

Strengthening the Social Stability and Resilience of Vulnerable Jordanian Communities and Syrian Refugees in Amman Against Flash Floods



Project Overview



Flood risk, especially flash floods, are increasing due to rapid unplanned urbanization, the insufficient capacity of drainage systems, and climate change ramifications. In the past, heavy rains paralyzed the city, resulting in the loss of lives and affecting schools, transportation, livelihoods, and the power grid, thus exacerbating vulnerabilities for the poorest segments of the Jordanians and Syrian refugees and deteriorating their access to quality basic services. Accordingly, the increasing risks of natural disasters are serious and growing threats to Jordanian lives and infrastructure. In response to this significant risk of flash floods in Amman, UN-Habitat Jordan has implemented the project "Strengthening the Social Stability and Resilience of Vulnerable Jordanian Communities and Syrian Refugees in Amman against Flash Floods" in close collaboration with the Greater Amman Municipality (GAM).



Objective

To strengthen government and community resilience and capacities to better manage flash by providing a comprehensive and integrated response against flash floods through community consultations, awareness raising, capacity building, and the implementation of flood resilient infrastructure.



Budget
\$978,000



Donor
Japan Supplementary
Budget FY2019



Duration
April 2020-
November 2022

The project had the following outcomes:

Outcome 1: Improved protection and resilience to flooding in the target location in Amman.

Outcome 2: Reduced vulnerabilities of refugees and local communities to flash floods.

Outcome 3: Strengthened capacities of the government and communities to better manage floods in urban areas in Jordan

To build the resilience of Amman city to flash floods, and ensure the sustainable and scalable impact, UN-Habitat Jordan followed an integrated approach that specifically focused on the following methods:



