

Traditional Rainwater Harvesting Systems: A Sustainable Solution for Non-Urban Populations in the Mediterranean

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Abstract : The StorMer project aims to set up a network of researchers to study traditional hydraulic rainwater harvesting systems in the Mediterranean basin, a region suffering from the major impacts of climate change and limited natural water resources. The arid and semi-arid Mediterranean basin has a long history of pioneering water management practices. The region has developed various ancient traditional water management systems, such as cisterns and qanats, to sustainably manage water resources under historical conditions of scarcity. Therefore, the StorMer project brings together Spain, France, Italy, Greece, Jordan and Morocco to explore traditional rainwater harvesting practices and systems in the Mediterranean region and to develop accurate modeling to simulate the performance and sustainability of these technologies under present-day climatic conditions. The ultimate goal of this project was to resuscitate and valorize these practices in the context of contemporary challenges. This project was intended to establish a Mediterranean network to serve as a basis for a more ambitious project. The ultimate objective was to analyze traditional hydraulic systems and create a prototype hydraulic ecosystem using a coupled environmental approach and traditional and ancient know-how, with the aim of reinterpreting them in the light of current techniques. The combination of 'traditional' and 'modern knowledge/techniques' is expected to lead to proposals for innovative hydraulic systems. The pandemic initially slowed our progress, but in the end it forced us to carry out the fieldwork in Morocco and Saudi Arabia, and so restart the project. With the participation of colleagues from chronologically distant fields (archaeology, sociology), we are now prepared to share our observations and propose the next steps. This interdisciplinary approach should give us a global vision of the project's objectives and challenges. A diachronic approach is needed to tackle the question of the long-term adaptation of societies in a Mediterranean context that has experienced several periods of water stress. The next stage of the StorMer project is the implementation of pilots in non-urbanized regions. These pilots will test the implementation of traditional systems and will be maintained and evaluated in terms of effectiveness, cost and acceptance. Based on these experiences, larger projects will be proposed and could provide information for regional water management policies. One of the most important lessons learned from this project is the highly social nature of managing traditional rainwater harvesting systems. Unlike modern, centralized water infrastructures, these systems often require the involvement of communities, which assume ownership and responsibility for them. This kind of community engagement leads to greater maintenance and, therefore, sustainability of the systems. Knowledge of the socio-cultural characteristics of these communities means that the systems can be adapted to the needs of each location, ensuring greater acceptance and efficiency.

Keywords : oasis, rainfall harvesting, arid regions, Mediterranean

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