



# Agroforestry Homegarden's Impact on Food Security and Income Generation

Lenjisa Direba

1. Natural Resources Management Program, College of Agriculture and Environmental Sciences, Haramaya University, P. O. Box 138, Dire Dawa, Ethiopia

## Abstract:

Agroforestry homegardens have been distinguished as an important wellspring of food and pay for provincial individuals. Moreover, agroforestry homegardens contribute the most to family pay creation. Therefore, agroforestry homegardening approaches have been demonstrated to be the best method for supporting the family's life. The significant inspirations that motivate networks to utilize Agroforestry homegarden techniques incorporate admittance to adequate food and cash consistently, just as an assortment of merchandise in their homes. Harvest rivalry, just as an absence of information/abilities in the tree the executives and courses of action with the proper tree species to incorporate with their herbaceous yields, are the fundamental obstructions to utilizing Agroforestry homegardens techniques. Besides that, capacity and questionable business sectors are different hindrances to utilizing Agroforestry homegardening rehearses. The entirety of this is inferable from most of the networks' failure to get acknowledge offices, just as the credit organizations' severe affirmation standards and costly passageway charge rates. Therefore, giving credit and information to all homegardens clients, just as underlying game plans, the sort of tree species to incorporate, and their upkeep, might be the main viewpoints in improving acknowledgment of Agroforestry homegardens rehearses.

*Keywords: Agroforestry, Homegarden, Trees, Household*

## INTRODUCTION

### Background

Homegardens are multi-useful agroforestry rehearses utilized by country ranchers to differentiate their livelihoods and balance out their sustenance (Das and Das, 2005; Ffolliot, 2005; Kebebew et al. 2011). To build efficiency and pay, homegardens incorporate various woody perennials, herbaceous yields, or potentially animals on a similar unit of land on the board (Nair, 1993). (Nair and Kumar, 2004). An exemplary illustration of such integrative homegardens is the (Enset ventricosum) and espresso (Coffea arabica) homegarden framework in southern Ethiopia (Abebe et al., 2006; Abebe, 2013).

Homegardens additionally are among the Agroforestry rehearses kept up with by rustic ranchers, satisfying a significant job in the natural, social and monetary capacity of networks (Nair, 1993). The primary credits recognized from homegardens that add to the supportability of these practices are biophysical benefits, for example, effective supplement cycling has given by the multispecies organizations, protection of bio-social variety, item broadening just as non-market upsides of items and administrations, and social and social qualities, for example, the chance for intergenerational trade (Kumar and Nair, 2004). With their complex vegetation structures, homegardens fill in as a significant natural surrounding for wild verdure (Kehlenbeck and Maass, 2004; Tangjang and Arunachalam, 2009). Homegarden have high plant variety and accordingly

(Kumar and Nair, 2004), a wide range of different use plant items can be produced with moderately low work, cash, or different information sources (Kumar, 2006). Homegardens, with their various products accessible the entire year, add to food security during seasons of starvation (Tynsong and Tiwari, 2010).

Around or near properties and settlements, homegardens are normally planted in blocks, columns (back street cultivating), or arbitrary arrangements (Ffolliott, 1998). Tropical homegardens, as indicated by Kumar and Nair (2008), are perhaps the most seasoned sort of oversaw land-use frameworks and are respected embodiments (hearts) of maintainability. They advanced through ages of slow heightening of trimming in light of expanding human pressing factors and the comparing lack of arable grounds.

The commitment of Agroforestry homegardens rehearses is very much appreciated all through the world (Kebebew et al., 2011). Starvation and starvation are quickly drawing nearer on a worldwide scale. The food emergency has deteriorated as the total populace develops, with the number of malnourished individuals surpassing 3 billion (Olajide Taiwo et al., 2010). During the time of 1993 to 2003, Africa's pace of populace development has been higher than the pace of food creation (Bishaw and Abdelkadir, 2003).

In spite of the ID of food security as a significant strategic objective in Africa, an excessive number of African nations keep on being food uncertain particularly among the urban-poor (Olajide Taiwo et al., 2010). This can be changed by deliberately fusing a homegardening plan into provincial and metropolitan development (Krishnal et al., 2012). Homegarden rehearses give an extra food supply and money pay for individuals (Das and Das, 2005).

Food creation for homegrown utilization is the essential focal point of home nurseries (Ndaeyo, 2007; Lulandala, 2010). In any case, as of late, there has been a decrease in food creation patterns which brought about low yields and pay income to families (URT, 2010). These decreases required an essential arrangement that will improve the adjusting of the efficiency as opposed to its ordinariness (URT, 1997). Improvement and presentation of new practices which increment the efficiency of work and land are profoundly expected to satisfy individuals' necessities. To save the biological system from pulverization and biodiversity misfortune, integrative and maintainable normal assets the board is fundamental (URT, National Environmental arrangement, 1997). When contrasted with resource farming, Homegardens Agroforestry adds esteem by producing pay through the offer of an assortment of products, guaranteeing that the family food supply is kept up with consistently (Fenandes et al., 1984).

## **Review Objective**

### ***Main Target:***

The general goal of this survey is to audit the commitment of Agroforestry homegardens to family food security and pay age.

### ***Explicit Targets:***

1. To audit on Agroforestry homegardens rehearses
2. To audit the extent of homegarden rehearses commitment to family's food security and pay age to smallholder ranchers
3. To survey the variables affecting the commitment of Agroforestry homegardens practices to family food creation and pay age to smallholder ranchers.

## LITERATURE REVIEW

### Definition of Homegardens

Vera Ninez (1987) made the accompanying idea of a homegarden dependent on examination and perceptions of family cultivates in creating and created nations across five mainlands:

"A family garden is a limited scale creation framework that gives plant and creature utilization just as utilitarian items that are either inaccessible, moderate, or promptly accessible through retail commercial centers, field development, hunting, assembling, fishing, or working class.

For security, comfort, and exceptional consideration, family plants are commonly situated close to the home. They live ashore that isn't appropriate for rural creation and work in regions that aren't helpful for enormous family financial action. The family cultivates are portrayed by modest capital info and straightforward practice, just as biologically suitable and free species."

As a rule, a homegarden is a little plot of land that is developed around the family plot or inside a strolling distance of the house (Odebode, 2006).

Home nurseries, as per Fresco and Westphal (1988), are an editing framework comprised of soil, crops, weeds, infections, and creepy crawlies that changes over asset data sources like sun-oriented energy, water, supplements, work, and different variables into food, feed, fuel, fiber, and prescriptions.

While recognizing that no standard definition for "a home nursery" exists, Kumar and Nair (2004) summed up the normal insight by portraying it as "... a personal, multi-story blend of different trees and yields, now and again in a relationship with homegrown creatures, around properties," and adding that homegarden development is complete or to some extent committed for vegetables, natural products, and spices. basically, for homegrown utilization.

As per different researches, a homegarden is a clear cut, multi-story, multi-use region closes to the family abiding that fills in as a limited scale valuable food creation framework kept up with my family individuals and incorporates an assorted cluster of plant and creature species that impersonates the normal eco-framework (Hoogerbrugge and Fresco, 1993; Eyzaguirre and Linares, 2004; Sthapit, et al., 2004; Krishna, 2006). It epitomizes a family's long-lasting limited scope resource farming framework for getting and enhancing the family's food needs.

