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Review of Home Garden as an Economic Approach

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***Abstract*—**Over the years, there has been a developing enthusiasm to fortify and heighten nearby food creation to relieve the unfriendly impact of worldwide food stuns. The household garden was neglected by macroeconomics over time. Supportable creation and great financial conditions can be accomplished by home planting. Thusly, there is a lot of consideration in the direction of home gardens using a technique toward upgrade family unit foodstuff safety plus money. Despite the importance, the economic contribution is one of the least studied area regarding home gardening. A theoretical approach from all the available published international and national level papers was reviewed regarding home gardens definitions, attributes and afterwards gives a worldwide study of their social, financial, and environmental commitments to the host communities. Improving the fitness of humans, enhancing food and dietary security and social value, and gender orientation balance are given as social benefits of home gardening. The valuation shows that producing from the home garden is more beneficial than spending money on food from the market. The cost-benefit analysis is cost-effective when family members are used as labours. The household members earn more money by the trade of both urban and rural home garden products in most probably developing countries. However, while accentuating numerous advantages, we also feature few limitations like the absence of water accessibility, lack of capital, atmosphere vulnerability, and market disappointment in their development. The review gives consolidated information on the home garden as an economical approach. Even though better selection of harvests and diverse land use designs received cause them to endure and continue with their creation. From this review, the exciting knowledge on the economic importance of home gardening will be concentrated on the youth.

***Keywords*—**Cost Benefit Analysis, Economic, Food Security, Home Garden, Technique

I. Introduction

In creating nations, agriculture remains the foundation of most nations' economies. Poverty is more prevalent in developing countries, and job opportunities are scarce, especially outside the agriculture sector (Eigenbrod and Gruda, 2015).The rapid population growth and slow growth of employment opportunities especially in the peasant sector intensify further fragmentation of existing smallholdings and this leads to low levels of food production result in malnutrition and under nutrition among people (Suman, 2019). On the other hand, the novel coronavirus 2019 (COVID-19) epidemic has recently reached pandemic proportions, limiting people's ability to access food by reducing income and increasing job insecurity (Beltrami, 2020). In light of the above, "home gardening" has emerged as a viable idea to provide people with enough local food production and income especially in developing countries (De Bon et al., 2010).

The term "home garden" refers to the management of multipurpose whole harvest trees, bushes in personal connection with yearly lasting yields, domesticated animals, and occasionally fish, within the mixes of individual houses. Not only that but, also with various contributions to food, feed, fuel, fiber, and pharmaceuticals, and the entire unit being overseen by family work (Kumar and Nair, 2004; Weerahewa et al., 2012). Many people in developing countries are now turning to home gardens as a direct source of income by starting their own businesses (Van Leeuwen et al., 2010). They play an essential ethnic and communal part in rural societies and support-households (HHs) in several means providing food, firewood, construction resources, cooking utensils, and feedstuff for livestock (FAO, 2004; Guuroh et al., 2012). This review stays to determine the involvement of home gardens to returns of households and the community. The present review has captured only the published and verifiable information at national and international levels. It presents the experiences of homegrown gardens in economic in developing countries including Sri Lanka. The home gardens just as the logical traits, social, environmental, and economic benefits, cost-benefit analysis

in writing are summed up in the accompanying segments.

Characteristics of Home Gardens

Home nurseries show a progression of characteristics that diverse topographical meridian, atmosphere rise zone or culture (Mitchell and Hanstad, 2004). They situate close to the habitation; incorporate different horticultural yields; a high decent variety of plants; predominantly a hotspot for family utilization and once in a while a pay; possess a little territory; utilize a creation framework available to those without or on low pay (Marsh, 1998). Other significant characteristics are dynamism and flexibility (Sthapit et al., 2004; Eyzaguirre and Linares, 2010). Since choices on crop determination, seed or creature feed procurement, gathering, or hazard taking are resolved, most importantly, the family's utilization needs or the weight on its income (Ali, 2005; Galhena et al., 2012). Vegetables, fruits, vines, medicinal plants, annual flowering plants, and trees abound in traditional home gardens. Herbs and annuals may be planted around the edges of paths as well. Home gardens can be found in abandoned lots, at the end of dead-end avenues, in unused alleys, or even in a window box in the city. Garden space in villages may be close to the house or in a nearby area.

