Abstract

The project goal was to improve community's standards of living through the provision of clean, safe, adequate, reliable and accessible water through excavation of water reservoirs, construction of rain harvesting and water conveyance technologies in Yatta Constituency by 2013. The problems of food insecurity in the drought stricken areas cannot be over emphasized. Common effects of drought include insufficient water and shortage of food. This may lead to malnutrition and water related diseases which could contribute to increase in medical expenditure, reduced productivity and increased death rate. Malnutrition is a major problem in parts of the world where most of its population is undernourished due to famine, poverty and limited crop production. In Kenya water resources are highly vulnerable to climate variability which includes droughts. Water scarcity is a major challenge to achieving the Millennium Development Goal of reducing the number of people without access to water and sanitation by the year 2015. Rain water harvesting, food preservation and conservation and increased food production are some of the mitigation measures expected to play a key role in addressing this gap. This project aimed at contributing to improved health and income generation by mitigating the shortage of water through a low cost roofed water reservoir for harvesting rain water and storing it for use during the dry spells. Boosting food security to keep starvation at bay and generate income in future was addressed by introducing green houses for growing vegetables and solar food dryer technologies for drying surplus food.

The project was implemented in phases mainly: - Site selection at Ikombe and Kinyaata locations was done in liaison with local administration, community and school representatives. The total population in the study locations was 6,116 households. From these a sample of 612 households representing 10% of the total households was selected during field visits using simple random and stratified sampling techniques. The communities were mobilized, sensitized and trained on water harvesting, green house and food preservation technologies as well as entrepreneurial skills, good water hygiene and balanced diet. Environmental impact assessment was conducted and prevalence of human diseases related to water and food shortage before and after implementation of the project was documented. Installation of the technologies- Green houses, food dryers and rain water harvesting reservoirs was done and communities were trained and encouraged to initiate and

manage their own food dryers, rain water harvesters and greenhouses for improved health and income generation.

Information of the project was collected using checklists, subjected to simple analysis of each data set and interpreted. The key results included training a total of 160 community members and demonstrations conducted at various stages of the project on the whole package comprising of greenhouse technology, water harvesting and storage, crop production, pest and disease management, entrepreneurial skills, food preservation skills and sensitization on causes and prevention of water borne diseases and those related to food deficiency. Screening of the environment on positive and negative impacts of the technologies predicted the negative impact to be minimal after which possible mitigation measures were determined and implemented. Two water reservoirs were excavated, roofed and utilization of the water (irrigation and drinking) initiated at Kimuuni and Mbembani primary schools. A food dryer and a greenhouse were each installed at Ngangani and Mbembani. After sensitization, communities formed groups and have since written proposals soliciting for funding from various organizations and institutions to enable them to replicate the projects.

Regarding common diseases related to water and food deficiency at the study sites, examination of water samples revealed contamination including high levels of bacteria, and high prevalence of malaria, water borne diseases and diseases associated with food deficiency which contributed to more than one third of the disease burden in the dispensaries in the area. Assessment of the dried foods indicated they all had essential nutrients and an array of health protective bioactive ingredients making them valuable tools to both increase diet quality and help reduce the risk of chronic disease and /or malnutrition and deficiency diseases. Sales of tomatoes, kale, spinach and onions from the green houses enabled students to do extra-curricular activities at Mbembani and assisted in school renovations at Ngangani.

From the findings, it is concluded that the interventions and results of these technologies indicate viability and worthy efforts in alleviating hunger, poverty and disease, and make potential contribution to the attainment of the Millennium Development Goals and Kenya Vision 2030. It is recommended that further assessment of the project be carried out after a period of time to determine sustainability of the use of the technologies and find out how much of the technology

was adopted and adapted by the larger community; and possible scale up of the project be implemented.