To a great extent limited scope means farming frameworks, homegardens can be found in both provincial and metropolitan areas (Nair, 1993). Resource cultivating frameworks, which started in little nursery plots around the home, might be followed right back to the beginnings of present-day farming. These nurseries have withstood everyday hardship and have kept on being an essential wellspring of food and income for the family (Marsh, 1998). Numerous scientists have since added to the theme, incorporating definitions, species inventories, capacities, underlying attributes, organization, financial, and social importance (Kumar and Nair, 2004). Home nurseries are tended to in an assortment of ways relying upon the climate and study destinations (Hoogerbrugge and Fresco, 1993).

Homegardens are essentially used to develop and create nourishment for individual utilization, yet they can be extended to deliver an assortment of items with various utilizations, like native medication and home solutions for explicit ailments, fuel, and elective fuel sources, excrement,

building material, and creature feed. Niez, 1985; Torquebiau, 1992; Trinh, et al., 2003; Eyzaguirre and Linares, 2004; Sthapit, et al., 2006; Yiridoe and Anchirinah, 2005) recommend that overabundance yield can be advertised to make extra cash.

### Types of Homegarden Agroforestry

Home nurseries have gotten a ton of consideration. Most of the distributions are illustrative records of conventional land-use rehearses nearby properties. Different creators have instituted an assortment of names to portray these exercises. Land, 1954), blended nursery or housegarden (Stoler, 1975), home-garden (Ramsay and Wiersum, 1974), Javanese homegarden (Soemarwoto et al, 1976; Soemarwoto, 1987), compound ranch (Lagemann, 1977), a kitchen garden (Brierley, 1985), family garden (Vasey, 1985), and property agroforestry (Nair and Sreedharan, 1986; Leuschner and Khalique, 1987). Most chips away at homegardens in the jungles are overwhelmed by different assortments of Javanese homegardens, to where the Javanese words Pekarangan and Talunkebun are as often as possible utilized reciprocally with the word homegarden.

### Characteristics of a Homegarden

Home nurseries have five unmistakable characteristics, as indicated by Michelle and Hanstad (2004): 1) a homegarden is near the house; 2) a homegarden contains a wide assortment of plants; 3) homegarden creation is supplemental as opposed to an essential wellspring of family utilization and pay; 4) a homegarden consumes a little space (Brownrigg, 1985); and 5) homegardens are a creation framework that the poor can undoubtedly take an interest in some capacity (Marsh, 1998).

**Table 1: Characteristics of a Home Garden**

<ul style="list-style-type: none"> <li>• A homegarden is located near the residence</li> <li>• A homegarden contains a high diversity of plants</li> <li>• Homegarden production is supplemental rather than a main source of family consumption and income</li> <li>• A homegarden occupies a small area, and</li> <li>• Homegardens are a production system that the poor can easily enter at some level</li> </ul>
---

Sources: Michelle and Hanstad (2004), Brownrigg (1985), and Marsh (1998)

**Table 2: Percentage of Farm Land Used for Homegardens**

Region	Average % (Range)
Sri Lanka	50
Java	8.7-58.8
Java	14
Java	23(19-42)
Java	18

Sources: Brown et al, 1983; Christanty, 1981; Laumans, 1985; Matahelumual and Verheul, 1987; Terra, 1954

There is a huge assemblage of exploration and contextual analyses focusing on the job of homegardens as agroforestry or food creation frameworks, or a blend of both, in the writing. As far as biology, there are two kinds of home nurseries: tropical and mild (Niez, 1984). A large part of the writing centers around homegardens in Central and South America's tropical locales (Mendez, et al., 2001; Leiva, et al., 2001; Aguilar-Stoen, et al., 2009; Finerman and Sackett, 2008). Home nurseries, as per Hoogerbrugge and Fresco (1993), are based on regions that are regularly unsatisfactory for field harvests or grain development because of their size, geology, or area. The size of a home nursery shifts from one family to another; however, it is typically more modest

than the measure of arable land moved by the family. This may not be the situation for families that don't possess rural land or for the people who are landless. In any event, for those with very little or no land, new turns of events and methods have made homegardening reasonable (Ranasinghe, 2009).

Actual lines, like live fences or supports, walls, ditches, or concurred together upon limits, can be utilized to characterize homegardens. Home landscapers have been known to utilize kitchen junk, creature excrement, and other natural extras in their nurseries, and this training has served to fundamentally support the creation and fruitfulness of these nurseries (Hoogerbrugge and Fresco, 1993; Galhena, et al., 2012).

### **Composition of Homegardens**

Despite the fact that it is broadly recognized that home nurseries have more noteworthy agrobiodiversity than horticultural fields and that this is connected to the executives and use (Eyzaguirre and Linares 2004) while portraying homegarden structure, research, for the most part, alludes just to the creature and plant variety contained in that; parts, for example, organisms and microorganisms have as of late been explored, distinguish, and evaluate (Cetz-Zapata et al. 2011; Ramos 2011).

Minor animals are normal in-home nurseries in Central America, as per Wieman and Leal (1998), as a result of their size (they can be effortlessly raised inside the house compound region), the simplicity with which they can be butchered utilizing basic homegrown practice, and the way that they can be burned-through rapidly in light of the fact that storerooms (e.g., coolers) are deficient. Chickens (*gallus*) and turkeys (*Meleagris gallopavo*) are the most well-known species found in home gardens in the South and Southeast of Mexico, the two of which have phenotypic variety and are generally used for family utilization (Chi-Quej 2009; Jerez et al. 2012). Pigs (*Sus scrofa domesticus*) and canines (*Canis familiaris*) are likewise normal in family plants in the Yucatán Peninsula (Anderson 1996; Aké et al. 2002; Chi-Quej 2009).

Plants are supposed to be the most key part of a homegarden in light of the fact that they have the most between and intra-explicit variety (Eyzaguirre and Linares 2004); whenever plants are set up, creatures can be presented (González-Jácome 1985) or, as Linares (1976) detailed for swidden gardens, plantation gardens, and different kinds of plant plots, wild creatures might discover shelter in homegardens.

Homegardens in the jungles are regularly shaped of somewhere around three vegetation structures (trees, bushes, and spices) organized into something like three vertical layers where the gathering meets plant utilizes, as per Fernandes and Nair (1986): 1) a lower herbaceous layer with two sub-layers, one short of what one meter in stature (containing vegetables and therapeutic plants), and the other with food plants one to three meters in tallness; 2) an upper tree layer, separated into two sub-layers: the tallest trees (no less than 20 m), comprising of completely developed lumber and natural product trees, and medium-sized trees (10 - 20 m); and 3) a halfway layer, comprising of completely developed wood and natural product trees (e.g., organic product trees). The creators stress the layers' chronicled measurement: "the pool of substitution species keeps the producing structure dynamic consistently" (in the same place., 290).

The other is the flat design of the homegarden; this alludes to how plant species are coordinated on the even plane, and keeping in mind that the vegetation array is the part that is depicted in the

most detail, the even plane likewise incorporates other homegarden parts like domesticated animals and structures (Lok 1998); plants are disseminated all through the whole homegarden territory and may encompass any remaining parts.

In contrast with the upward design, plant creation in the flat construction is more convoluted and harder to describe. The flat design is comprised of the board zones,' which Lok (in the same place. supra) characterizes as a "specific region with its own particular creation and design, controlled by specific measures, where the board liability might be relegated by sexual orientation."

