

Rainwater Harvesting at Karmaveer Bhaurao Patil College, Urun-Islampur

Karmaveer Bhaurao Patil College, Urun-Islampur, Taluka Walwa, District Sangli, is an established higher-education institution serving the rural and semi-urban population of the region. Established in 1961, the college has a campus spread over approximately seven acres and is committed to academic excellence as well as social and environmental responsibility. In this context, rainwater harvesting is an important sustainable practice for conserving water, reducing dependence on external water sources and promoting responsible utilization of natural resources.

The college has a roof area of approximately **2,661.44 square metres**, which provides significant potential for rooftop rainwater harvesting. Rain falling on the roofs can be collected through suitable gutters and downpipes and subsequently directed towards storage tanks, recharge structures or other water-conservation facilities. The quantity of water that can potentially be collected is estimated using the roof area and annual rainfall. Since **1 mm of rainfall over 1 square metre produces approximately 1 litre of water**, the theoretical annual rainwater potential can be calculated by multiplying the roof area by the annual rainfall.

Based on the rainfall figures used for the assessment, the estimated gross rainwater potential for the college roof was approximately **19.21 lakh litres in 2022, 19.21 lakh litres in 2023, 46.73 lakh litres in 2024, and 42.34 lakh litres in 2025**. Thus, over the four-year period from 2022 to 2025, the cumulative gross rainwater harvesting potential is approximately **127.49 lakh litres (12.75 million litres)**. These figures represent the theoretical quantity of rainfall falling on the roof area before accounting for collection losses, evaporation, leakage, first-flush diversion and other system efficiencies.

For practical planning, if an average **80% runoff and collection efficiency** is considered, the potentially usable/harvestable quantity would be approximately **15.37 lakh litres in 2022, 15.37 lakh litres in 2023, 37.38 lakh litres in 2024, and 33.87 lakh litres in 2025**. This demonstrates that the college roof has substantial potential to contribute to water conservation, particularly during years of higher rainfall.

Rainwater harvesting at the college can provide multiple environmental and institutional benefits. It can reduce storm-water runoff from the campus, improve groundwater recharge, supplement non-potable water requirements,

reduce pressure on municipal or groundwater sources, and create awareness among students and staff about sustainable water management. The college already conducts environmental and community-oriented activities through its institutional initiatives, including NSS activities such as tree plantation and campus cleanliness programmes. Rainwater harvesting can therefore complement these activities and strengthen the institution's commitment to environmental sustainability.

Overall, the estimated rainfall-harvesting potential of the **2,661.44 m² rooftop area** demonstrates that Karmaveer Bhaurao Patil College can conserve a substantial quantity of water through systematic rooftop rainwater collection and groundwater-recharge practices. The initiative can serve not only as a practical water-conservation measure but also as an educational model for students and the surrounding community. Regular monitoring of rainfall, quantity collected, storage/recharge performance and annual water savings would further strengthen the college's environmental management and sustainability reporting.

Summary of 2022–2025

Year	Gross water potential
2022	19.21 lakh L
2023	19.21 lakh L
2024	46.73 lakh L
2025	42.34 lakh L

Pipe system for collection of Rain water from Rooftops



Ground Water Recharge at Bore well

