

INTEGRATED HOME GARDEN FOR ENHANCING LIVELIHOODS OF SMALLHOLDERS

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ABSTRACT

Agriculture is the mainstay of livelihoods for more than 60% of the population in Nepal. More than 50% of farming households own less than 1 ha of land that is often insufficient to feed their family throughout the year. LI-BIRD has been implementing the Home Garden project in Nepal since 2002 with an aim of enhancing nutritional security of smallholders by increasing their on-farm biodiversity which will increase nutritional security. Approximately, 78% households in Nepal possess home garden, which occupies only 2-11% of the total landholding of an individual household. Although more than 80% households of Nepal have home gardens with the size less than 0.5 ha, it contributes 60% of the total vegetable and fruit consumption of a family. Integrated home gardens can contribute to nutritional and economic security of impact group, especially disadvantaged families (discriminated by caste/gender and economically poor, geographic location) by strengthening their individual and institutional capacity to effectively manage on-farm agro-biodiversity.

Increasing trend of male migration has led women to manage home garden diversity in vegetables, fruits, small animals, mushroom, and fodder trees in their home gardens, which has subsequently led to enhanced family dietary diversity. Almost 60% households have added minimum of 10 new species of vegetables and fruits into their home gardens over the period of three years (2006-08). The households involved in sale of surplus home garden products have increased from 15% to 78% with 65% of them earning between NRs. 2,000 to NRs. 10,000, which signals that home garden could be a stepping stone for commercialization of agriculture for smallholder farming households. Similarly, almost 90% of the households that used to buy or borrow vegetables from market or neighbours have increased self-sufficiency in vegetable and reduced the expenditure for vegetable by at least 50%. Home garden project has empowered women and their leadership & management role is now well recognized by public and the government.

Key words: Home Garden, Nutrition, Income, Disadvantaged groups, Empowerment

INTRODUCTION

Livelihood of Nepali people primarily depends on agriculture. 74% households in Nepal are engaged in agriculture (CBS, 2011) with the varying farm size and production potential. In Nepal, landlessness or nearly landlessness is ever increasing. Although the country is agriculturally based, the majority of the farming households are subsistence farmers who own less than one hectare of land. More than 50% farmers are already small holders (landholding less than 0.5 ha) and the access to cultivated land is diminishing over time as a result of rapid population growth as well as land fragmentation. This can lead our communities to transformation to relatively deprived households over time. In such context, promoting integrated agriculture could be an idea to sustainably increase the farm production of such smallholders.

Home garden with the literal meaning *Ghar Bagaincha*, refers to a land use system around homestead, where several species of plants and animals are grown and maintained by household members and their products are primarily intended for the family consumption (Shrestha *et al.*, 2002). Home garden is an important source of quality food and nutrition for the rural poor. It holds relatively higher diversity than other farming lands and is managed by family members. The management technology is basically low-cost oriented which maximizes the utilization of the available local resources. Originally, Nepalese home gardens produce organic food to contribute to the healthy and sustainable farming for a healthy family life. The land around homestead is generally covered by only those crops which are preferred by the family for food and other ethnic and cultural values. 72% HHs in Nepal grow vegetables in home garden (CBS 2011, Gautam *et al.*, 2004). Home gardens in rural areas of Nepal were found as the major sources of family vegetables and fruits as they supply 60% of the total vegetable and fruit requirement of the family (Gautam *et al.*, 2004). Besides fruits and vegetables, a home garden can hold varieties of small enterprises integrated within, for example; livestock, fodder/forage trees,

medicinal and ornamental plants, poultry, fish, seed production, nursery management, apiculture, mushroom etc. All those components could be managed connectedly to have a synergistic production, greater than the sum of its parts (Sthapit *et al.*, 2010).

Unlike sole crop production system, Home Garden gives considerably higher and diversified types of products. An integrated home garden can contribute to nutrition, income as well as other social capacity enhancement of rural poor women. As discussed earlier, the left behind women of a migrant's family, who lack options of livelihood and have small landholding, could reap remarkable benefit through homestead level intervention. With low-cost management technologies and family labour, a home garden can produce a diversity of nutritious products along with the scope of having income. As HG does not require high amount of financial investment, the intervention is feasible and suited for adoption by all the economic categories of Nepalese farming communities.