A few essayists recognize structures for human residence and useful designs in the level construction (cf. Herrera-Castro 1994 and Hernández-Sánchez 2010).

### **Contribution of Agroforestry Homegardens to Family**

Financial, social and social, stylish, and biological capacities are completely served by home nurseries. Soemarwoto and Conway (Soemarwoto and Conway, 1991).

A large number of the plants additionally fill in as fundamental non-food assets, for example, fuelwood and building materials (Shanavas and Kumar, 2003).

Rustic house gardens have fundamental social advantages notwithstanding their financial and biological capacities (Abdoellah, 1990; Soemarwoto and Conway, 1991). For some rustic occupants, the homegarden is a significant social occasion spot for family and neighbors. Numerous homegarden items additionally have a social capacity, as it is normal for neighbors to straightforwardly trade such things. Numerous species are thought to have "otherworldly" properties or to go about as climate indicators. Homegardens are additionally a superficial point of interest; individuals who don't have their own and should assemble their homes in another person's homegarden are considered ruined. Numerous researchers have reasoned that house gardens are economical creation frameworks because of their various jobs (Karyono, 1990; Soemarwoto and Conway, 1991; Ceccolini, 2002; Nair, 2001; Wezel and Bender, 2003; Blanckaert et al., 2004; Kumar and Nair, 2004).

There are various benefits to having a nursery in your home. Ninez (1994) features an assortment of advantages from home nurseries in a paper that blends examination and contextual analyses from four mainlands. These discoveries were subsequently checked in different examinations.

Chris Landon-Lane (2004) gives a decent audit of the advantages of home gardens just as the effect of planting since the beginning. Moreover, examination of past and more current organizations on home nurseries from all over the world affirms Landon-discovering Lane's as well as distinguishes extra advantages. The advantages of homegarden agroforestry for families are basically ordered into three classifications in this survey: (1) social, (2) monetary, and (3) ecological advantages. Worldwide encounters on home nurseries are utilized to expound and exhibit these advantages.

### **Contribution of Agroforestry Homegardens to Family Food Security:**

Food creation is the essential capacity and obligation in most tropical Agroforestry home nurseries. Perhaps the main aspect of homegarden food creation is to keep up with consistent creation consistently (FAO, 2004a, Kebebew et al., 2011). In Southern Ethiopia, 88.8% of the reviewed families were food secure consistently (FAO, 2004a, Kebebew et al., 2011).

Homegardens can likewise assist with mitigating the issue of land shortage by consolidating assorted parts on a limited quantity of land, bringing about food security and cash creating (Devendra and Thomas, 2002; Abebe, 2005).

A by and large steady stock of food items is accomplished by consolidating crops with particular creation cycles and rhythms (Nair, 2012). There might be the pinnacle and slack seasons for collecting the different items relying upon the environment and other ecological components, yet most homegardens have something to reap each day (Nair and Kumar, 2004). Most of this creation is intended for individual utilization, however, any attractive excess can ensure against future yield disappointments and deal security during the time between harvests (for example rice in Java and Sri Lanka, espresso and maize in Tanzania, coconut, and rice in southwestern India, etc). Besides, these reaping and support errands require just a little measure of work from relatives (Krishnal et al., 2012). Because of their variety, homegardens are among the best decisions for family food security and pay creation for smallholder ranchers (Kebebew et al., 2011; Lulandala, 2011). This is particularly evident in every aspect of the jungles where populace development and unsystematic deforestation are squeezing the climate.

Food security alludes to having sufficient food in adequate amounts and quality to meet the entirety of a family's wholesome requirements starting with one year then onto the next and inside a year (Kajembe et al., 2000). Food security, as per Beckford et al. (2011), is a state wherein all people have physical and monetary admittance to adequate, safe, and nutritious food to meet their dietary requirements and food inclinations for a functioning and sound life consistently. Numerous rustic families don't have all-year admittance to important measures of both new and handled staple food sources, as indicated by FAO (1996), and their new vegetables and natural products are occasional.

Since food is so essential to any living animal's prosperity, one of the records for deciding destitution level should be food security. A family or person who spends over 70% of their pay on food is viewed as poor and food unreliable. Subsequently, food security is critical (Ndaeyo, 2007).

### ***Homegardens to Pay Age:***

Home nurseries produce pay by selling cereal yields, organic products, vegetables, and other money harvests to nearby agents or shippers (e.g., lime, rambutan, jackfruits, durian, cloves, and espresso) (Christanty et al., 1986; Marsh, 1998).

Home nurseries seem to add to income creation, further developed vocations, and family monetary government assistance, just as supporting business and country advancement, as per bibliographic proof (Trinh, et al., 2003; Calvet-Mir, et al., 2012).

As per concentrates from Nepal, Cambodia, and Papua New Guinea, the money made through the offer of home nursery organic products, vegetables, and creature items permitted individuals to utilize the cash to purchase more food, save, and get different administrations (Vasey, 1985; Iannotti, et al., 2009).

A few ethnobotanical studies have analyzed the potential or genuine financial effect on family and neighborhood economies, just as the friendly turn of events (Kehlenbeck, et al., 2007). Tree yields and animals created in home nurseries represented over 60% of family pay, as indicated by an overview from Southeastern Nigeria (Okigbo, 1990).

When contrasted with field horticulture, the return per unit of land for home nurseries was higher (Marsh 1998). Harvests and cows both add to family pay in many non-industrial nations, just as friendly and social enhancement (Wilson, 1995). Animals housed in homegardens give a financial cushion and a resource for the family in exceptionally small gardens when land assets are limited (Devendra and Thomas, 2002).

Albeit the extent might be pretty much as high as 75% (Bompard et al, 1980), the measure of deals of cultivating items is frequently restricted (Stoler, 1978). In Sri Lanka, 57% of cultivators sell items filled in their own nurseries (Ensing et al, 1985). The homegarden adds to family pay as cash saved money on food buys and cash acquired from the offer of local vegetables. Home nursery pay has been explored broadly, essentially in Indonesia, however, the outcomes don't consider examination.

### ***Medication and Improving Health:***

Plants are utilized as natural pesticides to shield crops from sicknesses and vermin invasions, and they are a critical wellspring of drugs for people and domesticated animals. In-home gardens all through the world, spices, and restorative plants are planted. Individuals utilize homegrown and restorative plants to treat an assortment of sicknesses and illnesses, just as to work on their general wellbeing. As indicated by an examination directed in Catalina, Italy by (Agelet et al., (2000), more than 250 restorative plant species were found in family cultivates, representing the greater part of the therapeutic plant species filled in the district.

As indicated by Perera and Rajapaksa (1991), out of the 125 plant species found in Kandyan cultivates in Sri Lanka, generally, 30% were used rigorously for restorative purposes and about 12% for clinical and different purposes. In Sri Lanka (Perera and Rajapakse, 1991) and Bangladesh, restorative plants were considered as the second most significant plant bunch, second just to cash esteem species (Millat-e-Mustafa, et al., 2002). Home nurseries in Tanzania's Bukoba region contained plant species developed exclusively for therapeutic purposes (Rugalema, et al., 1994). Nine species were solely utilized for restorative purposes in Quintana Roo, Mexico, among the 77 significant plants found in 80 Mayan families cultivates, while 26 species had blended utilizations as drugs, food, flavors, and ornamentals (De Clerck and Negreros-Castillo, 2000). Therapeutic worth was found in about 70% of the 301 plant species found in the Yucatan woodland and home nurseries (Rico-Gray, et al., 1991).

