Floristic Composition and Socio-economic Aspects of Rural Homestead Forestry in Chittagong : A Case Study

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Abstract

Homestead forestry, albeit its paramount importance and contribution to rural socio-economy, remains a rather ignored area of study. This research focuses on the floristic composition and socio-economic aspects of homestead forestry in two areas (Habilashdip and Chunati Unions) in the district of Chittagong. Home gardens are located close to houses and characterised by a mixture of annual and perennial species. The proximity to natural forests and the availability of timbers in local markets also seem to influence the propensity to plant timber and fuelwood in home gardens. Fruit trees dominate the gardens, followed by fuelwood species. Women play an intensive role in the management of home gardens. The article ends with an exhortation for increased research on homestead forestry.

সারসংক্ষেপ

গ্রামীণ অর্থনীতি ও সমাজে গুরুত্বপূর্ণ অবদান রাখা সত্ত্বেও গবেষণার বিষয়বস্তু হিসেবে বসতবাড়ি বনায়ন অবহেলিত রয়ে গিয়েছে। আলোচ্য গবেষণায় চট্টগ্রাম জেলার হাবিলাশদ্বীপ ও চুনতী ইউনিয়নের দুটি এলাকায় বসতবাড়ি বনায়নের ক্ষেত্রে বিভিন্ন প্রজাতির গাছ-গাছালির সংমিশ্রণ ও আর্থ-সামাজিক বিষয়ের উপর আলোকপাত করা হয়েছে। বসতবাড়ি বাগানসমূহ ঘরের নিকটে অবস্থিত এবং এগুলোতে বর্ষজীবী ও বহুবর্ষজীবী প্রজাতির উদ্ভিদের সংমিশ্রণ দেখা যায়। প্রাকৃতিক বনভূমির নৈকট্য এবং স্থানীয় বাজারে গাছের প্রাপ্যতা বসতবাড়ি বাগানে গাছ ও জ্বালানি কাঠ রোপণের প্রবণতাকে প্রভাবিত করে। এসব বাগানে ফলজ বৃক্ষের প্রাধান্য দেখা যায়, এর পরেই রয়েছে জ্বালানি কাঠ। বসতবাড়ি বনায়নে মহিলাদের একটি প্রধান ভূমিকা রয়েছে। বসতবাড়ি বনায়নের উপর অধিকতর গবেষণার আবেদন জানিয়ে প্রবন্ধের সমাপ্তি টানা হয়েছে।

Key words : Gender, home gardens, socio-economic aspects

Introduction

In the backdrop of the increased rate of deforestation and limitations of the public forestry activities, rural home gardens have assumed a special significance in recent times (Byron 1984, Task Force 1987, Douglas 1982, Khan 1998, ADB 1989, 1993). In the context of rural Bangladesh, homestead forestry, or 'home gardens' as they are more commonly called, connote "an operational unit in which a number of crops including trees are grown with livestock, poultry and/or fish production, mainly for the purpose of satisfying the farmers' basic needs" (Akhter *et al.* 1997). Rural home gardens account for 48% of the total supply of saw and veneer logs, 70% of fuelwood and 90% of bamboo in Bangladesh (ADB 1993). Despite the substantial contribution, however, research on homestead forestry is still in its nascent stage. This article is a modest attempt to shed light on selected home gardens in two areas in the district of Chittagong. The research espcially focuses on the species diversity and composition of the homestead forests in these areas together with the farmers' preferences and practices. In Bangladesh homestead forestry enjoys a rich legacy and tradition (Abedin and Quddus 1991, Dalmacio 1989, Abedin *et al.* 1990). A few technical studies have been conducted on the subject in recent years. Mohiuddin and Mohymen (1994) studied species composition in the homestead of Betagi and West Demsa. People's attitude towards growing multi-purpose tree s pecies in the homesteads of Dinajpur, Chapai Nawabgonj, Narsingdi and Rangamati was investigated by Ahmed and Islam (1994). Akhter *et al.* (1997) also offered an account of homestead multi-purpose tree species in varied geographic locations in the country.