Flood Risk
Assessment and
Flood Hazard
Mapping of
Downtown
Amman Study



City Resilience
Action
Planning Tool



Green
Infrastructure
Pilot Projects



Capacity
Building
of Local
Communities
and Officials



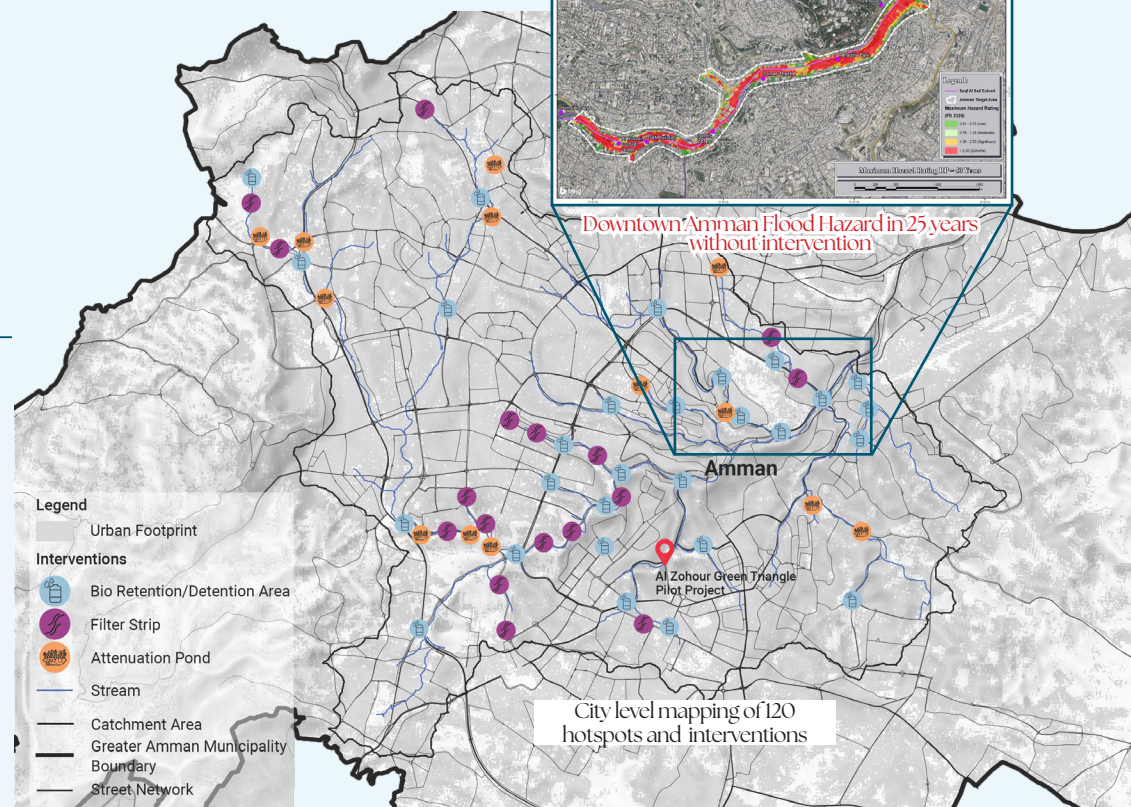
Awareness
Raising
Campaigns



Flood Risk Assessment and Flood Hazard Mapping of Downtown Amman

UN-Habitat conducted the first comprehensive study at the city level and the highest resolution flood risk mapping of Downtown Amman, which indicated the most flood hazardous zones with a high accuracy. This assessment paves the way for proper disaster risk reduction programs and provides a road map for developing a flood resilient city

This conducted hydrological and hydraulic modeling study for Amman identified flood hotspots within the city to implement short, medium, and long-term solutions for the flooding problem. The recommended solution is an integrated set of interventions that can together control and eliminate the risk of flooding in Downtown Amman. In the long-term, the proposed interventions include large infrastructure projects such as diverting stormwater runoff from parts of West Amman. The medium- and short-term solutions include the introduction of a series of stormwater retention and detention elements around the upstream areas of the city. Such elements would detain the fast-approaching flood water before it slowly drains, giving the drainage system in the downtown area enough time to pass the water through without causing harm or damage. This is called green stormwater infrastructure and is what the Al Zohour Green Triangle aims to demonstrate.





City Resilience Action Planning Tool (CityRAP)

To understand the situation from the community's perspective, UN-Habitat Jordan utilized the City Resilience Action Planning Tool (CityRAP). CityRAP is a step-by-step participatory resilience planning methodology developed by UN-Habitat that enables communities to understand and plan actions aimed at reducing risk and building resilience through the development of a Resilience Framework for Action.

This was the first time the tool was implemented in the Arab Region. UN-Habitat tailored the CityRAP tool to adapt to the local context in Amman as well as to the project framework.

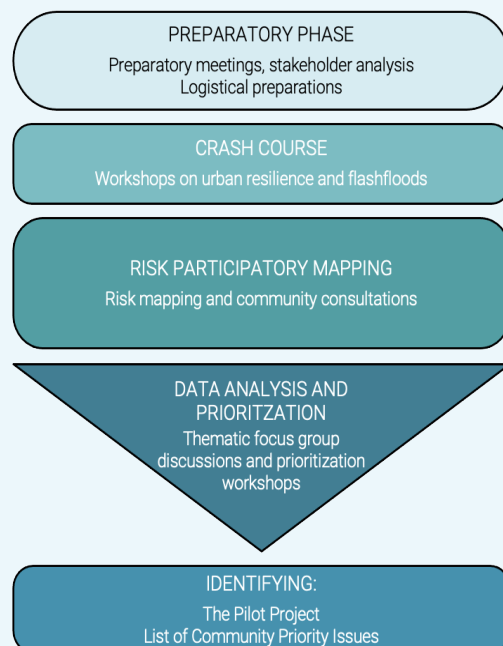
Challenges Identified by Community

The main challenges that the community identified were:

1. The dire need for new solutions to keep rein on the stormwater surface runoff.
2. Lack of law enforcement affecting the adherence to building codes and related laws.
3. The need to adopt a comprehensive approach for raising awareness, within which linkages between local initiatives and potential donors should be established.

Solution Proposed by Community

- The community assessed the suitability, applicability, and feasibility of possible solutions.
- Participants decided on a pilot project titled: **"Water harvesting systems installation and green pockets initiative"**.



Green Infrastructure Pilot Projects

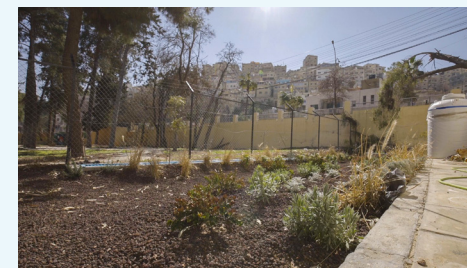


The pilot projects were participatorily developed through two main methods; the 'Water harvesting systems installation and green pockets initiative' was developed through the CityRAP consultation and prioritization sessions, while the Al-Zohour Green Triangle pilot project was developed in accordance with the priorities identified in the Flood Risk Assessment and Flood Hazard Mapping of Downtown Amman Study and stakeholder sessions.