In many ruined nations, nutrient an inadequacy is a genuine medical condition (World Health Organization, 2009). It's a significant issue, particularly for pregnant ladies and youngsters in low-pay countries. As indicated by reports, in excess of 7 million ladies in Africa and Asia are experiencing nutrient A lack, which is killing 6-8 percent of kids younger than five (West and Darnton-Hill, 2008). In Bangladesh and Nepal, an estate food creation drive was started to assist with the all-year creation of vegetables and organic products, basically to address nutrient inadequacy and upgrade nourishment quality (Iannotti, et al., 2009; Bloem, et al., 1996).

Iron lack builds the shot at death by 20% during pregnancy (Stoltzfus, et al., 2004). Moreover, gauges suggest that almost 33% of the total populace lives in where zinc lack is serious (de Benoist, et al., 2007). Micronutrient inadequacy can make individuals more powerless to irresistible sicknesses and increment the danger of death from ailments like loose bowels, pneumonia, jungle fever, and measles (Black, et al., 2008). New vegetables and natural products



filled in home nurseries give a variety of components, including nutrients and minerals, that are significant for acceptable wellbeing, as indicated by a few investigations (Faber, et al., 2002; Talukder, et al., 2006; Faber and Wenhold, 2007).

***Social Equity and Gender Balance:***

Ladies play a fundamental part in food creation and are dynamic members of home planting exercises in many societies (Talukder et. al 2000). While ladies make a huge commitment to family food creation, it isn't right to accept that home planting is essentially a female diversion (Hoogerbrugge and Fresco, 1993). Ladies' commitment to in-home cultivating changes across nations, as indicated by contemplates, and incorporates land planning, planting, weeding, reaping, and showcasing (Moreno-Black, et al., 1996; Keys, 1999; Pandey, et al., 2007).

Home nurseries have been fundamental in achieving social change. Brun et al. (1989) found that, while home nurseries didn't make a critical commitment to food utilization and nourishment, they were significant in working on ladies' pay and economic wellbeing, just as their consciousness of different food propensities in metropolitan regions, in view of an investigation assessing the food and dietary effect of home nurseries in Senegal. Ladies' ability to keep a thriving home nursery demonstrates her agronomic capability as well as her social situation inside the Achuar Indian gathering in the Upper Amazon (Descola, 1994).

Different examinations have tracked down that in circumstances where ladies are accountable for home nurseries, family sustenance, especially youngster nourishment, has improved (Kumar, 1978; Talukder et. al 2000). In Northeastern Thailand, (Moreno-Black, et al., 1996) directed an investigation of 49 ladies home nurseries. They found that these nurseries were enhanced and bountiful. Town ladies continually expressed that they were the foremost chiefs and that they completed most of the home nursery tasks.

Howard (2006) did a survey of the writing on Latin American home nurseries. Ladies are the essential administrators of home nurseries across the locale, as per this assessment of 13 contextual analyses regarding the matter.

Home nurseries give ladies a genuine method to add to the family's means, status, and character, and they have more socio-social and profound importance for ladies. As indicated by home nursery workers in Peru, ladies' grounds-keepers will in general give food to their families, while men landscapers will in general zero in on high-esteem crops for promoting (Niez, 1985). Ladies, elderly folks, and youngsters have been giving priceless family work and assets to neighborhood food and monetary frameworks in Tajikistan, where numerous men were killed during the common conflict or have moved to Russia and different nations. Kitchen gardens, as they are alluded by (Rowe, 2009) are adding to ladies made a beeline to satisfying their food needs and to produce extra pay.

***Environmental Benefits:***

Cultivating at home has various natural and environmental benefits. They are the significant unit that creates and carries out harmless to the ecosystem food creation techniques while protecting biodiversity and normal assets. Home nurseries are normally assorted, with a different scope of plant and creature species. Therefore, they're acceptable possibilities for ethnobotanical research (Blanckaert, et al., 2004; Albuquerque, 2005)

Nurseries are confounded, and they could be considered practical creation frameworks that assistance to monitor biodiversity. Perhaps the most difficult part of a home garden is the rich variety and creation of species and sorts (Mitchell and Hanstad, 2004). (Kehlenbeck and Maass, 2004) recognized 149 plant species in 30 home nurseries in Sulawesi, Indonesia, including vegetables, natural products, restorative spices, and flavors. Conventional Thai house gardens are said to have a different scope of plant species, including uncommon varieties of a few plants' animal groups. These outcomes are in the protection of biodiversity and hereditary material in situ (Gajaseni and Gajaseni, 1999). Because of their wealth and solidness, family cultivates are acceptable destinations for in situ preservation inside ecozones, as per Trinh et al. (2003), who directed three-year research in four Vietnamese locales.

Biological system administrations given by home nurseries incorporate territory for untamed life and valuable species, supplement reusing, diminished soil disintegration, and further developed fertilization. Birds, little warm-blooded animals, reptiles, and creepy crawlies advantage from the extraordinary thickness of plants in the home nursery, which fill in as appropriate environments and asylums for them. (1990, Christianity).

Home nurseries give an assortment of biological system administrations, including the arrangement of great food, the support of landraces, social administrations, bother the executives, and fertilization (Calvet-Mir et al. 2012). They reach the resolution that home nurseries give biological system benefits that are particular from those provided by the huge scope and business agribusiness.

One more biological advantage of home nurseries is supplement cycling (Gajaseni and Gajaseni, 1999; Kumar and Nair, 2004; Seneviratne, et al., 2010). An exceptionally proficient supplement cycling framework is supported by the measure of plant and creature litter, just as the persistent reusing of soil natural matter. One more benefit of home nurseries is that they can assist with soil disintegration and land protection (Terra, 1954; Soemarwoto, 1987). Bumblebees give extra fertilization benefits for certain plant species, while creatures like dairy cattle, poultry, and other domesticated animals give an extra wellspring of excrement, bringing down the requirement for counterfeit manure.

Fertilizers from animals and chickens can add a ton of nitrogen, potassium, and thrive to the dirt. The fuse of animal's exercises into home cultivating can have a significant effect on the environment supplement cycle (Thorne and Tanner, 2002). For instance, Biajaikya and Pipers (1998) tracked down that supplement adjusts for family cultivates without animals were negative in the Bukoba area of Tanzania.

### ***Social Upsides of Homegardens:***

Home nurseries serve fundamental social and social advantages notwithstanding their useful capacities (Christanty, 1990; Soemarwoto and Conway, 1992; Karyono, 2000; Abdoellah et al., 2002). They are generally 'open' to general society, offering a protected climate for youngsters to play and for neighbors to mingle. In numerous customary civilizations, the sharing of homegarden items and planting material is common (Hemp, 2005; Albuquerque et al., 2005).

Homegardens additionally fill in as a superficial point of interest and a stylish reason, which may fairly dominate the useful job, especially in metropolitan areas and in homes with more assets (Arifin et al., 1998; Karyono, 1990). Some plant species in family cultivates are thought to have otherworldly properties, while others are needed for strict functions (Abdoellah et al., 2002).

