Green Infrastructures to mitigate Flood risks in Urban and suburban areas and to Improve the quality of rainwater Discharges

NEWSLETTER ABOUT THE PROJECT, CURRENT INFORMATION, PROGRESS AND UPCOMING ACTIVITIES.

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About the project

Commencing in June, the upcoming project at the GĦAJN National Water Conservation Centre in Rabat will involve the construction of an experimental Green Roof. This initiative follows the completion of the works tender evaluation and the issuance of the development permit by the Planning Authority.

The implementation of the Green Roof holds significant importance for the Energy and Water Agency (EWA), as it will generate crucial data to inform future policy frameworks pertaining to stormwater management and flood risk mitigation. Through this installation, various aspects of the Green Roof's functionality will be measured, including the correlation between rainfall and runoff discharge, water retention capacity, runoff water quality, and the water required for plant irrigation.

Moreover, the Green Roof will facilitate the assessment of its cooling effects on the building and evaluate the positive influence of the micro-climate on the photovoltaic (PV) system's electricity generation capacity, which will be integrated with the Green Roof.

The experimental Green Roof is a key milestone achieved through the GIFLUID Project, which received funding from the Interreg V-A Italy – Malta Programme.

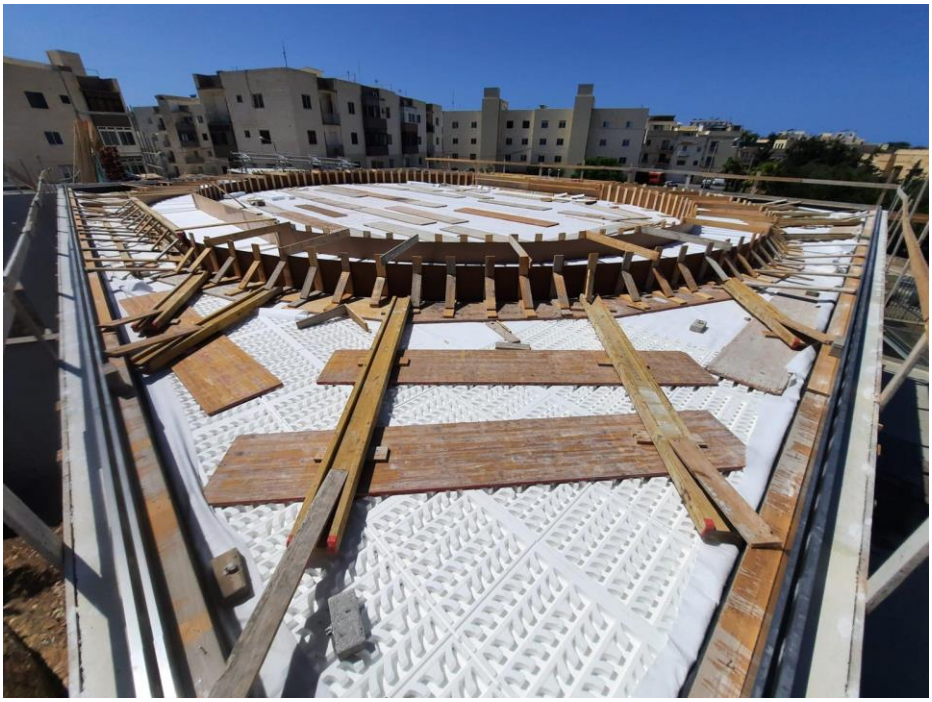
Construction of Green Roof at Għajn Centre, Malta Part 1

The construction of the Green Roof at Għajn Centre in Malta began in early summer. This project integrates PV panels and green infrastructures, allowing the Energy and Water Agency to assess the Green Roof’s performance in local conditions while enhancing Għajn's green credentials.

During July and August, the project moved into its second phase, focusing on waterproofing. The first layer featured a protective white sheet strategically placed to maintain the membrane's integrity. The second layer was designed to capture and store rainwater, supporting both the greenery and sustainable water management.

Construction of Green Roof at Għajn Centre, Malta Part 2

In September, formwork was added to start shaping the Green Roof's layout and features which will include solar panels, greenery, and a pathway. By the end of summer, a growing layer composed of volcanic lapillus, pumice stone, and organic compost had been added. This rocky sponge-like layer will hold water, to sustain the plants that will be planted.



Progress Meeting at the University of Catania

On the 13th and 14th April experts from the Energy and Water Agency and from the University of Catania actively discussed frameworks for integrating Green Urban Infrastructures in flood risk mitigation and management plans in Mediterranean coastal urban catchments.

During one of the scientific presentations, Dr. Sciuto shared a case study focused on the application of the EPA-SWMM model within the TOSCANO Torrent sub-basin, specifically in the area of Aci Castello. Following extensive discussions between the Energy and Water Agency (EWA) and University of Catania, they established various implementation scenarios for Green Urban Infrastructures (GUIs). These scenarios are as follows:

Scenario 1: This scenario represents the current situation, with the Rabat and Aci Castello sub-basins as they currently exist.

Scenario 2: This scenario envisions the implementation of policy measures, including the permeabilization of public areas through GUI projects.

Scenario 3, 4 and 5: Building upon Scenario 2, these scenarios introduce tax measures to incentivize private households to adopt green roofs and rainwater harvesting tanks. In Scenario 3, 15% of the roofs within the basins will be converted, while Scenarios 4 and 5 aim for the conversion of 30% and 60% of roofs, respectively.

Green Lab Training at the University of Catania

The GREEN LAB was developed within the framework of the GIFLUID Project, sponsored by the University of Catania and other Italian and Maltese partners, aiming to promote sustainable solutions for rainwater management through green infrastructures such as green roofs and rain gardens. This workshop, held on July 31st and August 1st, 2023, at Di3A, gathered Sicilian and Maltese experts to discuss water management strategies in urban and suburban areas, focusing specifically on the metropolitan area of Catania and selected regions in Malta.

During the event, various specialists presented research and case studies on nature-based solutions (NBS) and urban planning. Topics covered included the features and benefits of green roofs, the selection of suitable plants, and the importance of planning in mitigating hydraulic risks. Over the two days, hands-on workshops were organized on designing green roofs and rain gardens, culminating in the presentation of proposals by interdisciplinary groups of participants, guided by seasoned professionals in the field.

The next Green Lab Training will take place in Malta on 26th and 27th October 2023.