

## **Rooftop Rainwater Harvesting for Sustainable Organic Farming: Insights from Smart cities in India**

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**Abstract :** India faces a critical task of water shortage, specifically during dry seasons, which adversely impacts agricultural productivity and food protection. Natural farming, specializing in sustainable practices, demands green water management in smart cities in India. This paper examines how rooftop rainwater harvesting (RRWH) can alleviate water scarcity and support sustainable organic farming practices in India. RRWH emerges as a promising way to increase water availability for the duration of dry intervals and decrease reliance on traditional water sources in smart cities. The look at explores the capacity of RRWH to enhance water use performance, help crop growth, enhance soil health, and promote ecological stability inside the farming ecosystem. The medical paper delves into the advantages, challenges, and implementation techniques of RRWH in organic farming. It addresses demanding situations, including seasonal variability of rainfall, limited rooftop vicinity, and monetary concerns. Moreover, it analyses broader environmental and socio-economic implications of RRWH for sustainable agriculture, emphasizing water conservation, biodiversity protection, and the social properly-being of farming communities. The belief underscores the importance of RRWH as a sustainable solution for reaching the aim of sustainable agriculture in natural farming in India. It emphasizes the want for further studies, policy advocacy, and capacity-building initiatives to promote RRWH adoption and assist the transformation in the direction of sustainable organic farming systems. The paper proposes adaptive strategies to triumph over demanding situations and optimize the advantages of RRWH in organic farming. By way of doing so, India can make vast development in addressing water scarcity issues and making sure a greater resilient and sustainable agricultural future in smart cities.

**Keywords :** rooftop rainwater harvesting, organic farming, green water management, food protection, ecological stability

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