Water Harvesting Systems Installation and Green Pockets Initiative (Rainwater Gardens)

Based on the local community's recommendations during the CityRAP sessions, UN-Habitat installed water harvesting systems at four buildings, two at the University of Jordan, one at the Greater Amman Municipality building in Basman, and one at the Heart of Amman building in Ras El Ain, to mitigate the impacts of flash floods in Amman and raise awareness among the citizens about the importance of water harvesting and the important role of local communities in building the city's resilience against flash floods. This will thus alleviate floods, caused, in most part, by climate change and urban expansion, while introducing new solutions to reduce stormwater runoff. The systems consist of gutters for harvesting rainwater from the roofs and storing it in tanks during periods of rainstorms to be collected for future use.

Additionally, in Ras El Ain, the water harvesting system consisted of a rain garden, which collects the rainwater, draining it slowly through the different layers of plants, mulch, bioretention soil, and gravel into the underground water storage.

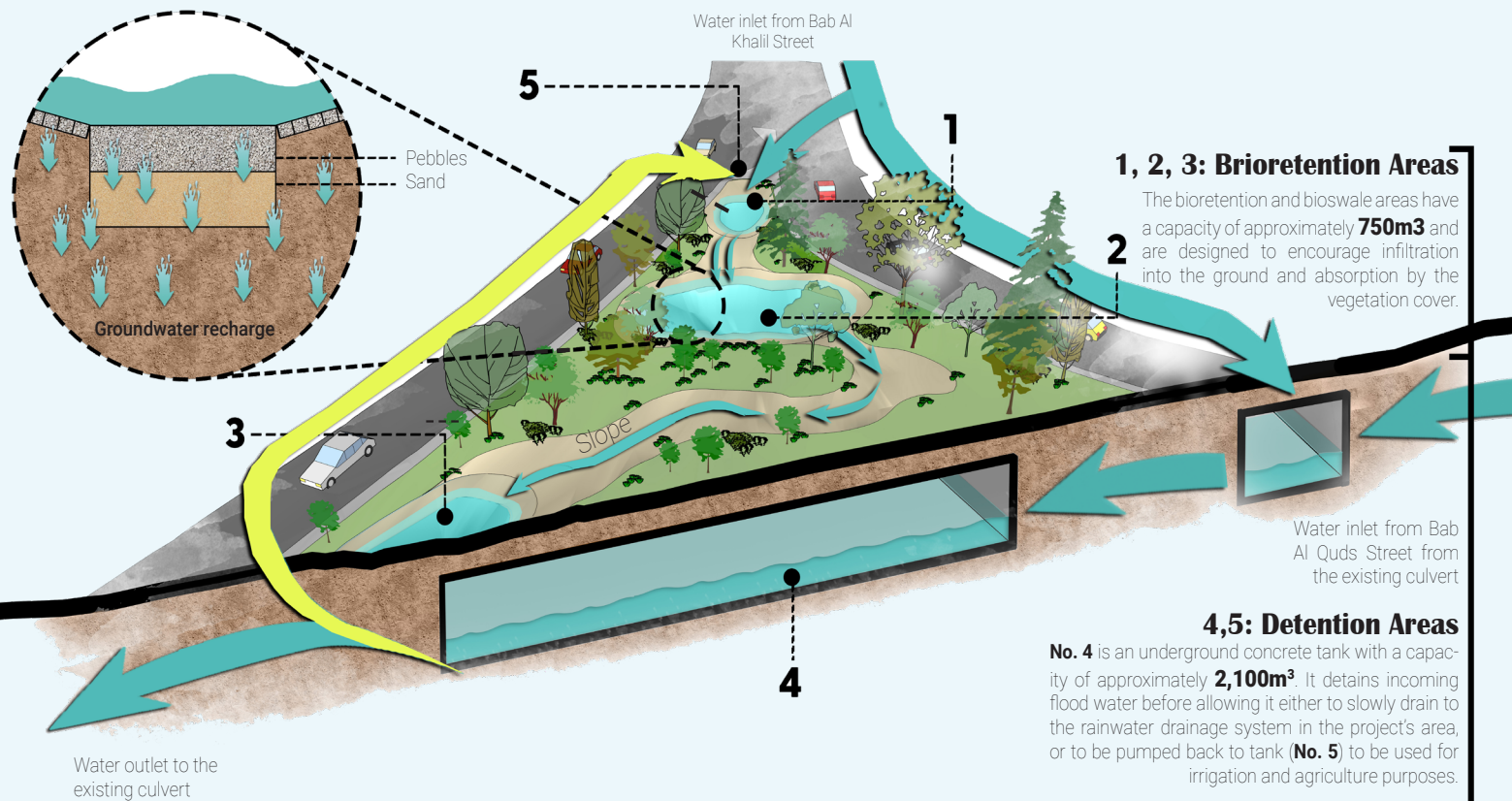




Al Zohour Green Triangle Pilot Project

The Al Zohour Green Triangle Pilot Project was implemented at one of the 120 locations identified for the implementation of short- and medium-term green stormwater infrastructure interventions. With an area of **2300m²**, the Al Zohour Green Triangle is located at the intersection of Al Quds Street and Bab Al Khalil Street within the Al Zohour District of Amman, which is a location that sees large amounts of stormwater runoff passing through from its 8 km² watershed into Downtown Amman. The total implementation cost of the project was **\$465,000**.

It is based the concept of Sustainable Urban Drainage Systems (SUDS) and aims to demonstrate two concepts of green stormwater management; stormwater bioretention and stormwater detention. The former concept is demonstrated through a series of bioretention and bioswale areas designed to allow water to infiltrate into the ground and to be absorbed by the vegetation cover. The latter concept is demonstrated through a concrete underground tank for stormwater detention.



"This is a unique project that is being implemented in Amman for the first time. We look forward to it being a catalyst for hundreds of project as well as for larger strategic solutions in the near future. Thank you to UN-Habitat."

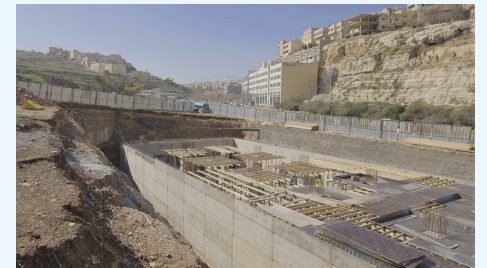
H.E. Dr. Yousef Al-Shawarbeh, Mayor of Amman at the inauguration of the Al Zohour Green Triangle.

"I believe and hope very strongly that this project can be a very good model for the future... I hope that the Japanese government and Japanese people can continue our collaboration with UN-Habitat."

H.E. Mr. SHIMAZAKI Kaoru, Ambassador of Japan to Jordan, about the Al-Zohour Green Triangle



Bioretention and bioswales area



Underground storage tanks during the construction of Al Zohour Green Triangle



Al Zohour Green Triangle after construction



Capacity Building of Local Communities and Officials

