

# Prominence of the Home Garden: A Study of Bogawantalawa South Grama Niladhari Division, Nuwara Eliya, Sri Lanka

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## Abstract

*Home garden is an integral part of local food systems in developing countries. It has a long-standing practice among the Sri Lanka for centuries. The main objective of this study is to analyze environmental and socio economic importance of home gardens in Bogawantalawa South Grama Niladhari Division (GND), Nuwara Eliya. The data was obtained from the primary and secondary sources. The questionnaire survey was designed to collect primary data from thirty households according to simple random sampling techniques. Field observation was conducted to identify the core dimensions of environmental importance. Collected primary data have been analyzed through an Excel spreadsheet and summarized the quantitative data using descriptive and quantitative analysis methods. Qualitative methods of content analysis were also carried out. As key findings, environmental importance of the upcountry home garden of the study area have been addressed. Conserving biodiversity and conservation of diverse plants, preventing the environment from chemical, habitats for animals and other beneficial organisms and reduced soil erosion and maintenance of landraces. The important socio economic importance are generation of employment opportunities and income, food and nutrient security of families, created a relaxing environment, improving health and preserving indigenous knowledge. In addition to this, this study identifies the challenges of the home garden and gives some recommendations to keep the sustainability in home garden.*

**Keywords:** Biodiversity, Environment, Habitats, Home Garden, Indigenous Knowledge, Soil Erosion

## Introduction

Home garden is an integral part of local food systems in developing countries. The concept of agroforestry is purposeful growing or deliberate retention of trees with crops and animals in interacting combinations for multiple products or benefits from the same management unit. Further, there are three attributes which, theoretically, all agroforestry systems possess are productivity, sustainability and adoptability (Nair, 1993). Furthermore, home garden refers to the cultivation of a small portion of land which may be around the household or within walking distance from the family home (Maroyi, 2009).

The synonyms are, mixed garden, compound farm, kitchen garden, household home garden, home garden agro forestry system. The basic structures of the home garden varied from place to place, based on their ecological, socio-economic and cultural factors (Ginigaddara). Five intrinsic characteristic of home gardens are located near the residence, contain a high diversity of plants, production is supplemental rather than a main source of family consumption and income, occupy a small area and are a production system that the poor can easily enter at some level (Michelle and Hanstad, 2004).

Home garden can be used to achieve the target of nutritional security of people suffering from malnutrition and under nutrition through growing and consumption of fruits and vegetables in the garden (Taiwo et al, 2010).

Home gardening has been a long-standing practice among the rural and urban households in Sri Lanka for centuries. Kandyan Forest Gardens are a common traditional agroforestry system found in the wet central hills in Sri Lanka. They encompass a mixed cropping system, which includes a diverse collection of economically valuable perennial and semi-perennial crops situated around the household (Galhena, Freed & Maredia 2013). Home gardens in Sri Lanka are dynamic sustainable food production systems, and presumably the oldest land use activity, next to shifting cultivation (Pushpakumara et al, 2012). The area of home gardens in Nuwaraeliya district was 27,440 ha or 16% of the total land area (Premakantha et al. 2008). This paper analysis the socio economic and environmental importance of the home gardens in Bogawantalawa South Grama Niladhari Division.

**Objectives**

**Main Objectives**

The main objective of the study is to analysis socio economic and environmental importance of the home gardens in Bogawantalawa South Grama Niladhari Division (GND), Nuwara Eliya.

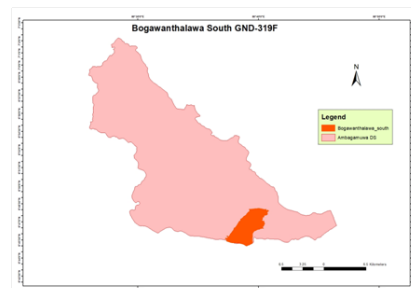
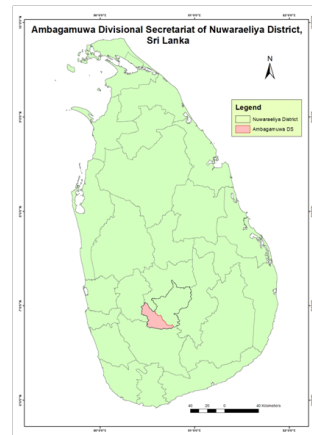
**Sub Objectives**

- To study the relationship between gender and age of homegarden practices in the study area
- To identify the socio economic and environmental benefits from the home garden in the Bogawantalawa-South GND.
- To find the major challenges facing by the home garden in the study area.
- To provide recommendations to develop the sustainable home garden in the Bogawantalawa-South GND.

**Study Area**

The Bogawantalawa-South GND is selected

as the study area which is located in Nuwara Eliya district, Sri Lanka. The coordinates of the study area are 06047’56.43” N Latitudes and 80040’19.3” E longitudes. The Bogawantalawa-South GND is located in the Nuwara District, as depicted in the below Figure 1.