Materials and methods

This study was conducted in two agro-ecologically distinctive Unions in the district of Chittagong, namely, Habilashdip (under the purview of Patia Upazila) and Chunati (under Lohagara Upazila). The geographic location of Habilashdip is 22°21' North latitude and 91°85' East longitude. The site physiographically belongs to the meander flood plain (non-Gangetic). Chunati Union lies between 21°8' North latitude and 92°2' East longitude. The soil is physiographically tertiary low hills. The topography represents hilly to flat, undulated coastal bench. The Unions are situated at a distance of approximately 20 km and 50 km respectively from the Chittagong city centre. Chunati Union consists of seven villages, while Habilashdip has four villages under its purview. All the villages of Habilashdwip were covered in this study. Owing to the limitations of time and resources, three villages were randomly selected from Chunati. The households in the study areas were divided into five categories on the basis of land holding :

* landless household : up to 0.2 hectare (ha) of land
* marginal household : 0.21-0.5 ha
* small household : 0.51-1.0 ha
* medium household : 1.01-2.0 ha
* large household : above 2.0 ha

Numerical values of five selected agroforestry components of economic value, *viz.* fruit trees, timber trees, fuelwood trees, species of non-timber forest products (NTFPs) and vegetable, and other relevant information were collected from three randomly selected households of each category, covering both the study Unions. A total of 60 (3x5x4) households in Habilashdip and 45 (3x5x3) households in Chunati were surveyed. A semi-structured questionnaire schedule was administered to each respondent household. The questionnaire contained such issuse as demographic composition and socio-economic characteristics of the household, land ownership, agroforestry production and practice, homestead forestry practice, status of NTFPs, gender roles, farmers' attitude and preferences towards integrated farming and species selection, etc. Anthropological tools of uncontrolled observation and group discussion supplemented the

questionnaire survey with the farmers. The field work spanned over a period of about four months.

Results and discussion

In the study areas, a typical homestead comprises of extended family houses, vagetable and horticultural gardens, trees, threshing grounds, livestock and poultry accommodation and rearing grounds, ponds and similar water reservoirs, bamboo, shrubs and bushes. Home gardens are located close to the houses and form a part of the intensively managed household management system. The gardens are characterized by a mixture of annual or perennial species grown in association with each other. Although there are regional variations, homestead plantations typically exhibit a layered vertical structure of diversified economic value and domestic usage. The upper stratum comprises of tree species. Horticultural species, including fruit trees and bamboo clumps, usually occupy the middle stratum. A range of vegetable species, such as bean, pumpkin, brinjal, chilli, etc. accounts for the lower stratum. Besides, in many homesteads *patipata* is grown at the water level on the inner side of the pond bank. Several other species such as *bhadi*, *mandar* and *supari* are grown along the boundary lines of the homesteads. A wide variety of tree species is observed in the study areas (Table 1)

Table 1. A profile of vegetables, fruit tress, timber trees, fuelwood and NTFPs commonly grown in the study areas.

Vegetables	
Local/English name	Scientific name
Potato	*Solanum tuberosum*
Lalshak	*Amaranthus gangeticus*
Tomato	*Lycopersicon esculentum*
Datashak	*Amaranthus lividus*
Turmeric	*Curcuma domestica*
Ginger	*Zingiber offcinale*
Bean	*Dolichos lablab*
Pumpkin	*Cucurbita pepo*
Brinjal	*Solanum melongena*
Chilli	*Capsicum annum*
Lady's finger (Okra)	*Abelmoschus esculentus*
Timber trees	
Sil koroi	*Albizia procera*
Gamar	*Gmelina arborea*
Udal	*Sterculia colorata*

Local/English name	Scientific name
Jarul	*Lagerstroemia speciosa*
Bhadi	*Lannea coromandelica*
Eucalyptus	*Eucalyptus camaldulensis*
Rain tree	*Samanea saman*
Mahogany	*Swietena mahagoni*
Sishu	*Dalbergia sissoo*
Kadam	*Anthocephalus chinensis*
Ipil-ipil	*Leucaena leucocephala*
Champa	*Michelia champaca*
Telsur	*Hopea odorata*
Mingiri	*Cassia siamea*
Teak	*Tectona grandis*
Mandar	*Erythrina indica*

Fuelwood	
Local/English name	Scientific name
Rain tree	*Samanea saman*
Eucalyptus	*Eucalyptus camaldulensis*
Bhadi	*Lannea coromandelica*
Minjiri	*Cassia siamea*
Mandar	*Erythrina indica*
Fruit trees	
Guava	*Psidium guajava*
Lemon	*Citrus aurantifolia*
Jack-fruit	*Artocarpus heterophyllus*
Banana	*Musa paradiasiaca*
Boroi	*Zizyphus mauritiana*
Mango	*Mangifera indica*
Amloki	*Emblica officinalis*
Betel nut	*Areca catechu*
Olive	*Elaeocarpus robusta*

