

# **Design and Cost Economics of Rooftop Rainwater Harvesting System for College and Hostel Buildings of CAE Campus, Bapatla**

**N Ashok Kumar , K P Meerabai , H V Hema Kumar, CH Kashinadh and K Indira**  
Department of Agricultural Engineering, Agricultural college, Bapatla 522101, Andhra Pradesh

## **ABSTRACT**

Water is a life-blood of the environment and it is a limited universal solvent, which is essential for all forms of growth and development of human, animal and plants to sustaining the basic need for their economic activities. However, water is a renewable resource which is gift from nature because of its availability in space and time and is limited by climate and hydrological condition. Hence an attempt is made to design and evaluate the cost economics of roof top harvesting system. The total rooftop surface area of College building and UG boys' hostel building were 1061.9 m<sup>2</sup> and 608.74 m<sup>2</sup> respectively. The total cost for the installation of the rooftop rainwater harvesting structure for College and UG boy's hostel buildings were Rs. 55385.18 and Rs. 33241.14 respectively. The benefit cost ratio for the installation of the rooftop rainwater harvesting structure for College and UG boy's hostel buildings were 1.58 and 1.50. The Net present worth for the installation of the rooftop rainwater harvesting structure for College and UG boy's hostel buildings were Rs. 73283.39 and Rs. 38604.56. The Payback period for the installation of the rooftop rainwater harvesting structure for College and boys' hostel buildings were 0.58 and 0.51.

**Key Words:** Cost economics, Rooftop surface area, Rooftop rainwater harvesting system.