

Multi-storey Gardens to Support Food Security

Mary Corbett

Addressing food insecurity in resource-poor settings is difficult in any context. However, in protracted refugee camp situations, where people are almost entirely dependant on humanitarian assistance, the challenges are even greater. The development and adaptation of multi-storey gardens has been tried in refugee camps in Kenya with impressive success.

The refugee camps of Dadaab and Kakuma have been in existence for almost 15 years and both acute and chronic malnutrition have remained high in the camps. A key factor is the long-term dependence of most of the refugees in these camps on food assistance involving a monotonous diet of cereal, pulses and oil, and sometimes a corn soya blend (CSB). Most of the refugees do not readily have access to fresh fruit and vegetables or fresh meat.

The refugee camps are situated in Northern and Western Kenya, a semi-arid region with limited rainfall. The refugees have not been given access to land to cultivate, apart from land close to their houses. The introduction of multi-storey gardens (MSG) combines aspects of dietary diversification, nutritional education, women's empowerment, income generation, community promotion and self reliance.

With financial support from the Canadian Initiative through GTZ (German Development Cooperation) and with technical support from GTZ, the uptake of MSGs in Dadaab was particularly high - a total of over 5,000 households (out of over 18,000 households). In Kakuma camp the uptake was initially lower, but interest has grown substantially and now over 2,500 households (out of 12,800 households) have MSGs.



Multi-storey garden in Dadaab camp, Kenya
Photo: Mary Corbett

blend (with compost) is placed in the bag around the tin cans. Seeds are then planted in the soil on the top of the bag. When it is time to "thin out" the seedlings, some of the small plants are removed from the top and, after holes are made in the sides of the bags, the seedlings are planted along the sides of the bags. This means the top and sides of the bags are utilised for growing.

In areas where water is in short supply this is a very economic way to utilise extremely limited resources. Each bag only needs to be watered twice daily with about 5 litres of water (on average). This is mainly greywater (household wastewater) or sometimes spill-off water. The water is poured into the top tin at the centre of the bag and drains through the stones down through to the end of the bag of soil irrigating all the plants throughout the depth of the bag. It is recommended to use household wastewater after rinsing out clothes or bathing, and also wastewater from around water points. However, it is important to incorporate and integrate waste management into the programme so as not to further limit water resources necessary for other activities.

Produce

In Kenya the produce grown in the MSGs includes a number of leafy green vegetables, tomatoes, okra and eggplant. Normally when the green leafy vegetables are ready for harvesting they can be harvested 2-3 times weekly. This can make a huge difference in the nutrition content of an extremely bland diet, increasing people's appetites and improving their general well being. It can be particularly beneficial in supporting the diet of young children. Based on

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Multi-storey gardens

The World Food Programme (WFP) has supported the project by providing empty 50 kg cereal bags and empty oil cans. The cereal bags are used for growing the produce. The tin cans are filled with rocks and placed on top of each other in the centre of the upstanding cereal bag. Holes are drilled in the sides and bottoms of the tins. Holes are not drilled in the bottom of the tin placed at the bottom of the bag. A soil

experiences in the camps, it is estimated that each household (containing on average 6-7 members) needs a minimum of five MSG bags to have enough produce to make a significant impact on its dietary diversity and also to assist in income generation. This approach has proven to be a labour-efficient means of increasing food security.

Training

GTZ set up nurseries to plant seeds and grow seedlings, which are also used as demonstration areas and for training refugee incentive workers. The refugee incentive workers are responsible for the development of the programme: their job is to sensitise the refugee population, run the seedling nursery, assist in the training of refugees (on construction, soil preparation and irrigation and use of wastewater), assist in the construction of the MSGs, and do community outreach.

Other benefits

Along with positively impacting dietary diversification and income generation, the approach encourages self reliance and empowers women. Produce can be grown all year round and the production of varied produce can be used in practical nutrition education. The concept of micro agriculture using a small amount of space and water is the central element, and could be targeted at households where labour is constrained, e.g. households with people living with HIV/AIDS or orphans.

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Reasons for poorer uptake

In Kakuma, the NGOs initial plan of action was less developed and the personnel employed were not convinced that this initiative could work. Therefore the uptake of the MSGs was much lower among the refugee population. The refugees in Kakuma camp were not aware of the MSGs' benefits and potential to support food security as the NGO staff did not have the same belief in the programme as those who introduced it in Dadaab.

Although the uptake of the approach in Kakuma camp was initially lower, this eventually improved and the refugees there “made it their own” by adapting the technique. Instead of growing the produce in just one 50 kg cereal bag, the refugees sewed a number of bags together to make a larger grow-

Halima Mohamed Aliyow, female MSG gardener, Dadaab camp

I have a family of fifteen, including two of my own children under five years and three nieces and nephews under five. I also have an older disabled son and my blind father living with me. I was very concerned as we never had quite enough to eat and the old man in particular was always tired of having the same food each day. I began with five sacks for use in making MSGs, but I enjoyed it so much I asked GTZ for an additional five sacks, which they gave me. I am now growing okra, spinach, tomatoes, coriander, and Kenyan spinach. I grow enough for everyone in the household to eat, plus I can give a little away to my neighbours. I feel that my family is healthier, we are happier and I do not worry about feeling hungry. In the past I used to sell quite a lot of the food ration to buy things like tomatoes and spinach, but now it is not necessary to do that.

I would like to become a Model Gardener for my block and then I could teach people about growing and cooking vegetables. If I could double the number of plants I am growing I could sell the excess to neighbours. Already people come to see the garden and want to buy my produce. I use run-off water from the tap stand to water the plants and they just grow and grow and grow.

ing area with the same overall concept of placing tins with stones in the centre that assist in watering and irrigation.

Cost

The introduction of MSGs is an inexpensive intervention as it requires low inputs. The initial costs included setting up the programme, hiring staff, training incentive workers, and developing training material on MSG techniques and nutrition issues. Other costs included tools and seeds for the programme. A one-year budget of US\$ 300,000 supported the development of 5,155 MSGs in Dadaab and 2,500 MSGs in Kakuma camp. With anaemia levels for women and children under 5 years at over 70percent and malaria endemic around the camps, it is hoped that the introduction of fresh vegetables, in particular green leafy vegetables, will have a significant impact.

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Note

1) This article is based on an article by the same author in Field Exchange, issue 29, 2006. The information shared in this article was recorded during a consultancy for UNHCR/WFP.