

Water Conservation and Management through Decentralized Rainwater Harvesting under Changing Climate, Ethiopia

Mengistu Jemberie¹

Abstract

Water is essential to sustain life, and a satisfactory (adequate, safe, and accessible) supply must be available to all. Millions of people throughout the world do not have access to clean water for domestic purposes. In many parts of the world conventional piped water is either absent, unreliable, or too expensive. One of the biggest challenges of the 21st century is to overcome the growing water shortage. Rainwater harvesting (RWH) has thus regained its importance as a valuable alternative or supplementary water resource, along with more conventional water supply technologies. Much actual or potential water shortages can be relieved if rainwater harvesting is practiced more widely. Severe water shortages and extremely fragile ecological conditions necessitate careful attention to water resources conservation and management. Nowadays cumulative effect of climate change, population increase, development and industrialization are leading for increased water demand which seeks careful and strategic management of available resources. In Ethiopian context, the average annual population growth is about 2.8% and twice of water demand increase. People collect and store rainwater in buckets, tanks, ponds, and wells. This is commonly referred to as rainwater harvesting and has been practiced for centuries. Rainwater can be used for multiple purposes ranging from irrigating crops to washing, cooking, and drinking. In this paper assessment and review is done on effects of climate change, population growth and development on water demand increase. Long term average Annual Rainfall was taken from meteorological data and available minimum numbers of houses were taken from Ethiopian 2007 census data. Finally, possible amount of water harvested is estimated for domestic and other water uses.

Keywords: Climate Change, Rainwater harvesting, Water demand, Climate Uncertainty

¹ Addis Ababa Science and Technology University, College of Architecture and Civil Engineering
mngst_addis@yahoo.com