Technology Fact Sheet for Adaptation

ROOF RAINWATER HARVESTING [i]

2. TECHNOLOGY:	ROOF RAINWATER HARVESTING
Introduction	Most precipitation that falls on human settlements is lost to the atmosphere through evapotransporation, or runs into rivers away from settlements before it can be used. However, if the rain is collected using appropriate infrastructure, it can contribute greatly to the volume of freshwater available for human use. This is particularly relevant in arid and semi-arid regions, where the little rainfall received is usually very intense and often seasonal (Elliot et al 2011).
Technology Characteristics	Rainwater harvesting is the accumulating and storing of rainwater for reuse before it reaches the aquifer. Rooftop catchments is the most basic form of this technology and include collection of rainwater in gutters which drain to the collection vessel through down-pipes constructed for this purpose, and/or the diversion of rainwater from the gutters to containers for settling particulates before being conveyed to the storage container for the domestic use (Pacey & Cullis, 1986). As the rooftop is the main catchment area, the amount and quality of rainwater collected depends on the area and type of roofing material.
Country Specific Applicability & Potential	The water endowment in Kenya is low and the demand for renewable freshwater outstrips supply, with only 57% of households using water from sources considered safe (MW& I, 2010). The annual per capita availability of renewable freshwater is only 647 cubic meters (m^3), far much lower than the UN recommended amount of 1000 m^3, implying that Kenya can be classified as a water scarce country. There can be large seasonal variation in rainfall such that during the long dry season, water shortage is experienced in many river basins, while during the rainy season severe floods cause tremendous damage in the same river basins. Rainwater harvesting has the potential to alleviate water shortage in Kenya. For example, a report by UNEP, shows that Kenya's capital has the potential to supply the water needs of between six and 10 million people with 60 litres a day if rainwater were efficiently and effectively harvested and that for Kenya as a whole the rainfall contribution is more than adequate to meet the needs of the current population several times over if rainwater harvesting is fully implemented.
Status of Technology in Kenya	Kenya's water policy takes into account all the relevant issues including water conservation and preservation of its quality. In this regard, mainstreaming of rainwater harvesting is very prominent. In agricultural production, rainwater harvesting is mainstreamed into the soil and water conservation. This approach promotes rainwater harvesting on the field thus minimizing run off. Through a presidential initiative, district competitions are held to encourage farmers in water and soil conservation. Initially the emphasis was more on soil conservation but there has been a shift in thinking towards rainwater harvesting and soil conservation as equally important components.

Benefits to Economic/ Social and Environmental Development	The technology will enhance availability of drinking water for domestic and agricultural water for arid and semi-arid areas, contribute job creation and result in reduction of public and private expenditures associated with water infrastructure. Roof rainwater harvesting will contribute to increased availability of freshwater and hence lead to enhanced growth of social structures and women empowerment. It will also reduce overexploitation of ground and service water with consequent environmental benefits
Climate Change Adaptation Benefits	Climate change projection for Kenya indicates general rainfall decrease most of the country, which together with population growth is bound to impact serious strains in existing low freshwater endowment in the country. Collection and storage of rainwater can provide a convenient and reliable water supply during seasonal dry periods and droughts.
Financial Requirements and Costs	Rainwater harvesters for 200 households is estimated to cost US$ 67,500

[i] **This fact sheet has been extracted from TNA Report – Technology Needs Assessment Reports For Climate Change Adaptation – Kenya. You can access the complete report from the TNA project website http://tech-action.org/**