The term "home garden" is often considered as synonymous to 'kitchen garden' in Nepal but they differ in terms of function, size, diversity, composition and other features. Simply a kitchen garden could be considered as one of the components of home garden.

To raise the status of women in Nepal and push forward the country's economic development, government and development organizations have focused their efforts on empowering women. Among various components of women empowerment in Nepal, "increasing access to economic opportunities" and "strengthening women's self confidence" are two major components (Mahat, 2003). No significant improvements were visible in women's access to economic resources regarding the empowerment process during past years (Acharya *et al.*, 2007). As home gardens are predominantly managed by women, it can have an important role in ensuring proper diets of women and children, especially in rural areas (Suwal *et al.*, 2008). Even with small cash incomes, women in villages can spend at least on their own choice for daily household needs. Women also tend to spend money differently than men by first prioritizing their earnings on food, healthcare and education of their children (Meinzen-Dick *et al.*, 2011).

Home gardens are maintained by the farmers in Nepal for all or any of the following major intentions:

- Availability of nutritious food year round including fruits, vegetables, spices, root crops, fodder, ornamental plants, poultry, apiculture, fish and livestock
- Income generation from the sale of surplus produces
- Maintenance of crop species with a cultural, medicinal and ethnic values
- Keep environment healthy, comfortable and beautiful around homestead

Agriculture perspective plan of Nepal intends to increase production and productivity by prioritizing high value commodities based on the foundation of agro-ecology, comparative advantage and market potentials. Hence, some sectoral objectives of agriculture in this plan are to reduce poverty by increasing production, to contribute to food and nutritional security, to contribute to the sustainable production system and growth by adoptive research and development of the technology to be used in agriculture, to conserve and use agro-biodiversity in such a way as to maintain environmental balance with reduced pollution from the use of external inputs. Despite the resemblance of home garden objectives to this plan along with significant contribution in securing family nutrition of rural poor and marginal communities, home garden in Nepal has not been strategically promoted and prioritized by policy-makers, researchers and development workers. Being small in size and production scale, even farming communities undervalue the home garden.

In Nepal, there are policies and programmes to promote different sectors of agriculture (vegetable, livestock, irrigation, etc.) separately at a large scale but the integrated programme at household level is lacking. Smallholder farmers, who are defined as resource poor, may have been excluded from such commercial agriculture development programmes. But contextually, home garden's low-cost farming system that promotes local crop diversity, natural resource and indigenous farmers' knowledge for organic and sustainable production, could contribute to nutrition security of such people. Besides, in the global context of climate change, home garden-based biodiversity management might be strategic adaptation mechanism to reduce climate change vulnerability of those communities.

METHODOLOGY

LI-BIRD with financial support from Swiss Development Co-operation (SDC) and technical support from Bioversity International, initiated home garden as a project (2002-2005) of the study and research in four districts viz. Jhapa, Ilam, Rupandehi and Gulmi. This phase provided empirical evidences to claim that home garden is important and reliable sources of food, nutrition and income and can contribute to livelihood security of resource poor and socially excluded farming families. Since 2006, LI-BIRD has scaled up the good practices, experiences and learning of home garden project in wider scale in 16 districts of Nepal through diverse partners from local level to global level through its phase II (2006-2008) and phase III (2009-2013) programmes.

Third phase of Home Garden project is being implemented by LI-BIRD in 16 districts with the financial support from SDC Nepal for a period of four years. The project aims to enhance the livelihoods of poor and disadvantaged farmers of Nepal by improving their nutrition and income through the promotion of home garden-based biodiversity. Besides, this phase of home garden project intends to mainstream the approach of home garden as a low-cost intervention to make unreachable communities reach the national system of development.