Hindu Balinese families, for instance, require their home nurseries as an area for formal penances (Arifin et al., 2002).

### **Difficulties to Homegarden Agroforestry Practices**

#### ***Shortage of Water:***

Water is a fundamental regular asset that is needed to keep up with life and meet an assortment of social and financial necessities (URT, 2002). Water assets are basic for food creation not just as a result of their immediate impacts on yields and developed region, yet in addition on the grounds that solid water supplies urge ranchers to put resources into other basic harvest inputs like improved germplasm, composts, and limit working for a better asset the board (Rosegrant, 1997).

#### ***Incidences of Bugs and Infections:***

Bugs are assessed to be answerable for generally 30% of by and large resource creation misfortunes in some African nations every year (Makundi, 1996). Bugs and sicknesses, just as an absence of agrarian data sources, are the essential drivers of efficiency diminishes, bringing about family food weakness (SUA, 2006).

#### ***Lack of Augmentation Administrations:***

The exchange of rural innovation from specialists (counting reformist ranchers) to ranchers, animals' guardians, and different partners is known as agrarian expansion administration (URT, 1997). Specialists fill in as a connection among ranchers and animals' attendants, just as analysts who make, test, and adjust farming advances. The connection among exploration and augmentation and ranchers and domesticated animals' attendants additionally fills in as a system for arranging examination and expansion exercises, just as growing new advances dependent on examination and augmentation experts' suggestions and native information (URT, 1997). Subsequently, an absence of associations between research expansion and ranchers'/animals' attendants might bring about helpless issue goal and innovation dispersion by ranchers'/animals' managers (Tesha, 1996).

#### ***Lack of Credit Offices and Solid Business Sectors:***

Ranchers can support their usefulness by just obtaining the important contributions at the right time because of the accessibility and openness of advanced offices (Mrindoko, 2012). Smallholder ranchers depend on ranch products for most of their food and pay. Because of the untrustworthiness of their agrarian business sectors, they are compelled to sell their yields at ranch door costs. Low earnings and food uncertainty are created because of these elements (IFAD, 2012). Enabling ranchers through credit accessibility will build their creation status just as their prosperity, as per (Smale et al. (2009), who saw that enabled ranchers overhauled staple food creation in Washington DC by giving rural information sources. Additionally, as per Doward et al. (2008), furnishing ranchers with financed manures help their creation amounts and in this manner their occupation manageability.

As indicated by an examination by (Lyimo-Macha et al. (2005), market capriciousness and low item costs (ranch door costs) were two of the most unmistakable issues affecting showcasing and rancher income corresponding to genuine creation costs.

#### ***Land And Rights to Land:***

Residency troubles in agroforestry, as per Leach and Mearns (1988), are not restricted to land residency yet in addition incorporate tree residency. The differentiation among land and tree residency is basic for provincial individuals' cooperation in tree-developing tasks. The option to

plant, the option to utilize, the option to arrange, and the option to possess or acquire are the four essential classifications of rights that make up tree residency, as per Fortmann (1985). Super durable inhabitants, a considerable lot of whom develop food crops under-occupancy leases, might be disallowed from planting trees in areas where the land request is more solid and different necessities of tenure are clearer, as per Francis (1987).

The land has been an essential resource all through mankind's set of experiences, providing food, wood, and different advantages to suit human necessities (Frank, 2000). Approaches, rules, laws, and motivators, like sponsorships and different inspirations, are utilized to oversee, control, and keep up with manageable and stable land use to stay away from abuse and huge struggles between those interests and players (Grover and Temesgen, 2006). Land proprietors are regularly given direct client rights and command over the land through possession or formal residency rights (Dessalgne, 2006; Gebre-Selassie, 2006).

### **Measures Needed for Agroforestry Home Nurseries Improvement**

As indicated by (Mariro (2009) and (Rugalema et al. (1994), there are various things that can be utilized to work on the usefulness of home nurseries, including amplexness of augmentation administrations, arrangement of information abilities on home nurseries the executives, preparing motivators, and water gathering.

#### ***Agroforestry Extension Services:***

A decent augmentation administration is an unquestionable requirement for working in private nurseries since it might assist ranchers with sending advancements all the more proficiently (URT, 1997). As per Mariro (2009), the public authority ought to work on the workplace of expansion representatives to rouse them; for instance, assistance preparing can empower them to stay aware of changing innovations while additionally further developing their presentation effectiveness.

#### ***Mindfulness Creation about Agroforestry Homegarden:***

Ranchers' mindfulness can prompt an ascent in efficiency, which will urge them to utilize the innovation. Subsequently, to accomplish the public point of destitution decrease, we require an essential arrangement that will build creation limit by furnishing ranchers with data (URT, 2005). Moreover, (Nair and Kumar, 2008) tracked down that broad tree pruning and great tree situation bring about higher home nursery usefulness. This implies that giving ranchers data and abilities is a huge advance toward working on their jobs.

## **CONCLUSION**

Agroforestry homegardens have been distinguished as an important wellspring of food and pay for provincial individuals. Moreover, agroforestry homegardens contribute the most to family pay creation. Therefore, agroforestry homegardening approaches have been demonstrated to be the best method for supporting the family's life.

The significant inspirations that motivate networks to utilize Agroforestry homegarden techniques incorporate admittance to adequate food and cash consistently, just as an assortment of merchandise in their homes.

Harvest rivalry, just as an absence of information/abilities in the tree the executives and courses of action with the proper tree species to incorporate with their herbaceous yields, are the fundamental obstructions to utilizing Agroforestry homegardens techniques.

Besides that, capacity and questionable business sectors are different hindrances to utilizing Agroforestry homegardening rehearses. The entirety of this is inferable from most of the networks' failure to get acknowledge offices, just as the credit organizations' severe affirmation standards and costly passageway charge rates.

Therefore, giving credit and information to all homegardens clients, just as underlying game plans, the sort of tree species to incorporate, and their upkeep, might be the main viewpoints in improving acknowledgment of Agroforestry homegardens rehearses.

## REFERENCES

- Abdoellah O.S. 1990. Homegardens in Java and their future development. In: Landauer K. and Abebe, T. (2005). *Diversity in Homegarden Agroforestry Systems of Southern Ethiopia*. *Access to Credit Facilities*. Daily Newspaper, 28 February. p 1.
- Agelet, A., Bonet, M. Á. and Vallès, J., 2000. Home gardens and their role as a main source of medicinal plants in mountain regions of Catalonia (Iberian Peninsula). *Economic Botany*, Volume 54, p. 295–309. *Agricultural Systems*, Volume 71, pp. 11-126.
- Agriculture, Ecosystems and Environment*, 97, 317–344.
- Agrobiodiversity conservation and development in Vietnamese home gardens.
- Aguilar-Stoen, M., Moe, S. R. and Camargo-Ricalde, S. L., 2009. Home gardens sustain crop diversity and improve farm resilience in Candelaria Loxicha, Oaxaca, Mexico. *Human Ecology*, Volume 37, p. 55–77.
- Albuquerque, U. P. A. L. H. C. C. J., 2005. Structure and floristics of homegardens in Northeastern Brazil. *Journal of Arid Environments*, Volume 62, p. 491–506.
- AN Leusden, The Netherlands: RUAF Foundation and vegetables: lessons learned in taking the Bangladesh homestead gardening programme to a national scale. *Food and Nutrition Bulletin*, 21(2), p. 165–172.
- and vegetables: lessons learned in taking the Bangladesh homestead gardening programme to a national scale. *Food and Nutrition Bulletin*, 21(2), p. 165–172.
- approach to multiple land use in an isolated location. *Agroforest Syst* 56: 107 – 115.
- attributable to selected major risks*, Geneva, Switzerland: WHO Press.
- Baijukya, F. and PETERS, P., 1998. Nutrient balances and their consequences in the banana-based land use systems of Bukoba district, northwest Tanzania. *Agriculture, Ecosystems and Environment*, Volume 71, pp. 147-158.
- Beckford, C., Campbell, D. and Barker, D. (2011), Sustainable Food Production Systems and Food Security: Economic and Environmental Imperatives in Yam Cultivation in Trelawney, Jamaica, *Journal of Sustainability* 2011, 3: 541-561.
- Bishaw, B. and Abdelkadir, A. (2003). *Agro Forestry and Community Forestry for Rehabilitation of Degraded Watersheds in the Ethiopian Highlands*. Wondo Genet College of Forestry Debub University, Awassa, Ethiopia. 14pp.

