Smart Rainwater Harvesting With Concrete Yard Design for Flood Prevention

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This project focuses on the design and implementation of an innovative rainwater harvesting and flood prevention system using a concrete-based structure. The system is integrated into a residential setting where a specially constructed concrete yard facilitates the absorption and collection of rainwater. Beneath this area, an underground water storage tank is installed, connected to a multi-stage filtration process that removes impurities such as clay, small stones, and other debris. A pumping mechanism is employed to transfer the filtered water to an elevated storage tank for household use, with additional filtration stages ensuring water quality at each point. Aims: To design and implement an efficient rainwater harvesting system using concrete structures that absorb water, combined with multi-stage filtration and a pumping mechanism, to ensure the collection, storage, and distribution of clean, reusable water while also reducing surface runoff to prevent flooding. Conclusions This project successfully demonstrates an efficient rainwater harvesting and flood prevention system using a concrete-based structure integrated with multi-stage filtration and a pumping mechanism. The concrete yard not only facilitates water absorption but also effectively channels rainwater to an underground storage tank, where impurities are removed through a series of filters. The system ensures a sustainable supply of clean water for household use while minimizing surface runoff, significantly reducing the risk of flooding during heavy rainfall.

Awards Won: