

HOME GARDENING AS A TOOL FOR IMPROVING FOOD AND NUTRITIONAL SECURITY - A CASE STUDY AT MADIHA AND GANDARA IN SRI LANKA

K.K.I.U. Arunakumara, S. Subasinghe and Ranjith Senaratne

Abstract

Improvement of food and nutritional security of coastal communities affected by the Tsunami is a matter of great concern. Home gardening, in this regard, is highly considered as it could make an important contribution towards both livelihood improvement and food security. Waste management through composting is found to be a viable tool in meeting the nutritional requirement of the crops grown in home gardens. The present paper assessed the viability of implementing waste management and home gardening programs together to improve food and nutritional security of the people in Madiha and Gandara.

Based on their interest, thirty home gardens from each village were selected for the study. A group of people comprising a member representing each selected garden was trained on home gardening and waste management. They were provided with planting materials, farming tools and bins for composting. Their gardening was routinely monitored and necessary information and guidance was given. Despite no specific way of discharging household waste was found initially, composting was found increasingly popularized among the involved people as the programs proceeds. Crops are now fertilized with only organic manures by the majority (71%) of the people who were totally dependent upon chemical fertilizers. As a consequence of composting, the problem of discharging household waste has now been solved and people begin to receive organic manure at low or no cost. Before the program was implemented, the majority (60%) of the selected families was totally dependent upon the market for their vegetables and none of them consumed homemade vegetables only. As the home gardening program progressed, the vegetable production at home gradually increased and some of them (4%) started to sell the excess creating an extra source of income. However, as most of the gardens (81%) are relatively small (> 0.25 Ac), market oriented farming seemed difficult in these villages. Despite being highly dependent upon the family preference, the species diversity in these gardens is high, minimizing the risk of crop failure. Waste management has also contributed effectively to minimize the pest and disease incidents in the gardens. Consequently, diversity of food which positively influences nutritional security has begun to increase in these villages as they grow more and more vegetables.

Introduction

Approximately, two-thirds of the coastline of Sri Lanka (over 1,000 Km) was affected by the Tsunami on 26th December 2004 (Asian Development Bank, 2005). The severity of the damage was different from place-to-place depending on water-borne energy received, seabed and terrestrial terrain of the area. The salinization caused by the sea water has direct negative effects on soil biology and crop productivity, and an indirect effects leading to loss of soil stability through changes in soil structure (Szabolcs, 1996). Depleting soil quality would negatively influence plant and animal health also (Doran and Parkin, 1994). However, soil property related crop performances (yield, water and nutrient uptake) could be variable in space (Sparovek and Schnug, 2001).

Home gardening, apart from providing an alternative source of income, can play several other roles such as restoration of affected agro-ecosystems and improvement of food and nutritional security. Diversity of food along with income resources could be considered as the main buffers against the vulnerability of coastal communities. The causes of food insecurity and malnutrition are complex. In some cases, people are food-insecure because they don't have the income to purchase the food they need. In other cases, they don't have the income to purchase the inputs whereby they can produce their own food. In still other cases, they don't have access to cultivable land, or they don't have enough knowledge about cultivation.

It is generally believed that, in most of the low income groups, food comprises one of the largest components of household expenditure. Any savings on food expenditure thus translates into family income which is then available for non-food expenditures and improvements in living conditions. Out of various strategies available for reducing the expenditure for food, some prefer to grow their own vegetables and fruits in the backyard garden. Estimates suggest that in low income countries, 10-40% of the income of households can come from them producing their own food (Smit Jac, 1998).

The diversity of food in low income groups is limited as they always go for inexpensive sources of energy. Consequently, vulnerable groups, such as children may be badly affected as they can suffer from deficiency of micro-nutrients. The direct economic and health benefits could thus be expected from home gardening which can increase the amount of locally grown food, in particular, vegetables and fruits. Additional environmental and social benefits could also be resulted if successful waste management program is implemented along with the home gardening. The present paper assessed the impacts of introducing waste management and home gardening programs together to improved food and nutritional security of the people in Tsunami affected coastal villages in Southern Sri Lanka.

Methodology

Study area description

Madiha and Gandara, the selected two villages located in the Southern coastal belt, about 175km away from Colombo, the capital of Sri Lanka. About 350 families are living in each village. The most important form of livelihood in Gandara is fishing while in Madiha, service sector and small scale industries are found dominant. Agro-based livelihoods are not prominent in either village. The beaches of the area comprised of predominantly sandy coastline with natural beauty and the nearby home gardens hosted for few coconut and tropical fruit plants have been severely hit by the Tsunami.