A baseline survey was conducted in 2009 to generate benchmark information on home gardens of selected sites. The baseline assessed the existing situation of household's food availability from the home gardens and to identify the gap periods for limited supply of diverse nutrition through home garden. The initial status of economical and social capacity of the disadvantaged families was also recorded by the survey. Such parameters were again measured in 2012. Now in this paper the differences are analyzed to find out the actual progress on nutrition, economy and social capacity of the disadvantaged families due to the improved management of home garden. 3,290 households throughout the 10 districts identified by the site selection report (2009) of home garden project were considered as population for the sampling of the baseline survey. Following the stratified sampling procedure 739 HHs from 23 villages of 10 different districts (Jhapa, Ilam, Dolakha, Ramechhap, Okhaldhunga, Rupandehi, Gulmi, Bardiya, Kailali and Kanchanpur) were selected ensuring the inclusion of all the economic & geographic categories (Pudasaini *et al.*, 2009). A monitoring survey on 2012 was carried out by selecting 10 HHs (40%) from 59 farmers' groups from the same districts i.e. the total size was 590 HHs selected from the project total beneficiary 7,700 HHs. The data was analyzed using SPSS/PC module.

Increased species diversity

By composition, Nepalese home gardens are vegetable-based. About 48% of the total area of home garden was found covered by vegetable followed by 15% fruits (Figure 1). Still a gap in monthly vegetable supply was identified by the project in all the sites.

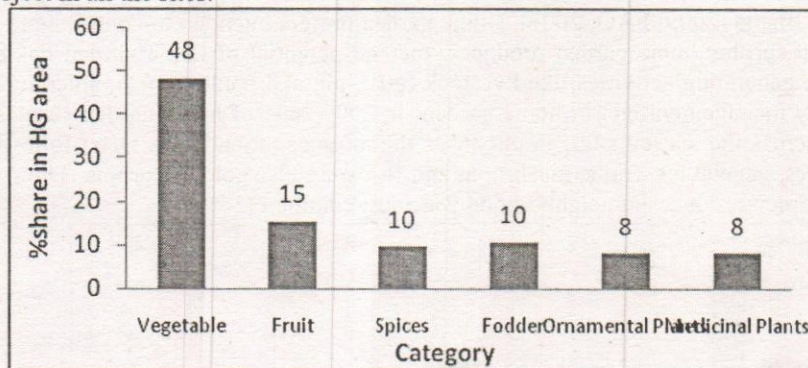


Figure 1. Proportion of different crop components in Home garden

Therefore to add diversity and to make vegetable and fruit available during the lean period, home garden project distributed 'diversity kits' to increase the home garden diversity to its beneficiaries. The kit included small quantities of seeds/ saplings of different kinds made available to farmers to complement the available resources (seeds and saplings of vegetables, fruits, fodder and other home garden species) (Pudasaini *et al.*, 2013). Analysis of the nutritional gap, demand of farmers, agro-ecology and farmer's capacity were the basis for determining the composition of diversity kit for home gardens. The composition of the diversity kit was a mixture of local and neglected & underutilized crop species both perennial and annual that are not easily available from commercial markets.

As a result of diversity kit distribution as well as increased awareness provided by the project, diversity in the home garden was found to increase significantly. The figure 2 shows that the households having lower range of diversity viz. below 10 and between 10 to 25 decreased and households possessing more than 26 to 50 species in their home garden have increased. About 4,600 HHs (60% of total beneficiaries) increased by at least 10 new types of diversity in their home garden after the project intervention by the end of completion of third year of phase III.