**Sources: Prepared by author, 2022**  
**Figure 1 Study Area**

**Methodology**

The data was obtained from the primary sources. The questionnaire survey was designed to collect primary data from thirty households according to simple random sampling techniques. Field observation was conducted to identify the core dimensions of environmental importance. Collected primary data have been analyzed through Excel spreadsheet. And summarized the quantitative data using descriptive and quantitative analysis methods. Qualitative methods of content analysis were also carried out to conduct this study.

## Result and Discussions

### Relationship between Gender and Age of Homegarden Activities

Null Hypothesis ( $H_0$ ): There is no significant relationship between gender and age of homegarden activities in Bogawantalawa south

Alternative Hypothesis ( $H_1$ ): There is no significant relationship between gender and age of homegarden activities in Bogawantalawa south

**Table 1 Relationship between Gender and Age of Homegarden Activities**

Gender	Age		
	Age 14 and under	15 to 64	Age 65 and over
Male	1	11	3
Female	2	10	3
Total	3	21	6
Chi-Square statistic		0.381	
p- value		0.826	
Hypothesis		Accepted	

Sources: Prepared by author, 2022

Chi-square value of the above table is 0.381 at 5% level of significance. p value is 0.826, therefore, the null hypothesis, "There is no significant relationship between gender and age of home garden activities in Bogawantalawa south stands accepted".

### Characteristics of the Home Garden

Approximately 19% of households cultivate vegetable species in their home garden. Harvest mostly get by weekly (16%) for their home's need. According to finding 90% of family members are the prime labor source in the home garden. Most of the home gardens are located behind the house (17%) in the study area. 19% percentage of home garden have to get high species density and irregular cropping pattern. Cattle and poultry have been important animal husbandry in the study area.

**Table 2 Characteristics of the Home Garden**

	Variables	Frequency (n = 30)	Percentage (100 %)
Species type	Trees	04	13.3%

Species type	Vegetables	19	63.3%
	herbaceous plants	07	23.3%
Harvest frequency	Daily	05	16.6%
	Weekly	16	53.3%
	Monthly	07	23.3%
	Seasonally	02	06.6%
Labor source	Family members	27	90.0%
	Daily wagers	03	10.0%
Location	Around the dwelling	04	13.3%
	In front the dwelling	03	10.0%
	behind the dwelling	17	56.6%
	Both side of dwelling	06	20.0%
Species density	High	19	63.3%
	Moderate	06	20.0%
	Low	05	16.6%
Input cost	High	02	06.6%
	Moderate	07	23.3%
	Low	21	70.0%
Cropping pattern	Irregular	23	76.6%
	Regular	07	23.3%
Animal husbandry	Cattle	15	50%
	poultry	15	50%

Source: Information derived from the household through questionnaire survey, 2022

### Environmental Importance of the Home Garden in the Study Area

#### Conserving Biodiversity and Conservation of Diverse Plants

According to the finding 89 % of household has been contain a rich composition of plant such as vegetable, leaves, medicinal plants, tree, flowers and animal species (Table 01). Home garden continually conserves the biodiversity in the study area. Further these home gardens are particularly interesting for in situ conservation of diverse plants.

**Table 3 Species Diversity in Home Gardens in Bogwantalawa South**

Plant products	Mostly seen species
Vegetables	Chayote, Carrot, Lettuce, Green Bean, Leek, Tomato, Beetroot, Green Chili, Radish, Sweet Potato
leaves	Spinach,
Medicinal plants	Basil, Ginger, Peppermint, Patel.
Fruit /Tree	Avocado, Guava, Banana, Papaya, Mango, Jackfruit, Lime
Flowers	Rose, Jasmine, Hibiscus,
Other organisms	Squirrel, Butterfly, Dragonfly, Frog, Ant, Warm, Crow, Sparrow, hens, cows, goats, snails

**Source:** Information derived from the household through questionnaire survey,2022

**Preventing the Environment from Chemical**

Majority of the household (89%) applying natural pest and disease control methods and using natural fertilizers to their home garden as it is preventing the environment. Plant and tree materials are used as fodder for the animals and animal manure is incorporated into the compost to fertilize plants, hence reducing the need for chemical fertilizer. Livestock and poultry manure can add a significant amount of organic soil matter, nitrogen, potassium, and phosphorus into the soil (Powell & Williams,1993).



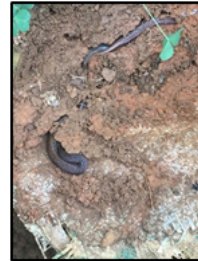
**Source:** Information derived from the direct observation

**Figure 1 Natural Pest and Disease Control Methods**

**Habitats for Animals and Other Beneficial Organisms**

According to the direct observation high density of plants within the home garden provides the habitats such as birds, small mammals, and insects.

home garden animals mostly seen trees, organic layer of soil and among the density plants.



**Source:** Information derived from the direct observation, 2022

**Figure 2 Habitats for Animals**

**Reduced Soil Erosion and Maintenance of Landraces**

Approximately 77% household’s farming practices are reduced soil erosion and maintenance of landraces. Covering the grass mulching on the soil and sloping agriculture are important preserve methods in the study area.



