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Multi-method efficiency analysis of Rainwater Harvesting Systems in Corredor Seco region, Central America

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The region of Corridor Seco (Dry Corridor, including parts of Guatemala, Honduras and El Salvador) has been facing multiple food crises caused by extreme weather events, water scarcity and land degradation phenomena. In this situation, Rooftop Water Harvesting (RWH) systems can effectively enhance local livelihoods, especially in marginalized communities, by providing an additional water source for domestic use, livestock, and irrigation of small horticultural plots which are key for vegetable production and thus for vitaminic input in a well-balanced diet.

Dimensioning sufficient storage tanks for rainwater collection is key, since smallholder farmers' capabilities are often hindered by low financial capacity as well as by limited land extension for reservoir building.

Efficiency of storage tanks and design criteria for water harvesting systems are investigated on the base of rainfall time series analysis, probabilistic risk assessment and Monte Carlo simulation (Ursino, 2016). The approach is tested on a series of (RWH) systems built in Guatemalan part of the Corredor Seco, Chiquimula department, with sustainable and appropriate building techniques, but with variable size due to the variability of each household. Factors affecting efficiency of storage tanks are discussed to inform future sustainable water management planning in the area.

Reference:

Ursino, N. Risk Analysis Approach to Rainwater Harvesting Systems. *Water* 2016, 8, 337.
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