

- This investment if used to grow crops for sale will recover cost and make profit within one or two seasons.

The technology also allows the farmers to grow crops using little water during the dry season and therefore provide availability of crop produce.

Potential for wide application

- The drip irrigation technology can be used in many areas of different agro-ecological zones.
- Most drip irrigation technologies have concentrated on vegetable farming but there is good potential for other crops like maize, sugar cane, cotton, fruit trees (horticulture), flowers (floriculture) farming (Plate 2 & Plate 3).
- The drip irrigation technology can be promoted alongside other technologies such as rainwater harvesting, under ground water abstraction and pumping.



Plate 2: Drip irrigation for vegetable



Plate 3: Good onions crop stand resulted from well arranged drip irrigation system

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UNITED REPUBLIC OF TANZANIA



**NATIONAL IRRIGATION
 COMMISSION**

**PROMOTION OF DRIP
 IRRIGATION TECHNOLOGY
 IN TANZANIA**

Introduction

Drip or trickle Irrigation is a method of supplying water through a small-sized opening plastic pipe direct to the plant roots zone.

Advantages of drip irrigation

- Provide good water control by delivering water closer to the plant root
- Allow fertigation process where fertilizer is right away mixed with irrigation water.
- Low operating costs
- Reduce labour cost for irrigation and weed control
- More uniform crop growth and increased yields
- Enables the farmer to grow crops with much less water compared to other irrigation methods with water use efficiency up to 98%

Water is supplied to the soil through emitters at a relatively low operating pressures (0.5 – 2 bar) and a discharge rates of about 1-16 l/h.

In monetary terms at farm level, a farmer will invest about Tsh 100,000—150,000 in bucket kit and generate an average income of not less than Tshs 150,000 and more depending on the crop in one season. For 1 ha the kit can cost between Tshs 6 - 10 million. If well managed the kit can last up to seven (7) years.

Drip Irrigation Systems

The basic components of a drip system are emitters, water distribution lines/hose pipes, filters, control unit (reservoir) and pump. Emitter discharge usually ranges from 0.2 - 4 l/h. Low cost drip irrigation systems usually have a raised reservoir about 1.5 meter for bucket kit to create the pressure, which may be only 0.1 – 1 bar.

Challenges of adopting the kit

- Slightly higher initial cost for large area
- Requires high level of design, management and maintenance especially for irrigating large area.
- Restricted root zone due to small soil volume wetted, hence may lead to high poor performance to crop if system fail.
- Clogging of filters and emitters requires frequent maintenance especially if the application involves water of less quality

Why promote drip irrigation system for crops

- Affordable low cost drip irrigation systems provide an opportunity for kitchen or backyard gardening
- Generate high income from high value crops
- It is environmental friendly
- Affordable and appropriate for farmers in dry land to grow vegetables for nutritional purposes as well as cash income.
- Drip irrigation technology delivers water into the plant root zone and therefore saves water. The system is suited where there is less availability of water which would not be possible under traditional irrigation methods (basin, furrow and sprinklers).

Drip Irrigation Technology

- Promoting drip irrigation technology can enable and enhance food self sufficiency and raise income for both small-scale and commercial farmers in Tanzania.
- For relatively low investment, a small-scale farmer can purchase and set up drip irrigation system (Plate 1).



Plate 1: Bucket Drip irrigation system for home garden