Benefits of home gardening

Home gardens give more advantages to cultivators. It tends to be ordered into social, financial, and environmental advantages.

Social benefits

Social advantages respect the immediate commitment of home gardens to the family unit food safety by expanding the approachability, openness, and use of new nourishment items in a continuum that adds vitality and nourishment to the eating routine of the families that own them (Marsh, 1998).

Improving fitness of Human

Massive allocates of the vegetation in homemade nurseries have certain therapeutic worth and they could be utilized to treat numerous regular medical issues in a lucrative way. Plants are the significant foundation of medicine for human beings and livestock. Home gardens are a key basis for creating in situ preservation of healing vegetation (Rao and Rao, 2006).

Enhancing food and dietary security

Home gardens assume a key job by increasing obtainability, ease of access, and use of foodstuff yields from its direct offerings to household food security. The diversity in home gardens is revealed in the species structure of several plant kinds such as food crops, fruits, vegetables, medical and spice plants. Home gardens tangled with the cultivation of mushrooms or beekeeping, small fish ponds, animals, and poultry into this sort of households lead to a universal rise in food intake and the absorption of crucial nutrients and fortifies families through harmless and at times exclusive sources of animal protein derived from milk, eggs, and meat to rural households (Ali, 2005; Cerda and Mukul, 2008). Kandyan home gardens play a fundamental part by providing small-price food and confirming dietary consumption, with straight access and a firm store owed to the mixture of crops they cover, containing vegetables, fruits, and others (Pushpakumara et al., 2010).

Social value and gender orientation balance

Women have done a noteworthy job in food creation and are dynamic members in the home cultivating achievements in different social orders. There is growing evidence that females are more interested in organic food gardening and sustainable gardening than males (Bhatti and church, 2000; Buckingham, 2005; Reyes-García et al., 2010). Over the past few years, particular studies have even advanced procedural approaches to study these gender variances, which could be hard to establish due to the field of gendered garden study look like to be specific to certain nations which have more customary gendered partitions of labor in the family such as Spain while other outcomes appear to be more common (Reyes-García et al., 2010).

Environmental Benefits

The home garden is a multi-cropping system which is a kind of incorporated farming system owing to crop farming and animal husbandry both are concurrently accomplished in the same land region. The scientific literature informed that the huge amounts of hosted ecosystems, the creation of worthy food, cultural services, pest regulator, nutrient recycling, low soil erosion, and enhanced pollination are additional benefits (Pushpakumara et al., 2010). The higher number of livestock due to home garden supply of raw materials(fodder and leaves) to agricultural land deliver a substantial quantity of manure that could improve soil fertility (Santhoshkumar and Lchikawa, 2010; Bishaw et al., 2013).

Economic Benefits

Home gardens produce a fundamental salary for resource economy, improve the day to day environments, practical prosperity of families, animate business enterprise and rustic turn of events for the individuals who possess and oversee them (Kumar, 2003; Trinh et al., 2003; Peyre et al.,2006; Calvet et al., 2012). Family gardens contribute to the economic well-being of households by their products can be vented to make extra income (Ninez, 1985; Eyzaguirre and Linares, 2010). The cultivating exercises can be utilized in the travel industry and the investment funds of the family unit make by devouring its items can be focused for additional family inviting purposes (Marsh, 1998; Mitchell and Hanstad, 2004). Families in mountain regions of Vietnam and Southeastern Nigeria had produced over 22% of their money and followed by tree yields, and animals delivered over 60% of family salary through home-planting exercises (Okigbo, 1990; Trinh