Black, R. et al., 2008. Maternal and child undernutrition: Global and regional exposures and health consequences. *The Lancet*, 371(9608), p. 243–260.

Blanckaert I., Swennen R.L., Paredes Flores M., Rosas López R. and Lira Saade R. 2004. Floristic composition, plant uses and management practices in homegardens of San Rafael Coxcatlan, Valley of Tehuacan-Cuicatlan, Mexico. *J Arid Environ* 57: 179 – 202.

Blanckaert, I. et al., 2004. Floristic composition, plant uses and management practices in homegardens of San Rafael Coxcatlán, Valle de Tehuacán-Cuicatlán, México. Volume 57, p. 39–62.

Bloem, M. W. et al., 1996. Production of fruits and vegetables at the homestead is an important source of vitamin A among women in rural Bangladesh. *European Journal of Clinical Nutrition*, Volume 50, pp. 62-67.

Brazil M. (eds), *Tropical home gardens*, pp 69 – 79. United Nations University

Brownrigg, L. (1985). *Home Gardening in International Development: What the Literature*

Brun, T., Reynaud, J. and Chevaussus-Agnes, S., 1989. Food and nutrition impact of one home garden project in Senegal. *Ecology of Food and Nutrition*, Volume 23, pp. 91 -108.

Calvet-Mir, L., Gómez-Bagetthun, E. and Reyes-García, V., 2012. Beyond food production: Home gardens' ecosystem services. A case study in Vall Fosca, Catalan Pyrenees, northeastern Spain. *Ecological Economics*, Volume 74, p. 153–160.

Ceccolini L. 2002. The homegardens of Soqotra islands, Yemen: an example of agroforestry

Christanty, L., 1990. Home Gardens in Tropical Asia, with Special Reference to Indonesia. In: K. Landauer and M. Brazil, eds. *Tropical Home Gardens*. Tokyo, Japan: United Nations University Press.

Christanty, L., Abdoellah, O. L., Marten, G. G. and Iskandar, J. (1986). Traditional Agroforestry in West Java: The *Pekaranagan* (homegarden) and *Kebun-Talun Annual-Perennial Rotation Cropping Systems*. In: Marten, G. G. (Ed.), Westview Press, Boulder. pp. 132 – 158.

Das, T. and Das, A. K. (2005). *Inventoring Plant Biodiversity in Homegardens*. A Case Study in Barak Valley, Assam, North East India. pp. 155 – 163.

de Benoist, B. et al., 2007. Conclusions of the joint WHO/UNICEF/IAEA/IZiNCG interagency meeting on zinc status indicators. *Food and Nutrition Bulletin*, 28(3), p. S480–S79.

De Clerck, F. and Negreros-Castillo, P., 2000. Plant species of traditional Mayan homegardens of Mexico as analogs for multistrata agroforests. *Agroforestry System*, Volume 48, p. 303

Descola, P., 1994. In: *In the society of nature: A native ecology in Amazonia*. New York, New

Devendra, C. and Thomas, D., 2002. Smallholder Farming Systems in Asia. *Agricultural Systems*, Volume 71, p. 17–25.

Devendra, C. and Thomas, T. (2002). Crop-animal Systems in Asia: Importance of Livestock and Characterization of Agro-ecological Zones. *Journal of Agricultural Systems* 71: 5-15.

*Dissertation*, Wageningen University, The Netherlands 158pp.

Dorward, A., Chirwa, E., Boughton, D., Crawford, E., Jayne, T., Slater, R., Kelly, V. and Tsoka, M. (2008). *Towards 'Smart' Subsidies in Agriculture? Lessons from Recent Experience in Malawi*. ODI Natural Resource Perspectives 116. London. 76: 337–357.

*Experimental Agriculture*, Volume 24, pp. 399 - 419.

Eyzaguirre, P. B. and Linares, O. F., 2004. Introduction. In: P. B. Eyzaguirre and O. F. Linares, eds. *Homegardens and agrobiodiversity*. Washington D.C., USA: Smithsonian Books, p. 1–28.

Faber, M. and Wenhold, F., 2007. Nutrition in contemporary South Africa. *Water SA*, 33(3), p.

Faber, M., Venter, S. L. and Benade, A. S., 2002. Increased vitamin A intake in children aged 2–5 years through targeted home-gardens in a rural South African community. *Public Health Nutrition*, 5(1), p. 11–16.

FAO (1996). *Food Security a Domestic Approach*. Food and Agriculture Organization of United Nations, Rome Italy. 44pp.

FAO (2004a). *Small Homegarden Plots and Sustainable Livelihoods for the Poor; Access to Natural Resources Sub-Programme*. LSP Working Paper No.11. Rural Development Institute USA.47pp.

Fernandes, E. C. M. and Nair, P. K. R. (1986). An Evaluation of the Structure and Function of Tropical Homegardens. *Journal of Agricultural Systems* 21: 279 – 3104.

Fernandes, E. C. M., Oktingati, A. and Maghembe, J. (1984). The Chagga homegardens: A multi storeyed agroforestry cropping systems on Mt. Kilimanjaro, Northern Tanzania. *Journal of Agroforestry Systems* 2: 73 – 86.

Ffolliott, P. F. (2005). Homegardens in the Southwestern United States and Northwestern Mexico. *School of Natural Resources University of Arizona, Tuscon Arizona*. 4pp.

Ffolliott, P. F. (1998). Multiple Benefits of Arid Land Agroforestry Home Gardens and Riparian Ecosystems. *Paper Presented at the North American Conference on Enterprise Development Through Agroforestry: Farming the Agroforestry for Specialty Products*, University of Arizona. 6pp.

Finerman, R. and Sackett, R., 2008. Using Home Gardens to Decipher Health and Healing in the Andes. *Medical Anthropology Quarterly*, 17(4), p. 459–482.

*Food and Nutrition Bulletin*, 7(3), p. 37–43.

Fresco, L. O. and Westphal, E., 1988. A hierarchical classification of farm systems.

Future. In: H. Stepler and P. Nair, eds. *Agroforestry: A Decade of Development*.

Gajaseni, J. and Gajaseni, N., 1999. Ecological rationalities of the traditional homegarden system in the Chao Phraya Basin, Thailand. *Agroforestry Systems*, Volume 46, p. 3–23.

Galhena, D. H. et al., 2012a. Role of Home Gardens in Food and Nutrition Security, and Income Generation in Northern Sri Lanka. *Working paper*.

Hoogerbrugge, I. and Fresco, L. O., 1993. *Homegarden systems: agricultural characteristics and challenges*, London, UK: International Institute for Environment and Development (IIED).

Howard, P. L., 2006. Gender and social dynamics in swidden and homegardens in Latin America. In: B. K. a. P. Nair, ed. *Tropical Homegardens: A Time-Tested Example of Sustainable Agroforestry*. Heidelberg, The Netherlands: Springer Science, p. 159–182.

Iannotti, L., Cunningham, K. and Ruel, M., 2009. *Improving Diet Quality and Micronutrient Nutrition: Homestead Food Production in Bangladesh*, Washington DC, USA: The International Food Policy Research Institute.

IFAD (2012). *Increasing Incomes and Reducing Poverty for Rural Smallholder Farmers in Remote Areas of Kenya, Tanzania and Uganda*. Extending Agricultural Dealers Networks. An Adaptation of the EADN Final Report, Kenya, 84pp.

Karyono 1990. Home gardens in Java: their structure and function. In: Landauer K. and Brazil M. (eds), *Tropical home gardens*, pp 138 – 146. United Nations University Press, Tokyo.

- Kebebew, Z., Garedew, W. and Debela, A. (2011). Understanding Homegarden in Household Food Security Strategy: Case Study Around Jimma, Southwestern Ethiopia. *Research Journal of Applied Sciences* 6(1): 38 – 43.
- Kehlenbeck, K. and Maas, B. L. (2004). Crop Diversity and Classification of Homegardens in Central Sulawesi, Indonesia. Kluwer Academic Publishers, *Journal of Agroforestry Systems*: 63: 53-62pp.
- Kehlenbeck, K., Arifin, H. S. and Maass, B. L., 2007. Plant diversity in homegardens in a socio-economic and agro-ecological context. In: T. Tschardtke, et al. eds. *The stability of tropical rainforest margins, linking ecological, economic and social constraints of land use and conservation*. Berlin, Germany: Springer, pp. 297-319.
- Krishna, G. C., 2006. *Home gardening as a household nutrient garden*. Pokhara, Nepal, Local Initiatives for Biodiversity Research and Development, Bioversity International and Swiss Agency for Development and Cooperation, pp. 48-52.
- Krishnal, S., Weerahewa, J. and Gunaratne, L. H. P. (2012). Role of Homegardens in Achieving Food Security in Batticaloa District, Sri Lanka. *International Conference on Economics and Finance Research IPEDR*. IACSIT Press, Singapore. 32pp.
- Kumar, B. M., and Nair, P. K. (2004). The enigma of tropical homegardens. *Agroforestry Systems*, 61, 35–152.
- Kumar, S., 1978. Role of the Household Economy in Child Nutrition at Low Incomes: a case study in Kerala.
- Leiva, J. M. et al., 2001. *Contribution of home gardens to in situ conservation in traditional farming systems—Guatemalan component*. Witzhausen, Germany, The International Plant Genetic Resources Institute, pp. 56-72. Lima, Peru: International Potato Center.
- Lulandala, L. L. L. (2010). *Agroforestry Concepts Systems Practices Potentials*. Constraints, Research and Training Needs, MSc. MNRSA Lecture Notes, SUA, Morogoro, Tanzania. pp 1 – 17.
- Lulandala, L. L. L. (2011). *Agroforestry Concepts, Systems, Practices, Potentials, Constraints, Research and Training Needs*. MSc. MNRSA Lecture Notes, Sokoine University of Agriculture, Morogoro, Tanzania. pp. 1 – 15.
- Lyimo-Macha, J. G., Batamuzi, E. K., Tarimo, A. J. P. and Malimbwi, R. E. (2005). Farmer Forums for Improved Food Security: Experiences from TARP II SUA Project. *Journal of Continuing Education and Extension* 2(1): 17 – 30.
- Makundi, F. I. K. (1996). Household Food Security in Rural Tanzania. A Case study of Moshi Rural District, Kilimanjaro Region. Dissertation for Award for MSc Degree at Agricultural University of Norway, 124pp.
- Mariro, A. T. (2009). The Contribution of Homegardens to Household Food Security in Morogoro Municipality. Dissertation for Award of MSc Degree at Sokoine University of Agriculture, Morogoro, Tanzania. 63pp.
- Marsh, R. (1998). Household Gardening and Food Security: A critical Review of the Literature. FAO Nutrition Programmes Service, Food and Nutrition Division. Rome, Italy. 11PP.
- Mendez, V. E., Lok, R. and Somarriba, E., 2001. Interdisciplinary analysis of homegardens in Nicaragua: micro-zonation, plant use and socioeconomic importance. *Agroforestry Systems*, Volume 51, p. 85–96.
- Millat-e-Mustafa, M., Teklehaimanot, Z. and Haruni, A., 2002. Traditional uses of perennial homestead garden plants in Bangladesh. *Forests Trees Livelihoods*, Volume 12, p. 235– 256.
- Mitchell, R. and Hanstad, T., 2004. *Small homegarden plots and sustainable livelihoods for the poor*, Rome, Italy: Food and agriculture organization of the United Nations.
- Moreno-Black, G., Somansang, P. and Thamathawan, S., 1996. Cultivating Continuity and Creating Change: Woman's Home Garden Practices in Northeastern Thailand. *Agriculture and Human Values*, 13(3), p. 3–11.
- Mrindoko, S. (2012). Tanzania Ignorance on Banking Operations Says Report. *Impedes*



