

# Protection of the City Against Floods

## City of Nabeul

 Nabeul, Nabeul Governorate, Tunisia

---

**Hazard(s):**

Floods, Stormwater

---

**Type of action:**

Adaptation

---

**Type of actor:**

Local government

---

### Description

---

In the last twenty years, a combination of multiple factors participated in an increased vulnerability to floods in the Nabeul governorate.

- The vegetation cover on the hillsides that surround the city that was a natural rampart to floods has almost completely disappeared over the years.
- A chaotic and unrestrained urbanisation led to buildings being constructed:
  - On agricultural land that used to absorb rainwater.
  - On the embankments of the 6 oueds (ephemeral riverbeds filled with water only when heavy rain occurs) that flow through the city, narrowing the riverbeds and impacting their capacity to naturally contain increased water flow.

The flood mitigation project has therefore 3 main axes:

- The diversion of the oueds paths (ongoing).
- The reforestation of hillsides (preliminary studies).
- The implementation of an urban drainage system (preliminary studies).

### Audience

---

The city of Nabeul and the neighbouring municipalities of Maamoura, Beni Khiar, Dar Chaabane and Hammamet are to benefit from this project.

Multiple actors support this project:

- The Ministry of Equipment
- The Ministry of Agriculture
- The City of Nabeul and all associated municipalities
- Business owners (and specifically hotel owners) are involved in financing this project
- EU Commission's Clima-Med experts assisted in the design of the project

### Timeline

---

The torrential rains of September 22<sup>nd</sup>, 2018, revealed and exposed the problem of evacuation of stormwater: the resulting floods washed everything away in their path, with water level raising up to 1,80m at some point.

The Nabeul Club (a civil society association) took upon itself to report and assess the failures that led to the catastrophic event. The Club then organised events to raise awareness in the community and with local authorities. It then offered a set of solutions to the city council which submitted the plan to the ministry for equipment.

Preliminary studies were conducted, negotiations for financing the project started. The diversion of the oueds has been launched while the drainage system and reforestation projects are still in the preliminary study phase.

## How does the initiative address the 10 Principles?

### 1. Urgency

---

The catastrophic events of September 2018 called for immediate action to not only resume activities. It also highlighted crucial failures in the management of rainwater. Actions were taken swiftly because citizens got involved and because Nabeul was already identified as a high-risk zone in the Ministry of Equipment plans.

### 2. Stakeholders

---

This project is a perfect example of stakeholders along the building value chain working in concert: it stemmed from a civil society initiative, is led by local officials and state officials, is financed by Nabeul citizens and state bodies, and is designed by local engineers with the support of Clima-Med.

### 3. Process

---

Three different public actors are responsible for the diversion of the oueds project, their future cleaning and maintenance, and for urban planning. Reflections are ongoing to create a coordination organism to fully integrate adaptation at every stage of the project.

### 4. Mitigation

---

Integrating mitigation policies in adaptation and development policies is crucial. Building and land use codes were updated to ensure a proper management of the oueds beds and tackle urban planning issues.

### 5. Data

---

Actions were swiftly taken for Nabeul was already identified as a high-risk zone in the action plan of the ministry of equipment based on historical data. Similarly, oueds diversions design and sizing took data from climate projections into account so that they can withstand once-in-a-century floods.

### 6. Scale

---

Building resilience is fully integrated with city and community resilience. The floods protection project is part of a regional strategy shared with neighbouring cities and supported by local businesses and citizens.

### 7. Green

---

Nature-based solutions leverage the resilience potential of nature to provide significant co-benefits. The reforestation part of the project will use natural barriers to flood and while participating in the protection of local orange tree species. The new orchards will also be a source of economic activity.

### 8. People

---

Chaotic, informal, and illegal urbanisation is a driving factor of the catastrophic floods of 2018. However, simply getting rid of these buildings would put many inhabitants in more precarious situation. The chosen actions work towards a “just adaptation” to climate change.

### 9. Finance

---

Financing an adaptation project is difficult as there is no direct return on investments. Making public bodies and private partners understand that the cost of inaction will be much higher than the adaptation cost is key. In Nabeul, the project is mostly financed by the Ministry of Equipment, but subsidies are action based. A dedicated city agency to direct funds more efficiently is envisioned.

### 10. Local

---

There is no one size fit all action to tackle floods as they are intrinsically dependent on local parameters. The project in Nabeul goes one step further by integrating the protection of local flora (orange trees) in its flood mitigation strategy.