

## **Domestic Rooftop Rainwater Harvesting for Prevention of Urban Flood in the Gombi Nagar Region of Lucknow, Uttar Pradesh, India**

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**Abstract :** Urban flooding is a common occurrence throughout Asia. Almost every city is vulnerable to urban floods in some fashion, and city people are particularly vulnerable. Pluvial and fluvial flooding are the most prominent causes of urban flooding in the Gombi Nagar region of Lucknow, Uttar Pradesh, India. The pluvial flooding is regarded to be less damaging because it is caused by heavy rainfall, Seasonal rainfall fluctuations, water flows off concrete infrastructures, blockages of the drainage system, and insufficient drainage capacity or low infiltration capacity. However, this study considers pluvial flooding in Lucknow to be a significant source of cumulative damage over time, and the risks of such events are increasing as a result of changes in ageing infrastructure, hazard exposure, rapid urbanization, massive water logging and global warming. As a result, urban flooding has emerged as a critical field of study. The popularity of analytical approaches to project the spatial extent of flood dangers has skyrocketed. To address future urban flood resilience, more effort is needed to enhance both hydrodynamic models and analytical tools to simulate risks under present and forecast conditions. Proper urban planning with drainage system and ample space for high infiltration capacity are required to reduce urban flooding. A better India with no urban flooding is a pipe dream that can be realized by putting household rooftop rainwater collection systems in every structure. According to the current study, domestic RTRWHs are strongly recommended as an alternative source of water, as well as to prevent surface runoff and urban floods in this region of Lucknow, urban areas of India.

**Keywords :** rooftop rainwater harvesting, urban flood, pluvial flooding, fluvial flooding

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