et al., 2003). This implies that products from home gardens expands domestic monetary position, and money returns to purchase food, cloth, etc. This reflection is matched with the study has completed in the home garden of Zimbabwe and Ethiopia (Alfred, 2009; Kebebe and Urgessa, 2011). Conversely, the production is small, leading to fewer inputs and savings, which is tremendously imperative saving for low-income families with restricted access to manufacturing inputs. *Dacryodes edulis*, a significant monetary plant in southeastern Nigeria, is generally developed by neighbourhood landowners, with 51.4% of the formation originating from plants planted in home nurseries (Aiyelaagbe et al., 1998). The nearness of animal waste improves crop yield and gives cushion support in troublesome cases, which permits the family to leave the emergency by selling the animals (Devendra and Thomas, 2002; Grunert, 2005; Anne, 2008). A survey report from the dry place of Africa indicated that nearness of feed tree in the nursery aids increment number of domesticated animals, and decreases animals, rummage cost (Bashir et al., 2006). An expansion in the number of animals' prompts the essential inspiration of the ladies who participate in cultivation is to expand their compensation. Although the monetary commitment of vegetable nurseries to the family unit pay is little, it permits ladies to buy things that are explicitly imperative to the improvement of their economic wellbeing in a general public where men have the dominant position. Women also spend money differently than men by prioritizing their earnings on food, health, and education of their children (Meinzen-Dick et al., 2012). The decent variety of salary sources, just as the optional local creation to meet the family unit's resource needs is fundamental resource in financial security and government assistance (Abebe, 2005). The gardens didn't make a significant commitment to food utilization and nourishment; they were contributed to promoting the ladies' salary and societal position just as their consciousness of developing food propensities in urban territories (Brun et al., 1989). When distinguished the families' commitment from the home gardens to food security at a neediness stricken country towns in dry zone (Keeriyagaswewa, siwalukama) and a center salary town in the wet zone (Pethiyagoda) of Sri Lanka. The outcomes demonstrated a family, on a normal, spends Rs. 6,179/=, 3766/= and Rs. 10,909/= every month to buy food from the market and the market estimations of home garden produce were Rs. 1,155/=, 222/= and Rs. 970/= every month (proportional to 16.6%, 0% and 28.8% of the family unit food consumption), separately (Marambe and Silva, 2012). Numerous ethno botanical contemplates concentrated on the genuine or likely commitments of customary home gardens to the neighbourhood economy and societal turn of events (Kehlenbeck and Maass, 2004). The examination on advertising plants somewhere else has indicated that a 10 m x 20 m vegetable plot for little homestead families can expand the family salary by 30% (Chadha and Oluoch, 2003). One of the key factors in Kandyan home gardens is a few types of flavor crops, such as cloves, nutmeg, cocoa, coffee, different spices and condiments, and pepper vines (Kumar 2004). These species are high-worth harvests and give a critical salary to householders (Perera and Rajapakse, 1991; Lindara et al., 2006). Urban home gardens in Papua New Guinea have the family units recognized to sell home nursery produce in nearby markets and acquire the money that permits them to buy rice that creates a few periods the foodstuff vitality of the vented natural products (Vasey, 1985). City and countryside family units in three provinces in Russia found that two-thirds of all families gained certain earnings from agricultural home manufacture, and the market price of home creation surpasses household labor income in rural areas (Tho Seeth et al., 1998). 54% of households reported marketing home garden products and earning the cash equivalent was 14.8% of the total average monthly income at the Helen Keller International (HKI) pilot home garden project in Bangladesh (HKI/AP, 2003). The income value of home garden production increased from 14% to 25% of average monthly income after taking into account purchased fruits and vegetables (Marsh, 1998). Home gardening families who plant large varieties of fruits and vegetables spend less on food than non-gardening families in the Philippines (Miura et al., 2003). North-eastern Bangladesh and south-west Bangladesh derived household income from home gardens were on an average 11.8% and 15.9%, respectively (Motiur et al., 2005). Homestead gardens are likewise appropriate for asset helpless circumstances and have a monetary preferred position, for example, low capitals and labour costs, expanded independence, hazard evasion, and even conveyance of labor and also structure a significant wellspring of money and riches for some Javanese rustic family units (Arnold, 1987; Dury et al., 1996). Though little gardens can meet the necessary work contributions from inside the family, enormous nurseries may have the capability of utilizing outside work and make openings for work in the provincial regions (Sahoo et al., 2012). As a result, home gardens offer households several options by which they could fulfill their livelihood purposes, and each household could determine for itself what combination of consumption, trade, and sale of home garden manufacture best fits its livelihood approach.