To build the capacities of local officials, UN-Habitat held the 'Climate Change and Resilience Capacity Building Training Workshop', which effectively contributed to advancing the capacities of the Greater Amman Municipality (GAM) through practical information and global case studies on mainstreaming climate change into their frameworks and plans, and translating this into actions on the ground to build their resilience against different hazards and threats. Furthermore, this workshop aimed to advance GAM's participatory approaches to make their decision-making processes more transparent, inclusive, and, hence, more effective.



Additionally, UN-Habitat built the capacities of local communities on sustainable green agriculture methods and implementing small-scale home and community garden projects. With a local permaculture expert, this 5-day training, titled, 'Community Mobilization and Logistical Preparations for the Community Resilience Priority Actions to Flash Floods', aimed to train communities in Amman to exploit, collect, and use rainwater for agricultural purposes, provide water for domestic uses, and assist in minimizing the impact of flash floods on the drainage system. This training provided educational and livelihood opportunities, while improving food security, thus decreasing COVID-19's socioeconomic consequences, and fostering social cohesion among community members. Furthermore, going beyond the local community trained, UN-Habitat and partners have developed a Water Harvesting System Installation Manual to be disseminated to different households to provide a step-by-step guide on implementing these solutions at the household-level.



Sawsan Radwan, a participant at the community vocational training sessions.



Awareness Raising Campaigns



To sustain the efforts of this project beyond the population in Amman and expected timeline, UN-Habitat and partners additionally aimed to increase the knowledge and community awareness about flood risks and ways in which they can be involved in implementing the proposed solutions.

These campaigns were released across different digital platforms to raise the awareness of different segments of Amman's population and their important role. They were launched in partnership with GAM, utilizing their strong presence on social media platforms, and included TV appearances and an instructional video on the flash floods issue and the measures and tools that can be used to build the coping capacity and increase the resilience of the city, which will subsequently reduce the flash flood risk in Downtown Amman. Community knowledge and awareness is vital to enhance the resilience and quality of life of the vulnerable populations, and digital campaigns such as these can be disseminated widely across the whole country and region to allow communities to proactively adapt to and mitigate the impacts of various climate risks and disasters.



Please scan the QR code to watch the awareness video



Please scan the QR code for a detailed
documentary about the project



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