Fruit trees	
Local/English name	Scientific name
Coconut	*Cocos nucifera*
Pineapple	*Ananas sativa*
Borta	*Artocarpus lacucha*
Gab	*Diospyros perigrina*
Bel	*Aegle marmelos*
Lichi	*Litchi chinensis*
Khajur	*Phoenix sylvestris*
Tal	*Borassus flabellifer*
Tetul	*Tamarindus indica*
NTFPs	
Muli bans	*Melocanna baccifera*
Mitenga bans	*Bambusa tulda*
Kalichira bans	*Gigantochlon andamanica*
Bara bans	*Bambusa vulgaris*
Patipata	*Schumananthus dichotoma*

As compared to other components, fruit trees dominate in the home gardens at both the study Unions (Figs. 1 and 2). Farmers show a particular preference to fruit trees and assign the following reasons in support of their preference :

* fruit trees provide immediate cash return
* they substantially contribute to household food and nutrition requirements
* they also support livestock
* they can be used as 'gift' items on socio-religious occasions and as a mark of hospitality to guests.

There is no significant difference in the frequency distribution of fruit trees among different categories of households in Chunati, while in Habilashdip it is significantly higher in the large and medium households than others (Figs. 1 and 2).

Farmers plant timber tree species mainly to augment household income. Large households are especially interested in timber. The distribution of timber trees is significantly lower in landless and marginal households in Habilashdwip. Among other things, poorer farmers reported that they felt discouraged to grow timber due to -

* the threat of plundering by organised 'musclemen' and loggers;
* the problem and cost of regular protection;
* the bureaucratic and procedural formalities and harassment in harvesting timbers (when they mature);

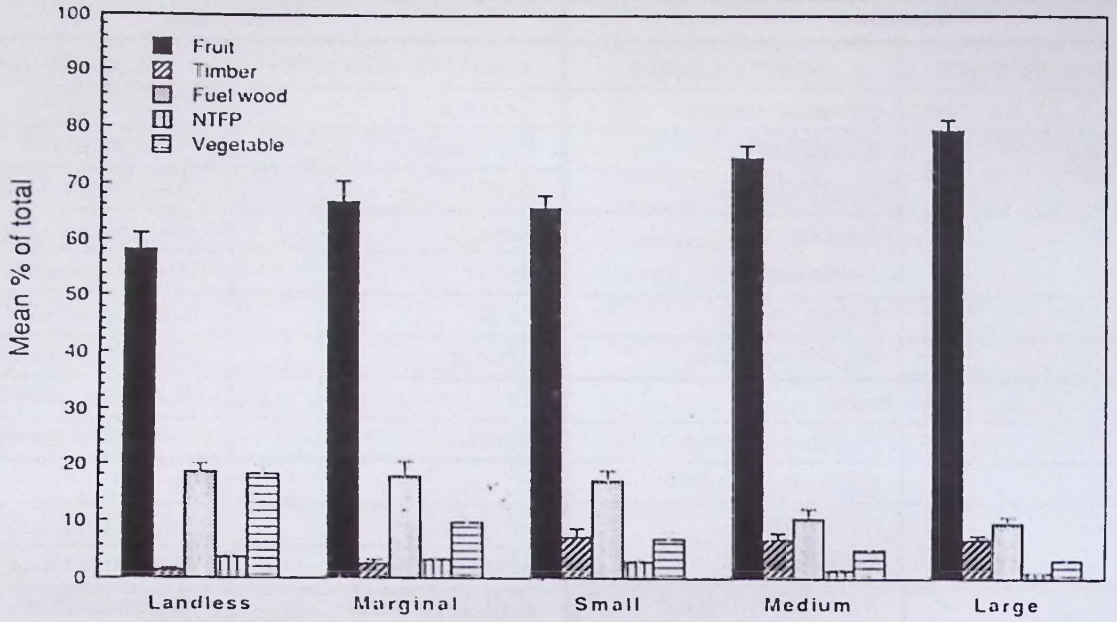

Figure 1. Frequency distribution of species diversity in homestead agroforestry of various household categories in Habilashdip union.