Generally, home gardens mentioned above (Table 1) got positive results with the positive value of NPV (Net Present Value), and also mostly they have shown more than 1 for cost-benefit ratio if the market cost of labor used to have a tendency to the garden did not include from the expenses.

Challenges in Home Gardening and Ways to Overcome

While there are various advantages of home cultivating for creating nations, the review additionally uncovers the critical limitations for the efficiency and maintainability of home gardens and develops suggestions for promoting them as a suitable and supportable activity. There are some critical limitations for home-based gardening (Hoogerbrugge and Fresco, 1993; Mitchell and Hanstad, 2004). Sustainability has been characterized by three measurements or columns, specifically natural (biological) assurance, social advance-

Table I: Summary of some home garden cost benefit analysis

Source	Net Value						
	Input Cost	Labor Cost	Yield	Benefit (including Labor Costs)	Benefit (excluding Labor Costs)	CBR (including Labor Costs)	CBR (excluding Labor Costs)
Surabhi Mital, 2007	58692 (Rs)	NA	171344 (Rs)	NA	112652 (Rs)	NA	1.92
Doiron, 2009	$305	NR	$2072	NA	$1767	NA	5.79
Roth, 2011	$343	$463	$651	-$155	$308	-0.19	0.89
Roth, 2011	$380	$650	$876	-$154	$496	-0.15	1.30
Roth, 2011	$158	$421	$678	$99	$520	0.17	3.29
Asaduzzaman, 2011	409.15 (Tk)	465.98 (Tk)	894.51 (Tk)	19.38 (Tk)	485.36 (Tk)	0.02	1.19

NA – Not Available. CBR- Cost Benefit Ratio

ment, and financial development (Goodland, 1995; Kates et al., 2001; Nair and Kumar, 2006; Marambe and Silva, 2012). A biologically reasonable framework keeps up creation and utilization levels inside the limits that characteristic asset recovery grants without crumbling the earth (Mangel et al., 1993). As opposed to other agrarian frameworks (mono trimming), home garden agroforestry frameworks are creating models that join, preferably, the characteristic environmental capacities with financial prosperity of the families that keep them up however, experimental proof on these perspectives are deficient in Sri Lanka (Pulido et al., 2008). Customary biological information and conventional asset the board has assumed a vital job in asset maintainability and the board (Ticktin and Johns, 2002; Los et al., 2003; Drew 2005; Miller and Nair, 2005). Alongside deviations in conventional ways of life and conditions, customary information on home nurseries is blurring (Gillespie et al., 2004). So it is vital and critical to lead ethnobotanical concentrates on customary administration rehearses in-home nurseries, to record conventional information on the home nursery of the executives, and to investigate their logical implications. The role of education is an important factor in improving sustainable agricultural productivity that meets the growing demand for food, ensures efficient, inclusive and resilient food systems, and offers enhanced income opportunities in rural areas (FAO, 2017).

II. CONCLUSION

In general, the review boosts the consideration and advancement of home-grown gardens as an eco-accommodating feasible farming practice to improve monetary development. The comparative study expresses that home nurseries satisfy societal, environmental, and monetary necessities. Home gardens support family members by upgrading their financial status and improve ladies strengthening in most developing countries. The cost-benefit analysis is positive for the farmers using their family members as their labourers thereby excluding labour cost. Outcomes got so far on impacts of home gardens are restricted to primarily advantages and difficulties. Consequently, studies can be extended to investigate the impacts of home nurseries with various natural composts in the future. So that, in future, with the information and thought acquired from this review more youthful age may center this scope also. Moreover, individuals are less alert about home cultivating and the gap can be diminished with awareness programs.

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Table II: Key Constraints to Home Gardening

Constrain	Suggestion
Shortage of land	allocating home garden plots to landless
Lack of water	low-cost techniques to collect, store and efficiently use rainwater and household wastewaters
Lack of capital	Government and Non-government subsidy of home garden inputs
Lack of appropriate plants	promoting existing local species and local planting stocks
Adverse climate effect	changing monocrop land use system to mixed agroforestry system
Constraints in marketing	Selling through mobile service and use social media for sale
Interference of wild life animals	Shelter the fields with well managed strong fences

Source: Modified from Mitchell and Hanstad, 2004

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