

Home Gardens: Traditional Systems for Maintenance of Biodiversity

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Introduction

Home Gardens (also known as compound farms, homestead and mixed gardens) are usually the small plots of land surrounding the house. They are found in traditional communities all over the world and are one of the more intensively cultivated parts of an overall farm. Home Gardens are important agroecosystems and are a source of subsistence and cash resources. They are characterised by a mixture of annual or perennial species grown in association. They commonly exhibit a layered vertical structure of trees, shrubs and ground cover plants which recreate some of the features of nutrient recycling, soil protection and effective use of space below and above the soil surface. They also act as a repository and testing site for uncommon species and varieties of plants (Padoch and Jong 1991) and can be used to spread farm work, output and income more evenly throughout the year (Ninez 1984). Home Gardens are a source of edible, medicinal and other useful plants. The Home Gardens of Southeast Asia provide the most vivid illustration of the importance of plants in providing needs for the family. Within perhaps 50 m of each dwelling can be found bananas, coconuts, sugar apples, mangoes, many leafy vegetables, palms, and even fuelwood and timber trees. In Indonesia no less than 37 fruit tree species have been found growing in just one Home Garden.

Research needs

The importance of Home Gardens has been detailed for regions such as Southeast Asia (Soemarwoto and Soemarwoto 1982; Wiersum 1982) and Central America (Anderson 1950). However, such studies have hardly been initiated in the culturally and biologically diverse region of north-eastern India. Most of the tribes from north-eastern India, especially from Arunachal Pradesh, Manipur and Nagaland, have a well-developed tradition of maintaining Home Gardens, and thereby preserving the useful biodiversity of the region. Our recent studies of Konyak Home Gardens in northern Nagaland revealed that more than 120 plant species are found in large, spacious Home Gardens. Even plants such as tea, coffee, *Aquillaria agallocha* and cardamom are being grown. Along with a large number of vegetables and fruits, timber and fuelwood species are also planted. A market survey of Kohima and Mon town markets showed that out of a total of 68 plant products recorded, 40 are harvested from Home Gardens. This clearly indicates the role of Home Gardens in the economy of these communities.

*Selling of Home
Garden products in
Kohima Market
- Pei Shengji*



The study of Home Gardens is important for enhancing the understanding of indigenous knowledge in natural resource management, as well as for understanding its role in biodiversity conservation and community development. There is a need to formulate a research programme on Home Gardens in the high diversity area of north-eastern India. The research and studies on Home Gardens of indigenous communities could be based around the following topics.

1. Functions of Home Gardens

- Cultivation of useful plants: annuals/perennials (mainly herbaceous) as well as trees and shrubs
- Provision of products for household use and cash income (marketability)
- Testing sites for introduced crops such as introduced banana varieties, coffee, etc to check their suitability for large-scale cultivation (experimentation)
- Resting area for livestock such as chickens, pigs, ducks, etc (supplementary activities)
- Place for growing and cultivating culturally significant commodities—specific varieties of beans, gourds—in different tribal areas
- Easy availability of certain commodities that may not be cultivated on a large scale in *jhum* or terrace fields or for specific needs
- Provision of specific dietary considerations for different tribes

2. Diversity within/among Home Gardens

- Size and shape
- Location: around the house or slightly away from the village in specific areas or around the temporary hut in shifting cultivation [SC] fields
- Diversity of habits of plants: herbs, climbers, tubers, rhizomes, shrubs, trees, and even crops such as maize and sugarcane
- Diversity of species cultivated
- Diversity within species, i.e., varieties
- Management practices
- Organization and spatial pattern
- Provision of a variety of necessities throughout the year

Role of Home Gardens in maintaining biodiversity. Home Gardens play a significant role in maintaining biodiversity. The selection of plants grown is dependent on specific community needs, e.g., certain very hot chilli varieties with high capsaicin content are only cultivated in *Lotha* and *Konyak* Naga Home Gardens. Some leafy vegetables are grown in both Home Gardens and *jhum* fields, but others are only grown in Home Gardens.

Role of Home Gardens in domestication of wild species. It was observed in *Konyak* Home Gardens that forest trees such as *Aquillaria agallocha*, some varieties of bamboo, and fruit trees are successfully domesticated and cultivated. Multipurpose forest trees are cultivated in the Home Gardens of Kara (Nair and Krishnankutty 1984).

Role of Home Gardens in the economy: Home Gardens are used widely to supplement outputs from other agroecosystems, such as *jhum* and terraced

fields, by providing a variety of other subsistence and commercial crops. Certain products are specially cultivated in Konyak Home Gardens as they are in great demand for the local market of Mon town. Recently, local communities have started managing their Home Gardens in response to the needs of buyers. It is necessary to assess the changing pattern of Home Gardens and its effect on the household economy.

Role of Home Gardens in local diet. The staple food of shifting cultivators of the tropics is mainly rice. Meat is the main source of protein. However, large amounts of leafy vegetables, nuts, tubers, rhizomes and fruits are frequently used in the diets of local communities. In Konyak Home Gardens, 154 plant products used in the local diet have been recorded and have immense importance for the health of the Konyaks. It is necessary to assess the role of Home Garden products in the local diet. The plants grown become a resting and breeding ground for many edible insects. The impact of this small-scale supplementary agroecosystem on diversity and availability of insects should be documented.

Cultural significance of Home Gardens. Rico-Gray et al. (1990) have pointed out that Mayan Home Gardens, mainly those of the villages closer to Merida and other cities, tend to have more ornamental plants and commercial varieties of fruit trees at the expense of more traditional elements of Home Gardens. This changing pattern of Home Gardens and the effect of modern development are interesting aspects of present cultivation practices. Such an assessment will be helpful for understanding the cultural significance of Home Gardens.

Role of women in maintaining Home Gardens. Women are aware of the use of plants and the means of maintaining them. In many traditional societies it is only the women who have accumulated traditional knowledge about the food and other household products that plants can supply. Women are engaged in cooking and know the requirements for it. They have developed the skills to cultivate and maintain important plant species supplying these needs. *Konyak* women, for example, could name 29 plant products from Home Gardens while men could name 12 such products only. Women are better judges at selecting species to be cultivated in Home Gardens in response to the needs and demands of local markets. In most local markets surveyed in north-eastern India, the vendors are mainly women.

Conclusion

Although historically they have been little appreciated, tropical Home Gardens are traditional resource management technologies that have recently been hailed as highly productive and largely sustainable agroecosystems. The Home Garden is but one of a very large array of agroecosystems that traditional communities maintain. Many of the species that are grown in Home Gardens are also found in agricultural fields/*jhum* fields or on the fallow land that most households manage and many can be collected from nearby forests. The Home Gardens of tropical indigenous communities deserve to be examined in far greater detail. The study of Home Gardens could be used as a tool to develop methodologies for the application of traditional knowledge in conservation and community development.

References

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