

Rainwater Harvesting for Household Consumption in Rural Demonstration Sites of Nong Khai Province, Thailand

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Abstract : In recent years, Thailand has been affected by climate change phenomenon, which is clearly seen from the season change for different times. The occurrence of violent storms, heavy rains, floods, and drought were found in several areas. In a long dry period, the water supply is not adequate in drought areas. Nowadays, it is renowned that there is a significant decrease of rainwater use for household consumption in rural area of Thailand. Rainwater harvesting is the practice of collection and storage of rainwater in storage tanks before it is lost as surface run-off. Rooftop rainwater harvesting is used to provide drinking water, domestic water, and water for livestock. Rainwater harvesting in households is an alternative for people to readily prepare water resources for their own consumptions during the drought season, can help mitigate flooding of flooded plains, and also may reduce demand on the basin and well. It also helps in the availability of potable water, as rainwater is substantially free of salts. Application of rainwater harvesting in rural water system provide a substantial benefit for both water supply and wastewater subsystems by reducing the need for clean water in water distribution systems, less generated storm water in sewer systems, and a reduction in storm water runoff polluting freshwater bodies. The combination of rainwater quality and rainfall quantity is used to determine proper rainwater harvesting for household consumption to be safe and adequate for survivals. Rainwater quality analysis is compared with the drinking water standard. In terms of rainfall quantity, the observed rainfall data are interpolated by GIS 10.5 and showed by map during 1980 to 2020, used to assess the annual yield for household consumptions.

Keywords : rainwater harvesting, drinking water standard, annual yield, rainfall quantity

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