Selection of families and trainings

Based on their interest, thirty families from each village were selected for the study. Species diversity, crop performances and some soil quality parameters of selected gardens were assessed before been formulated actions to be implemented. A series of training workshops were then conducted with the participation of members of selected families. Basic home gardening techniques and practices including crop selection, planting season and crop establishment, training and pruning, maturing etc, were the key areas focused. Attention was also paid on composting and waste utilization.

Gardening and monitoring

Selected families were then provided with seeds and other planting materials, farming tools and equipments to start with farming. Their gardening was routinely monitored and guidance and assistance were given as needed. As gardening proceeds, several field demonstrations were also conducted at farmer fields for the best interest of the involved people.

Viability assessment

At the end of one and half years, viability of introducing home gardening and waste utilization programs together was assessed using a questionnaire distributed among the involved people. Field observations were also made in addition to the interviews conducted with villagers. Data were analyzed and interpreted as appropriately.

Results and discussion

Despite the fact that no agro-based livelihoods were reported in the investigated area, home gardens with at least with some crops were found badly affected by the incursion of large amounts of salt water, leading to development of soil salinity. Furthermore the evidence demonstrates that intrusion of debris and marine sediment to home gardens has worsened the consequences. This might be a major reason to keep the householders away from the gardening. Before the program was implemented, the majority (60%) of the

selected families was totally dependent upon the market for their vegetables and none of them consumed homemade vegetables only (Fig.6.1). As the home gardening program progressed, it was found that the production of vegetable at home was increased gradually (Fig.6.2).

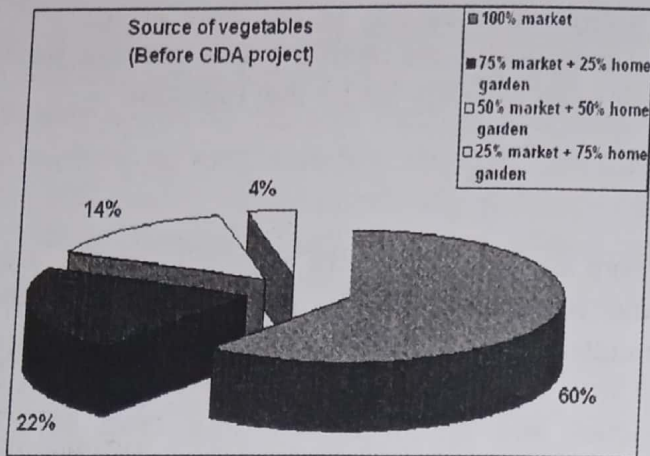


Figure 6.1: Source of vegetables of the people in Madiha and Gandara before home gardening and waste management (CIDA project) was implemented

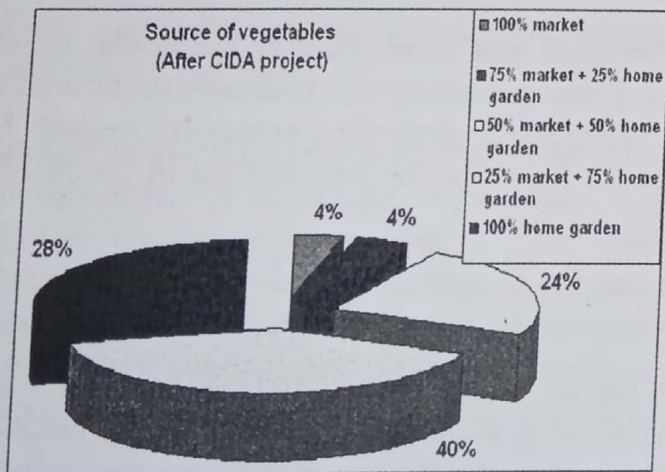


Figure 6.2: Source of vegetables of the people in Madiha and Gandara after home gardening and waste management (CIDA project) was implemented

As most of the gardens (81%) are relatively small (> 0.25 Ac), space availability was found major constrain which limits the market oriented production (Fig.6.3). Therefore, though some of them (4%) have started to sell the excess creating an extra source of income, most of the growers shared the excess with the neighboring people. This sort of subsistence farming is traditionally resorted to during times of social stress, economic hardship or war to ensure food security and survival and to supplement income (Curtis, 1995).