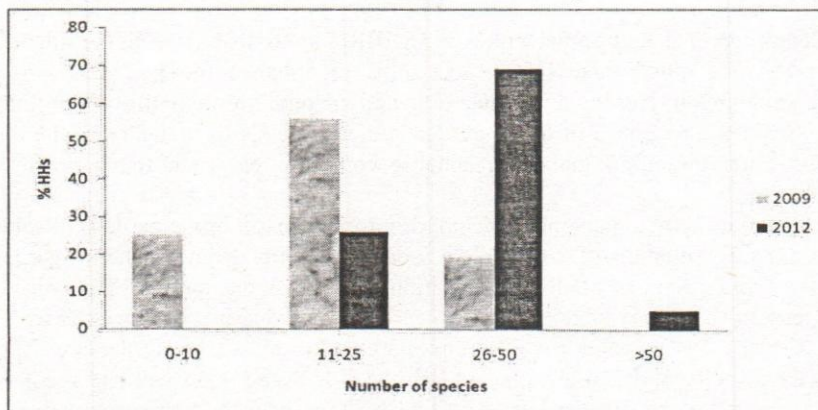


Figure 2. Distribution of households by diversity richness

The study revealed that there had been remarkable increase in the consumption rate of new home garden products among the beneficiaries. About half of the total beneficiary consumed about 12-24 new home garden products. There were 5,206 (68% of total beneficiaries) HHs which increased the consumption of at least 6 types of home garden products.

Income through surplus sale

Income derived from surplus sale ranges from 1 to 54% of family's total income (Abdullah *et al.*, 1983). Integrated management of small piece of land can provide much better output as compared to sole cropping (Ugwumba, 2010; Bhatta, 2009; FAO, 2001). Home garden project intended to contribute to the family income through the sale of surplus home garden produces. Income potential of home garden has been magnified by integrating income generating activities like livestock (goat, pig and poultry), fish, apiculture, mushroom, seed production, nursery management etc. in home garden. In 2009, sale of home garden surplus was practiced by 45% households across the survey sites. Poultry was the most common (44% HHs) followed by goat raising (42% HHs). Besides, vegetables, fruits, mushroom and fish were also sold as surplus. The study suggested that the sale of home garden produces in neighborhood was most common (56%).

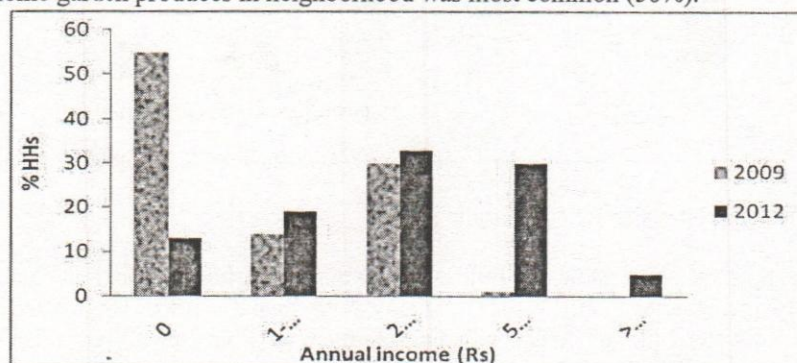


Figure 3. Distribution of HHs by annual cash income from HG

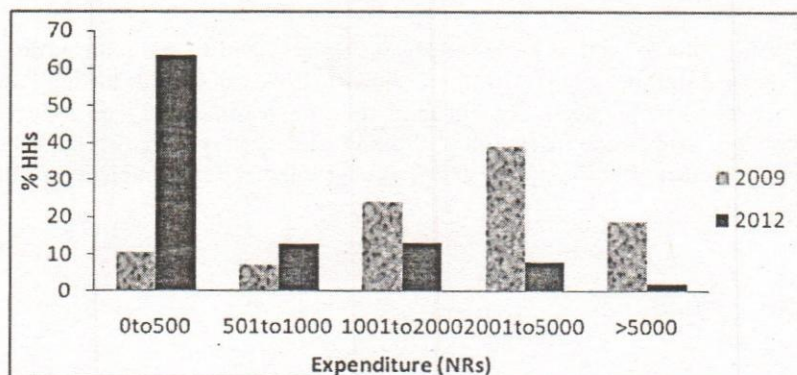


Figure 4. Distribution of HHs by annual expenditure on vegetable

Home garden farmers mentioned that they have also practice of selling surplus in local shops (32% HHs) as well as *haat bazaar* (25% HHs). In 2012 almost 87% of the total HHs sold Home Garden products as compared to 63% in 2009. Nearly 19% of the HHs sold the home garden surplus below NRs. 2,000 whereas 33% sold surplus product between NRs. 2,000-5,000 while 30% of them earning between NRs. 5,000-10,000 (Figure 3). Likewise, about 5% HHs were found to be earning more than NRs. 10,000 per year from their home gardens. When the project started working in 2009, 85% HHs had the practice of buying vegetables for family consumption. After three year of improved home garden management, 48% of total beneficiaries were found to reduce expenditure on vegetable purchase by 75% (Figure 4).

