



Small-scale Irrigation

Drip Kits Make Big Impact on Lives in Lesotho

In the lowlands of Lesotho outside Maseru, the Food and Agriculture Organization of the United Nations (FAO) has been assisting communities through implementation of small-scale irrigation projects. FAO produces and distributes drip kits to vulnerable farmers through its emergency programme. The project also encourages crop diversification both to improve the nutritional status of families and so that farmers might earn some income from selling produce.

FAO identifies farm families that are food insecure, vulnerable, and those that are affected by HIV and AIDS to take part in this project.

Matsoakae Mphenetha of Tsakholo was one of those identified. Mphenetha had been farming vegetables for home consumption since 1974, but never had any excess to sell. Lately, after her husband had fallen ill, she had been struggling to make ends meet.

Mphenetha was using a steel drum and hosepipe to water her fields but she said this method wasted water. She found it difficult to control the water flow and a lot of moisture was lost in the process.

FAO offered her a solution. "They told me that they would bring me a different system that I could use. I told them that I would be very thankful since I stay with someone disabled and food was difficult to come by," said Mphenetha.

Soon a tank and drip irrigation kit was delivered to the elderly woman and she was taught to operate and care for the system.

FAO promotes affordable small-scale irrigation methods that can be maintained easily and can improve the availability of food and earning capacity of households. Drip kits are one such type of appropriate technology.

"Drip kits are very effective in improving food security at the household level," explains Castro Camarada, FAO

Representative in Lesotho. "They allow the household to produce fruit and vegetables during the dry season or periods when water is scarce. This is part of our strategy for more use and better use of water for food production. Being small affordable and easy to manage, drip kits are suitable for the landholdings we have in Lesotho."

The FAO project also encourages crop diversification. Farmers in Lesotho tend to concentrate on two or three crops, mainly maize and cabbage.



FAO small-scale irrigation projects promote appropriate technology such as drip kits and treadle pumps (the latter is shown above).

"We encourage other vegetable crops because of the positive impact they can have on the nutritional status of families," said Camarada. "We are making households more resilient because of the more diverse variety of products, and eventually they will have extra to sell at the market. The evidence shows that these interventions make a big impact at the household level."

Mphenetha is already seeing the benefits of her new drip kit. "It is working very well because it saves water. I even work on bigger fields because I have total control of where the water goes. And the vegetation grows very well."

She is now able to sell excess crops at a newly established produce market. "My standard of living has improved. My husband is not well. Since we have been selling vegetables, we have been able to take him to the doctor."

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Questions and Answers:

Why is FAO Support to Small-Scale Irrigation in Southern Africa Important?

The humanitarian crisis in southern Africa has been on the increase since the turn of the century. This has been attributed to a number of natural, socio-economic and political challenges in the region. Flooding, drought, HIV/AIDS, and economic decline have been threatening the livelihood of the general population - one that is heavily dependent on subsistence rain-fed agriculture. In an effort to cushion rural communities from the negative effects on their food security and general livelihoods, FAO embarked on a number of short and long-term recovery interventions. Small-scale irrigation was identified as one of the most promising of such interventions. The three main types of irrigation supported through FAO projects are smallholder irrigation, drip kits, and treadle pumps.

What is Treadle Pump Irrigation and What are its Advantages and Disadvantages?

The treadle pump is human powered and specifically designed for small-scale irrigation. Because it does not require electricity or fuel, it can be used in less developed areas. It is a simple form of machinery that can be dismantled and assembled by farmers. Its other advantages are low capital and maintenance costs, portability, and high discharge (5-8m³/hr litres per second). The major disadvantage is a low suction and delivery head, which makes treadle pumps unsuitable for use with deep wells. Small, fenced, irrigated plots ranging in size from less than 0.1 to 0.4 hectares characterize the typical plot utilizing treadle pump irrigation. These have been informally and spontaneously developed mostly adjacent to water sources like deep wells, boreholes, small dams, and rivers. However, in recent years, population increases and recurrent drought have put pressure on the utilization of such water sources

How Popular is Treadle Pump Irrigation in the Region?

Treadle pump irrigation is one of the fastest growing small-scale irrigation technologies, with Malawi taking the lead. It is estimated that since the late 1990s, more than 120 000 treadle pumps have been distributed in Malawi, which can irrigate a total of 48 000 hectares. Other countries, like Zimbabwe and Mozambique, have of late also been promoting the technology. Treadle pump irrigation is increasingly playing an important role, not only for vegetable production, but also as a 'safety net' for cereal production and income-generation. FAO has distributed close to 5 000 treadle pumps in Malawi, Mozambique, and Zimbabwe. If these pumps are utilised to their full potential, a total of 2 000 hectares should be under irrigation.

How Common is Drip Kit Irrigation in the Region?

Drip kit technology has assumed a major role in support of garden activities in southern Africa since 2000. FAO was one of the early pioneers introducing drip kits in the region. Other NGOs, most notably the USAID-LEAD program and IDE in Zimbabwe, and World Vision and CARE International in Mozambique and Lesotho, also played a major role in taking this technology to farmers. The LEAD program in Zimbabwe, working through a network of NGOs, distributed over 25 000 hundred-square-metre kits from 2002 to 2004. Other donors and NGOs have since expanded on this, so the number of drip kits now distributed in Zimbabwe alone could be over 50 000. The rationale behind the rapid expansion was use of drip irrigation in the production of a wider variety of vegetables for vulnerable members of society, including HIV/AIDS patients. In this way, drip kits have become a means of contributing to food and income security.

What are the Advantages and Disadvantages of Drip Kit Irrigation?

The main advantages associated with drip kit use are labour and water-savings as well as diversification and intensification of crop production. A disadvantage is the fact that transport of large drums can be costly but if smaller drums are used, farmers must fill them too frequently. Farmers often share the system, which necessitates harmony in the groups' farming operations and relationships. Theft of drip kits and the drums are also a concern. When systems are close to the homestead, problems arise with domestic animals damaging the crops and there may be competition for water resources.

Have Improvements Been Seen from Implementation of FAO Small-Scale Irrigation Projects?

FAO conducted an evaluation of its small-scale irrigation projects in southern Africa in July 2006. While numerous challenges were outlined in the report, the evaluation found that there was a general increase in 1) the area under irrigation, 2) food security, and 3) income. The treadle pump project in Malawi showed the greatest impact. Farmers there narrated how assets like bicycles, televisions, and better housing had been acquired since introduction of the treadle pumps.

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