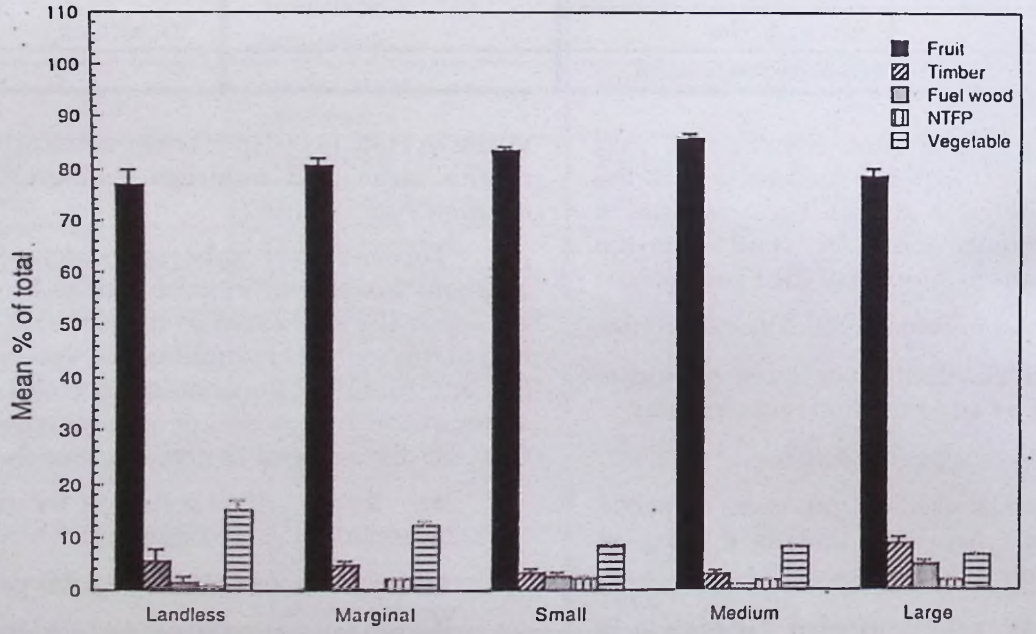

Figure 2. Frequency distribution of species diversity in homestead agroforestry of various household categories in Chunati union.

Table 2. Typical gender division of the activities related to the management of home gardens.

Activities	Men	Women
Raising seedlings in poly bags		x
Preparing seed bed	x	x
Clearing and burning jungle, preparing site	x	
Staking	x	
Collecting debris		x
Digging deep pits	x	
Digging narrow ditches for watering	x	x
Sowing or planting (as the case may be)		x
Collecting cow dung as fertilizer		x
Making protective gabion		x
Grafting particular plants	x	x
Watering		x
Weeding		x
Mulching		x

Note : "x" sign indicates an activity performed by a particular sex.

Table 3. The preferred usage and benefits of homestead trees.

Preferred uses and benefits of trees	Habilashdip respondents (No.)	Chunati respondents (No.)
Household wood and timber usage	15(25)	9(20)
Fruits as sources of food, nutrition and hospitality	42(70)	36(80)
Fodder and other livestock support roles	5(8.3)	5(11.11)
Fuelwood usage	36(60)	10(22.22)
Area demarcation and boundary lining purposes	30(50)	27(60)
Cash income generation	51(85)	20(44.44)
Aesthetic purposes	24(40)	15(33.33)

Note : Figures in parentheses represent percentage.

* financial hardship which does not allow the farmers to s ustain through the long gestation period of, especially, the timbers of substantial economic value.

The proximity to natural forests and the availability of timbers in local markets also seem to influence the propensity to plant timber and fuelwood in home gardens. Both timber and fuelwood productionis higher in the Habilashdwip homesteads as compared to Chunati. It may be mentioned that Chunati is located in the vicinity of a forest reserve under the Chittagong Forest Division, and villagers can procure the illegally extracted trees from the local markets at a relatively cheaper price. Farmers of landless and marginal households, however, grow higher percentage of fuelwood as they are unable to access the local fuelwood market owing to financial constraints. Likewise, NTFPs and vegetable gardens are also found in poorer households as compared to the relatively affluent households.

Farmers in the study areas typically follow a gender division of labour in managing the home gardens and the associated agroforestry activities, as depicted in Table 2. Women play a most active and in tensive role in the development and maintenance of the home gardens.

The benefits and preferred use of the homestead trees as reported by the respondent farmers, are shown in Table 3.

Home gardens are a part of the long heritage of traditional agroforestry practices in Bangladesh as well as in other regions of Asia. The home gardens observed in this study corroborate this traditional role. Considering their great significance and contribution, increased research on the rural home gardens seems to be the need of the time. The major potential areas of research include gender and equity issues, floristic and silvicultural characteristics, farmers' participation and preferences, policy and management aspects.

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