Technology Fact Sheet for Adaptation

Rooftop rainwater harvesting[i]

Technology:	Rooftop Rainwater Harvesting
Technology characteristics	
Introduction	Rainwater harvesting is a technology used for collecting and storing rainwater from rooftops, the land surface or rock catchments using simple techniques such as jars and pots as well as more complex techniques such as underground check dams. Rainwater harvesting captures, diverts, and stores rainwater for later use. Captured rainwater is often used in landscaping and for secondary uses. Typically**, independent trials in some countries have shown that a domestic rainwater harvesting system can reduces mains-water consumption by around 50%.** Only rooftop rainwater harvesting is discussed here.
Technology characteristics/highlights	Commonly used rainwater systems are made up of three principal components; namely, the catchment area, the collection device, and the conveyance system. These systems can range from the low tech, hence low cost to the more advanced technology and thus relatively higher cost.
Institutional and organizational requirements	Though rainwater harvesting can be practiced on an individual basis, it will have to be supported by an institution for it to be successful. There is a need to impart know how as to the implementation and maintenance of the system, and to some extent some financial incentives will be needed. Presently none of the water institution is promoting rooftop rainwater harvesting.
Operation and maintenance	Rainwater harvesters are based on simple technologies, and require no special skills. However users will need to become aware of the importance of maintenance and the financial implications this would entail.
Endorsement by experts	Many countries are realizing that in the future surface and groundwater supplies will not be able to meet future water demand. Water conservation and development of alternative water supplies would become a necessity in the near future in order to meet our growing demand for fresh water.
Adequacy for current climate	Mauritius is a tropical country, characterized by wet and dry periods, and is often visited by cyclones. So rainwater harvesting would serve their purpose well during the wet periods.
Scale/Size of beneficiaries group	Rainwater harvestors can be implemented at residential level, commercial and industrial level. This will alleviate the demand of treated water which is presently used for secondary purposes.
Disadvantages	Retrofitting systems would entail additional costs, as this is not commonly practice in Mauritius.

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Capital costs	
Cost to implement adaptation technology	Rainwater harvestors based on concrete storage tanks would be costing some Rs. 20,000 per unit, and the ongoing country project Sustainable Consumption and Production (**SCP) (2008) had earmarked a budget of R. 2million** for encouraging rainwater harvesting in Mauritius. This cost included a sound equipment, fittings and installation costs. Latest figures from the Central Statistical office reported that there are 297, 500 buildings, 344700 housing units and 329.950 Private households. If one rainwater harvestor was to be implemented in each of these buildings, the total sum would be some **MUR Rs. 2 million** as indicated in the SCP report of 2008.
Additional cost to implement adaptation technology, compared to "business as usual"	Maintenance cost would amount to a maximum of Rs. 1000. per month. The system will have to be updated every 5 years.
Development impacts, direct and indirect benefits	
Direct benefits	Reduction in demand of treated water, reduction in wastage and more efficient use of treated water.
Reduction of vulnerability to climate change, indirect	No negative impacts associated.
Economic benefits, indirect Employment Growth & Investment	 There will be a need for trainers who will be responsible to provide the know how to resident. This will open avenue for small scaled enterprises that would be concerned with the developing rainwater harvesting system as per the requirement of the residents.
Social benefits, indirect Income Education Health	 Additional water can encourage back yard farming. Awareness will be raised as to the need of adopting conservation water measures. Reduction of health risks to those who do not have access to water on a regular basis specially during dry periods.
Environmental benefits, indirect	Reduction in water losses/wastage.
Local context	
Opportunities and Barriers	Since rainwater harvesting is not commonly practiced yet, there will be a need to retrofit sytems, and this may be looked upon as a deterrant. Opportunities are high, both in terms of creativity to come up with rainwater harvestors which will merge in the environment to the implementation of such systems at national level.
Market potential	Rainwater harvesting is not a new technology, but what will be of market value are systems which are robust and durable to withstand cyclone seasons and tropical climates. Such systems will have sound market potential both in Mauritius and in other similar countries.

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Status	This technology is currently implemented on a very low level.
Timeframe	Short Term – as it all the requirements are readily available on the local market.
Acceptability to local stakeholders	Socially may not be readily accepted as almost 99.6% inhabitants are connected to tap water. There will be a need for a change in mindset and this will take some time.

1. http://www.savetherain.info/media-centre/rainwater-harvesting-faqs.aspx#five
2. http://www.thewatercalculator.org.uk/faq.asp

Estimating total volume which can be collected from rainwater harvesting:

Average annual rainfall = 2500mm per year for the whole island

Surface area – roof top – one housing units = about $100m^2$
Total housing units – 250,000

Potential volume that can be collected = 2.5x100x250,000/1000000= **62.5Mm^3** per year as compared with the total annual potable water harnessed for use which is 212 Mm^3 per year.

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