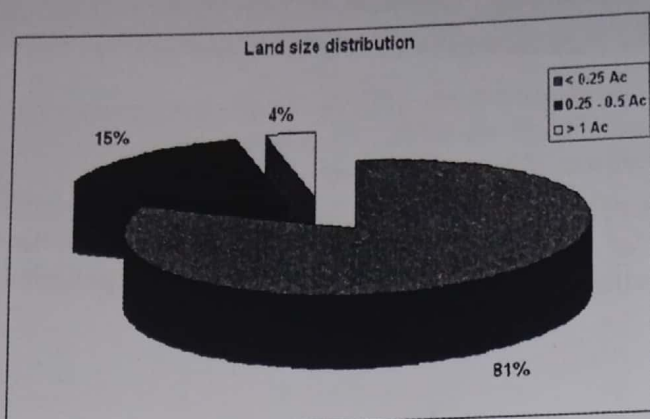


Figure 6.3: Land size distribution of the home gardens in Madiha and Gandara

Time spent on gardening by the involved people was continued to be increased in both villages. This might be due to improved family harmony as mentioned by involved people (86%) who work together and share experiences. A close association between gardening and other family activities could also be found among most of them. Results further revealed that housewives and children have mainly been involved in gardening and thus introduction of home gardening could strengthen the role of women in the society. In addition, the majority (93%) of the people believed that homemade vegetables are more tasty and healthy. This in fact is due to the fresh nature of the produce which has a greater likelihood of having a high quality vegetables compared with produce that has been stored or transported for long periods during which both flavour and nutritional value can deteriorate as reported by Lobstein and Longfield (1999).

Despite the fact that no specific way of discharging household wastes was found initially in these villages, composting was found increasingly popularized among the involved people as the programs proceeds. According to them, around 37% involved people knew nothing about composting before the program was implemented. Some of them (21%) have never practiced it though they possessed adequate knowledge on composting. Crops are now fertilized with only organic manures by the majority (71%) of the people who had been totally dependent upon chemical fertilizers. As a consequence of composting, the problem of discharging household wastes has now been solved and people are beginning to receive organic manure at low or no cost. This of course sounds as frequently found near cities where food production is practiced using the city's waste (UNDP Publication Series, 1996).

It is a well-known fact that a diet low in vegetables and fruits is associated with an increased health risk. Low intake of vegetables and fruit is also associated with micronutrient deficiencies, hypertension, anaemia, premature delivery, low birth-weight, obesity, diabetes etc., in addition to heart disease and cancer (WHO Technical Report Series-797, 1990). Estimates suggest that 30-40% of certain health hazards are preventable by increasing daily intakes of vegetables, fruit and fibre (World Cancer Research Fund, 1997). Despite being highly dependent upon the family preference, the species diversity in these gardens is high, minimizing the risk of crop failure. Waste

management has also contributed effectively to minimize the pest and disease incidents in the gardens. Consequently, diversity of food which positively influences nutritional security has begun to increase in these villages as they grow more and more vegetables.

Conclusion

Though involved people initially knew nothing or very little about gardening they are now confident that they could act almost as model farmers. As there is a great potential for home gardening to improve the livelihoods of people in these communities, the establishment of a few model gardens encourage the involved people and they can act as models in and around the Tsunami affected villages.

Acknowledgements

The financial assistance received from the CIDA Restore Project is greatly appreciated.

Bibliography

- Curtis, P. (1995). Urban Household Coping Strategies During War: Bosnia-Herzegovina, Disasters Volume 19: (1).
- Lobstein, T. and Longfield, J. (1999). Improving diet and health through European Union food policies: A discussion paper prepared for the Health Education Authority, London, Health Education Authority.
- Smit, Jac. (1998). TUAN, Personal Correspondence.
- Sparovek, G. and Schnug, E. (2001). Soil tillage and precision agriculture, Soil Tillage Res. 61: 47-54.
- Szabolcs, I. (1996). An overview of soil salinity and alkalinity in Europe. In: *Soil Salinization and Alkalization in Europe*: eds. N. Misopolinos, and I. Szabolcs, pp. 1-12. European Society for Soil Conservation. Giahudis Giapulis. Thessaloniki, Greece.
- UNDP Publication Series for Habitat II, Volume 1. (1996). Urban Agriculture: Food, Jobs and Sustainable Cities.
- WHO Technical Report Series-797. (1990). Diet, nutrition, and the prevention of chronic diseases: Report of a WHO Study group.
- World Cancer Research Fund/American Institute for Cancer Research.(1997). Food, nutrition and the prevention of cancer: a global perspective, Washington, DC, World Cancer Research Fund/American Institute for Cancer Research.

Webography

Asian Development Bank. (2005). *An initial assessment of the impact of the earthquake and tsunami of December 26, 2004 on South and Southeast Asia*. [Online] Available at: [http://www.adb.org/Documents/Others/Tsunami/ impactearthquake-tsunami.pdf](http://www.adb.org/Documents/Others/Tsunami/impactearthquake-tsunami.pdf).