



Study on supply-demand gap of rooftop rainwater harvesting in residential premises

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Abstract : Study was conducted on supply-demand gap of rooftop rainwater harvesting in residential premises based on rainfall analysis in TNAU Campus, Coimbatore. The present study aims at the role of rooftop rainwater harvesting to facilitate the local needs of TNAU campus to evaluate the technical feasibility and economic viability of rooftop rainwater harvesting system in individual buildings of B type block, C type block, D type block, P.G hostel, P.P.C hostel, Tamizhagam hostel and different buildings in combinations. All hostel buildings combination and all residential blocks combination buildings can generate 34, 48,464 and 40, 92,611 litres of water per annum, respectively. Due to rooftop rainwater harvesting a sum of Rs. 1,03,454 and Rs. 1,22,778 per annum would be saved from all hostels and all residential blocks combination which otherwise could be incurred from transporting water from tanker to these buildings combinations.

Key Words : Rainwater harvesting, Rooftop rainwater harvesting, Supply- demand gap

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INTRODUCTION

The technology of water harvesting is as old as our civilization. It is in practice in order to augment groundwater by artificial recharge and to drinking water resources for rural areas. The demand for water is realized from different fronts such as water for domestic purposes, civic or public purposes, fire fighting purposes, evapotranspiration needs in agriculture, industrial water usage and many other purposes. The central idea behind any water harvesting strategy should be such that the excess water available during rainy period should be collected and stored for a compensative usage during non-rainy periods. This supply-demand gap during non-rainy season can be brought down by supplemental usage of harvested water.

MATERIALS AND METHODS

Study was conducted to study the supply-demand gap for rooftop rainwater harvesting in residential premises based

on rainfall analysis, at Tamil Nadu Agricultural University, Coimbatore.

Experimental site :

For designing roof top rainwater harvesting structures, residential buildings 'B' 'C' and 'D' type, P.G Hostel, P.P.C Hostel and Tamizhagam Hostel were selected and the area is located in the southern side of the TNAU campus. The TNAU campus is located at latitude of 11° N, longitude of 77 °E and altitude of 426.72 m (above MSL). The average annual rainfall of TNAU campus was 677.8 mm (35 years average).

Water budgeting studies :

For the water budgeting analysis, the individual buildings of P.G hostel, P.P.C hostel, Tamizhagam hostel and residential blocks of 'B', 'C' and 'D' type were selected and the weekly demand and supplies for these buildings were arrived at during the study period.