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# Rainwater Harvesting: A Tool for Adaption to Climate Change

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*The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as, "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods". It is accepted globally that the climatic change is the result of human activity. Although responsibility for the causes of climate change rests primarily with the developed and industrialised nations, the costs of climate change will be borne most directly by the poor. Rising global temperatures will lead to an intensification of the hydrological cycle, resulting in dryer dry seasons and wetter rainy seasons, and subsequently heightened risks of more extreme and frequent floods and drought. Changing climate will also have significant impacts on the availability of water, as well as the quality and quantity of water that is available and accessible. Melting glaciers will increase flood risk during the rainy season, and strongly reduce dry-season water supplies to one-sixth of the World's population. In particular, changes to water quality, quantity and availability will be an impact of ongoing climate change in many areas. Broadly speaking, the approach to adaptation requires a series of steps, all of which need to be integrated into more general development planning, and include community participation. This paper describes what climate change is, including how it is affecting the world we live in , this paper focuses rain water harvesting as a tool to adapt climate change.*

***Keywords:*** *Water Resources; Water harvesting; Groundwater; Climate change and UNFCCC.*

## Introduction

According to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) "the expanded use of rainwater harvesting and other "bottom-up" technologies have the potential of reducing emissions by around 6 Gig tons (GT) CO2 equivalent/year in 2030". At the urban scale, infrastructures for collecting rainfall, such as green roofs or retention ponds, contribute to the cooling of cities affected by the urban heat island effect, through its ET. It's an important step towards reducing the CO2 footprint and improving human well-being, by saving energy for cooling during the summer season (UNEP, 2009).

Because much of the solar energy received by the Earth is used to drive the hydrological cycle, higher levels of solar energy trapped in the atmosphere will lead to an intensification of this cycle, resulting in changes in precipitation patters. These changes will result in increased floods and drought, which will have significant impacts on the availability of freshwater. These impacts on freshwater will be further compounded by rising sea levels, and melting glaciers. Warmer average global temperatures mean greater evaporation, with a warmer atmosphere able to hold more moisture aloft that can fall as precipitation, increasing the potential for flooding.

The combination of more intense and frequent storms with land use changes is already proving to be deadly for the world's vulnerable populations As we know the global temperature is rising, the population multiplying, urbanization expanding and pressures on natural resources are reaching catastrophic levels.

Using this rainwater harvesting technology, besides being cost effective, has the advantage of reducing Green House Gas (GHG) emissions, since its simple operating procedure requires less energy consumption when compared to the main water distribution systems. The latter are obviously more polluting, once the processes of