Increased social capacity of disadvantaged groups

Beyond the nutrition and economy, home garden project has benefitted disadvantaged people regarding individual and institutional development. It worked as a unit for enhancing social relation and empowerment of the disadvantaged farmers. Farmers were found to have decreased the practice of requesting vegetables from neighbours and started selling instead. This was found helpful to boost up their self confidence. The project facilitated the inclusion of disadvantaged HHs in groups and built their capacity for meaningful participation. Women seemed to have known the productivity potential of home garden and had started developing entrepreneurship of their own (sale of vegetable, mushroom, livestock etc.). As compared to the initial stage, the groups were found to have improved fund management, governance, planning and network skills with the service providers. Women now have started to actively seek services from local service providers like Village and District Development Committees, Agriculture development office and Livestock service office.

Women are involved in seed management, crop management, harvesting and marketing of home garden crops. They also have say in decision making like which crop species to plant or add in integrated components (for income generation) in home garden. Hence, women seem to have more control over the income from home garden as compared to other household income sources (Adhikari *et al.*, 2004; Karim and Wee, 1996). Women after getting engaged with the project have developed a sense of pride that they can do something on their own. Home garden project provided them an opportunity to participate in the home garden groups activities on equal footing; thus giving them a sense of feeling of the equal social status. The introduction of the project has contributed to discourage the thinking and practice of gender and caste-based discrimination (Joshi and Pradhan, 2012). Such an environment has been perceived by the communities in the project districts as a kind of respect and social justice to the *Dalit* women who used to have vulnerable situation previously due to long traditional discriminatory practice by excluding them from the mainstream development process.

CONCLUSION

Home garden has high range of biodiversity depending on famers' economic capacity, interest, culture, and agro-ecology. Home garden is capable of meeting diversified family nutrition needs. This can help in availing green vegetables and fruits throughout the year. Since Nepalese home garden produce are grown with least use of chemical fertilizers and pesticides, the produces are much healthier than the commercially grown vegetables/fruits. Poor people who reside in remote areas could benefit the most by integrated home garden regarding their nutritional health especially during critical phases in human life like childhood, pregnancy and lactating phase.

Income generation through home garden, though the amount is little in most of the cases, could be the second priority. However, it can significantly contribute to the household income of disadvantaged groups by complementing the small scale income from wage labour or traditional occupations. It can serve directly by providing cash income through surplus in the market and indirectly by minimizing the outflow of household cash for vegetable, fruit, meat etc. High richness of diversity in home garden is found helpful in family well being.

Addressing disadvantaged groups by mainstream development approaches is a challenge. Since they do not have significant land, agriculture projects find it difficult to include such groups. However, home garden intervention with its low requirement of land and other inputs is easily adopted by resource poor farmers. Therefore, home garden as an approach could be integrated into all the livelihood projects to benefit such groups. Women's access and control to home garden is another benefit of the project to contribute to the global agenda of women empowerment. Being a direct member of home garden farmers' group, rural women can get technology, exposure and consequently built-in confidence. To increase women participation in commercial agriculture, homestead based income generating activities could be a means. Women may start to earn from small scale farming and with contribution from men can increase the chance of the business to grow.

Home garden intervention may not require high level of investment but can have significant contribution in terms of food security and economic sustainability of ultra poor. Therefore to promote home garden, the sectors

of agriculture, health and nutrition should have strong collaboration and apply the development activities with a common effort. The process might be facilitated by some basic government policies along with some support services like research, education and helpful land use regulations. At the same time smooth collaboration of non-governmental agencies and community-based organization is also important.

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