**Source:** Information derived from the direct observation, 2022

**Figure 3 Home Garden Farming Practices**

### Socio - Economic Importance of the Home Garden Bogwantalawa south

#### Generation of Employment Opportunities and Income

Home gardens provide a considerable amount of household income. The study has revealed that 54% of the farmers have increased their income by engaging in home gardening. per month they averagely earn Rs. 6,000.00 to Rs. 15,000.00 from the vegetable such as carrot, bean, leek, beetroot, green chili and radish. During the Covid 19 pandemic most of the household was used home garden's products for their meals. Further production was sold to neighbor families.

#### Food and Nutrient Security of Families

The most fundamental social benefit of home gardens stems from its direct contributions to household food security by increasing availability, accessibility and utilization of food products. Approximately 74% household get nutrient food their home garden. such as fruits, (avocado, guava, banana, papaya, mango, jackfruit) vegetable, (carrot,

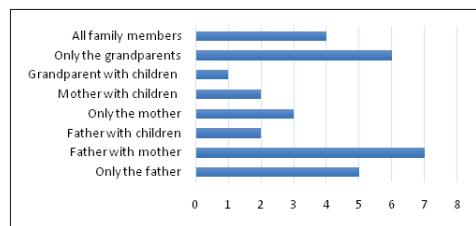
lettuce, green bean, leek, tomato, beetroot) milk, egg and meat from the home raised animals

Home gardens are maintained for easy access to fresh plant and animal food sources in both rural and town locales. Food items from home gardens add substantially to the family energy and nutritive requirements on a continuous basis.

#### Created a Relaxing Environment

According to the respondent's opinion garden is a relaxing environment that slows one down and provides a way of reducing stress and anxiety in life. Most of the household member spend leisure time with their home garden. It creates the unity, happiness among family members. The table 02 shows that many households (24%) are working with father and mother only. Further, children spend their leisure time with smart phones and other digital devices therefore children's contribution have been decreased in the home gardens. (father with children - 7%, mother with children - 7%, grandfather with children - 4%).

**Table 4 Uses of Family Labor in the Home Gardens**



**Source:** Information derived from the household through questionnaire survey, 2022

#### Improving Health

Household use herbal and medicinal plant to treat various illnesses, diseases and also to improve their health conditions. Plants are an important source of medicine for humans and livestock and are used as biological pesticides to protect crop from diseases and pest infestations. Below table 3 shows important medicinal plants and it benefits to the households.



**Table 5 Medicinal Plant and Usage for the Household**

Medicinal plant/ herbals	Parts used	Medicinal Usage
Basil	Leaves	Stomach problems, kidney stone, Cough, headache
Ginger	Rhizomes	Tooth pain
Peppermint	Leaves	Stomach pain relief
Patel	leaves	Cough
Aloe Vera		Skin injuries
Curry leaves	Leaves	Good eyesight, diabetes

**Source:** Information derived from the household through questionnaire survey, 2022

**Challenges Faced in Home Gardens**

Lack of fertilizer is first ranked among challenges confronting the households as indicated by 26% of the respondents. Because the government has ban importing chemical fertilizers to turn the nation’s agriculture sector to 100% organic. Heavy rain fall, food and drought are adverse weather conditions (22%) which closely Constraints faced in home gardens. Other problems are: lack water, insect pests and diseases, land fragmentation, decreased the traditional farming practices (Table 4) important challenges in the study area.

**Table 6 Percentage Distribution and Ranking of Challenges Faced in Home Gardens**

Challenges	Percentage	Rank
Lack of fertilizer	26%	1
Adverse weather conditions	22%	2
Lack water	17%	3
Insect pests and diseases	13%	4
Land fragmentation	12%	5
Decreased the traditional farming practices	10%	6
Total percentage	100%	

**Source:** Information derived from the household through questionnaire survey, 2022

**Conclusion and Recommendations**

**Conclusion**

As the prime aim of the study was to discuss the environmental importance of the upcountry home

garden, Bogawantalawa south GND was selected for the study. The key findings, environmental and socio economic importance in the home garden of the Bogawantalawa have been addressed in this study. Conserving biodiversity and conservation of diverse plants, Preventing the environment from chemical, Habitats for animals and other beneficial organisms, Reduced soil erosion and maintenance of landraces. The important socio economic importance are generation of employment opportunities and income, food and nutrient security of families, created a relaxing environment, improving health and preserving indigenous knowledge. In addition to this, this study identifies the challenges of the home garden and gives some recommendations to keep the sustainability in home garden.

**Recommendations**

- Make an awareness about importance of growing home garden in Bogawantalawa south.
- The continues monitoring should need for maintain the quality of the home garden.
- Government should help to give species in the upcountry home garden. (Seeds, plant)
- Quantitative research and exploratory research are necessary to identify the environmental importance of upcountry home garden.
- Need for timely information for growers. Such ashome gardening related activities education, and training.

**Acknowledgement**

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