resource and feeds related activities to livestock (Acharya and Benett, 1981; Katuwal, 1990; Pandey, 1985).

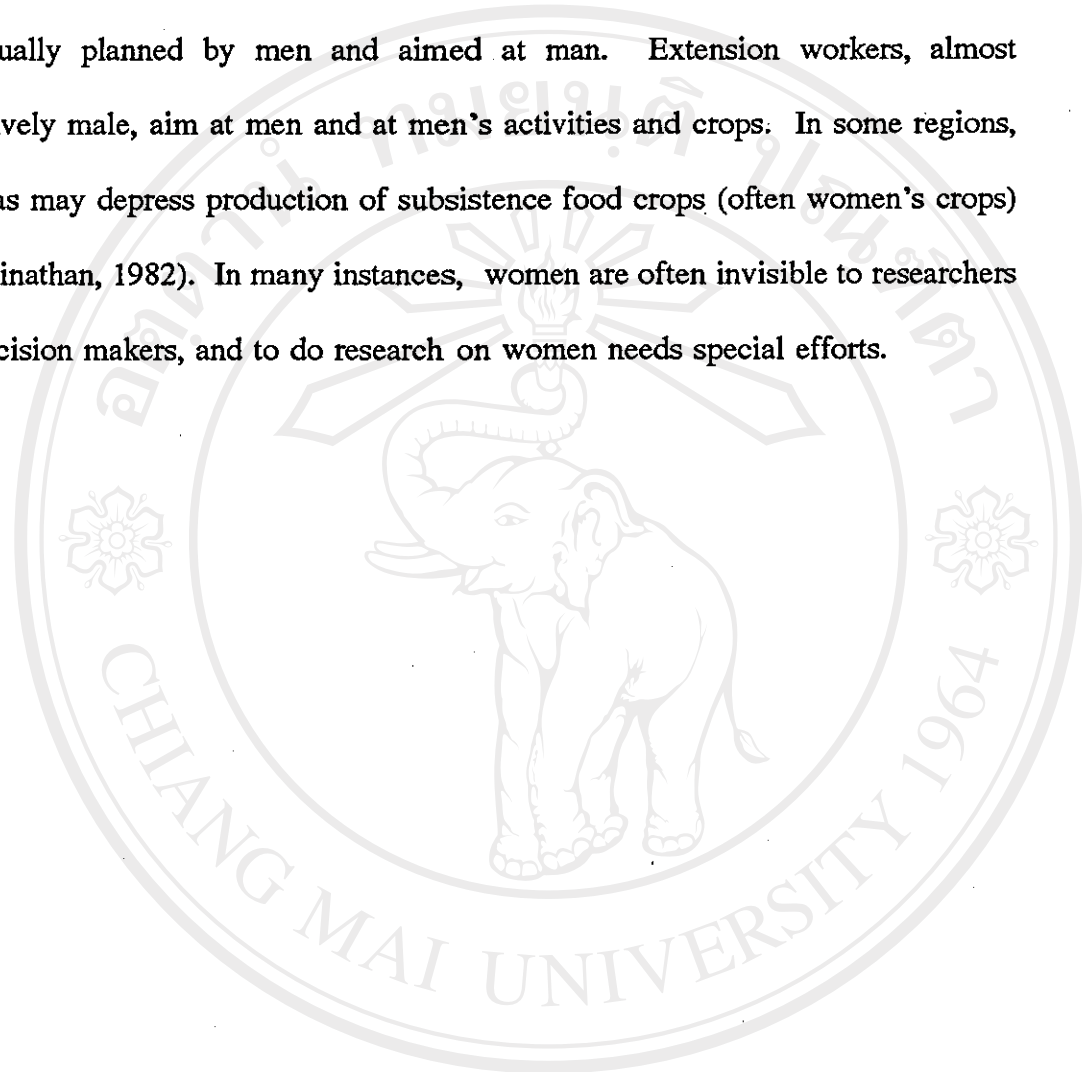
Wickramasinghe (1991) reported that women in Sri Lanka are at the forefront of tree farming because of their knowledge, experience and ability. Almost 88 per cent of elderly women in rural households know which locations are most desirable for growing trees. Their knowledge enables them to identify specific locations like fences, hedges, homegardens, farmlands and common areas along with specific ideotypes and priority products. Research conducted in Sri Lanka on traditional tree use practices and gender issues in tree management shows that rural women are efficient users of tree products. For women, trees are of primary importance in meeting family needs i.e., fruits, food, fodder, fuelwood etc. (Wickramasinghe, 1991).

It is not only that women are highly responsible in many above activities, but it is also explicitly observed that women and men may be responsible for the different crops, for different fields of the same crops for different tasks in the production cycle and also for different livestock and forest activities (Cloud, 1984).

In order to make any technology appropriate to women, a study should be assessed by differentiating male and female (Dey, 1985; Timsina *et al.*, 1989). Rocheleau (1987) has also put stress on requirement of separate discussion since knowledge of male and female farmers are different for even same plant and places.

However, the importance of women's work has been downplayed by some surveys because of the myth that women are only for the care of the home and her family (Wangdali, 1988). Problems and constraints which women faced in

agricultural production are they trapped in drudgery and time consuming activities due to low technology (Supriadi *et al.*, 1989). Despite their importance to agricultural production, women face severe handicaps. Any development programs are usually planned by men and aimed at man. Extension workers, almost exclusively male, aim at men and at men's activities and crops. In some regions, this bias may depress production of subsistence food crops (often women's crops) (Swaminathan, 1982). In many instances, women are often invisible to researchers and decision makers, and to do research on women needs special efforts.



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