- Nair, P. K. R. (1993). *An Introduction to Agroforestry*. Kluwer Academic Publishers, the
- Nair, P. K. R. (2008). Agro Ecosystem Management in the 21<sup>st</sup> Century. It is Time for a paradigm shift. *Journal Tropical Agriculture* 46: 1 – 12
- Nair, P. K. R. (2012). *The overstroy Homegardens*. Kluwer Academic Publishers, the Netherlands. 64pp.
- Nairobi, Kenya: International Council for Research in Agroforestry, pp. 157-170.
- Ndaeyo, N. U. (2007). Assessing the Contributions of Homestead Farming to Food Security in a Developing Economy: A Case Study of Southeastern Nigeria. *Journal of Agriculture and Social Sciences* 1813: 2235.
- Netherlands. 87pp.
- Niñez, V. K., 1984. *Household gardens: theoretical considerations on an old survival strategy*,
- Niñez, V. K., 1985. Working at half-potential: constructive analysis of homegarden programme in the Lima slums with suggestions for an alternative approach. *Food and Nutrition Bulletin*, 7 (3), pp. 6-13.
- Niñez, V. K., 1987. Household gardens: theoretical and policy considerations. *Agricultural Systems*, Volume 23, p. 167–186.
- Odebode, O. S., 2006. Assessment of Home Gardening as a potential source of household income in Akinyele Local Government Area of Oyo State. *Nigerian Journal of Horticulture Science*, Volume 2, pp. 47-55.
- Okigbo, B., 1990. Home Gardens in Tropical Africa. In: K. Landauer and M. Brazil, eds.
- Olajide-Taiwo, F. B., Adeoye, I. B., Adebisi-Adelani, O., Odeleye, O. M. O., Fabiyi, A. O. and Olajide-Taiwo, L. O. (2010). Assessment of the Benefits and Constraints of Home Gardening in the Neighborhood of the National Horticultural Research Institute, Ibadan, Oyo State. *Journal Agriculture and Environment Science* 7(4): 478 – 483.
- Pandey, C. B., Rai, R. B., Singh, L. and Singh, A., 2007. Homegardens of Andaman and Nicobar, India. *Agricultural Systems*, Volume 92, p. 1–22.
- Perera, A. H. and Rajapakse, R. M. N., 1991. A baseline study of Kandyan forest gardens of Sri Lanka: structure, composition and utilization. *Forest Ecology and Management*, Volume 45, pp. 269-280. Press, Tokyo.
- Ranasinghe, T. T., 2009. *Manual of Low/No-Space Agriculture cum-Family Business Gardens. Review Synthesis* *Journal of Agriculture* 44: 1 – 14.
- Rico-Gray, V., Chemas, A. and Mandujano, S., 1991. Use of tropical deciduous forest species by the Yucatecan Maya. *Agroforestry Systems*, Volume 14, p. 149–161.
- Rosegrant, M. W. (1997). *Water Resources in the Twenty First Century: Challenges and Implications for Action Vision 2020* Discussion Paper. 20pp.
- Rowe, W. C., 2009. "Kitchen gardens" in Tajikistan: the economic and cultural importance of small-scale private property in a post-soviet society. *Human Ecology*, Volume 37, pp. 691-703.
- Rugalema, G., Okting'ati, A. and Johnsen, F., 1994. The homegarden agroforestry system of Bukoba district, Northwestern Tanzania. 1. Farming system analysis. *Agroforestry Systems*, Volume 26, p. 53–64.
- Seneviratne, G., Kurupparachchi, K. A. J. M., Somaratne, S. and Seneviratne, K. A. C. N., 2010. Nutrient cycling and safety-net mechanism in the tropical home gardens. *International Journal of Agricultural Research*, 5(7), pp. 529-542.

Shanavas A. and Kumar B.M. 2003. Fuelwood characteristics of tree species in homegardens of Kerala, India. *Agroforest Syst* 58: 11 – 24.

*Shows*. Washington DC, USA: The League for International Food Education.

Smale, M., Cohen, M. J. and Nagarajan, L. (2009). *Local Markets, Local Varieties: Rising Food Prices and Small Farmers' Access to Seed*. Issue Brief 2009. International Food Policy Research Institutes, Washington DC. 24pp.

Soemarwoto O. and Conway G.R. 1991. The Javanese homegarden. *J Farming Syst Res Extn* 2: 95 – 118.

Soemarwoto, O., 1987. Homegardens: A Traditional Agroforestry System with a Promising

Sthapit, B. R., Rana, R. B., Hue, N. N. and Rijal, D. R., 2004. The diversity of taro and sponge gourds in traditional home gardens in Nepal and Vietnam. In: P. B. Eyzaguirre and O. F. Linares, eds. *home gardens and agrobiodiversity*. Washington, D.C., USA: Smithsonian Books, pp. 234-254.

Stoltzfus, R., Mullany, L. and Black, R., 2004. Iron deficiency anaemia. In *Comparative quantification of health risks: Global and regional burden of disease attributable to selected major risk factors*, ed. M. Ezzati, A. Lopez, A.

SUA (2006). *Research Agenda for 2005 – 2010*. Sokoine University of Agriculture, Morogoro, Tanzania. 25pp.

Talukder, A. et al., 2000. Increasing the production and consumption of vitamin A-rich fruits

Talukder, A. et al., 2006. *Homestead Food Production Program in Central and Far-Western Nepal Increases Food and Nutrition Security: An Overview of Program Achievements*. Pokhara, Nepal, Local Initiatives for Biodiversity Research and Development, Bioersity International and Swiss Agency for Development and Cooperation, pp. 27-34.

Tangjang, S. and Arunachalam, A. (2009). Role of Traditional Homegarden Systems in Northeast India. *Journal of Traditional Knowledge* 8 (1): 47 – 50.

Terra, G. J. A., 1954. Mixed-garden horticulture in Java. *Malayan Journal of Topical Geography*, pp. 33-43.

Tesha, J. O. (1996). An Assessment of Extension Needs of Urban Agriculture: The Case of Dar Es Salaam Region. Dissertation for Award of MSc Degree at Sokoine University, Morogoro, Tanzania. 72pp.

Thorne, P. and Tanner, J., 2002. Livestock and nutrient cycling in crop-animal systems in Asia.

Torquebiau, E. (1992). Are tropical agroforestry gardens sustainable? *Agriculture, Ecosystems and Environment*, 41, 189–207.

Trinh, L. J. W. N. H. et al., 2003. Agrobiodiversity conservation and development in Vietnamese home gardens. *Agriculture, Ecosystems and Environment*, Volume 97, p. 317–344.

Trinh, L. J., Hue, N. N., De, N. N., Minh, N. V., Chu, P., Sthapit, B. R., et al. (2003).

Trinh, L. N., Watson, J. W., Hue, N. N. De., Minh, N. V., Chu, P., Sthapit B. R. and Eyzaguirre, P. B. (2003). Agro Biodiversity Conservation and Development in Vietnamese Homegardens. *Journal of Agriculture, Ecosystems and Environment*, 97: 317– 344.

*Tropical Home Gardens*. Tokyo, Japan: United Nations University Press, pp. 21-40.

Tynsong, H. and Tiwari, B. K. (2010) Plant Diversity in the Homegardens and their Significance in the Livelihoods of WarKhasi Community of Meghalaya, North-east India, Kumla Raj. *Journal Biodiversity* 1(1): 1 – 11.

URT (NEP,1997). *National Environmental Policy*. The Vice President Office, Printing Press Dar es Salaam, Tanzania. 44pp.

- URT (2002). National Census for Population of the United Republic of Tanzania by Sex and Number of Households. Printing Press Dar es Salaam, Tanzania. 6pp.
- URT (2005). *Poverty and Human Development Report 2005. Research Analysis Working Groups*. Mkuki na Nyota Publishers, Dar es Salaam, Tanzania. 11pp.
- URT (2010). Mbeya District Council, Investment District Profile. Mbeya, Tanzania. 31pp.
- Vasey, D. E., 1985. Household gardens and their niche in Port Moresby, Papua New Guinea.
- West, K. P. J. and Darnton-Hill, I., 2008. Vitamin A deficiency. In: R. D. Semba and M. W. Bloem, eds. *Nutrition and health in developing countries*. Totowa, New Jersey, U.S.A.: Humana Press.
- Wezel A. and Bender S. 2003. Plant species diversity of homegardens of Cuba and its significance for household food supply. *Agroforest Syst* 57: 39 – 49.
- Wilson, R., 1995. *Livestock Production Systems*. London, UK.: Macmillan.
- World Health Organization, 2009. *Global health risks: mortality and burden of disease*
- Yiridoe, E. K. and Anchirinah, V. M., 2005. Garden production systems and food security in Ghana: Characteristics of traditional knowledge and management systems. *Renewable Agriculture and Food Systems*, 20(3), p. 168–180.
- York, U.S.A.: Cambridge University Press.