

TAPARURA PROJECT: Sustainable coastal development, including the decontamination and rehabilitation of the coastal area of the city of Sfax

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Introduction:

The ecological aspects in port planning and the sustainable development of areas around the port is a major concern of all people involved. The Taparura Project is a typical example.

The project is situated along the harbour of Sfax, and includes the rehabilitation of a former industrial site, the clean-up of the sediments and restoration of the area.

For many years the coastal area (150 hectares) has been affected with pollution from various types of solids, sediments and liquid wastes. Phosphor gypsum has been stored in an uncontrolled landfill along the coastline, with a surface of approximately 50 hectare and a height of 6 meters above the sea level. Pollution from this site was threatening the beaches and coastal waters of Sfax, hampering further development.

The Taparura project forms part of a global action programme put together by the Tunisian authorities to tackle the sources of pollution and to improve the overall environment of the Sfax region.

The beach and landfill restoration will create a mixed space for new public and private activities as well as the implementation of social housing programmes.



Fig. 1: Helicopter view of the site

Methods:

During the site investigation and studies executed during the nineties, samples have been taken both on land and in the seabed. By 1997 it became clear that it was technically possible to solve the problems and to neutralise the contamination. The main problem

was what to do with the complex industrial site, the phosphate dump of 3,000,000 m³. The solution that was ultimately selected is to create a central piece in the whole area; a pyramidal looking park covering a total area of approximate 55 ha.

The project obtained the backing of the European Investment Bank (EIB) and the other 50% of the financing was contributed through export credit facilities and a commercial loan.

On 30 March 2006, the Joint Venture Jan De Nul - Envisan – Somatra signed a contract for the decontamination and the rehabilitation of the entire site. The entire period for the contract is set at 2.5 years with a total value of 73 Million Euro.

The project consists of different stages:

- A detailed site investigation (on- and offshore).
- The excavation of approximately 1.7 million m³ on land, including 1,300,000 m³ of phosphate plate around the toe of the landfill.
- Dredging of approximate 0.5 million contaminated sediments below sea level, with a water depth of approximate 0.5 to 1.5 meter. All wet polluted material is stockpiled and dewatered in a special designated area, on top of the existing landfill.
- The rehabilitation of this pyramidal phosphate dome comprises the reshaping of the slopes, the installation of a vertical bentonite-HDPE screen along the perimeter in order to create a confined area, including the installation of a cover layer with land-based material and a new topsoil layer.
- The remediated area will be reclaimed with 6.15 million m³ of sand, dredged by means of Trailer Suction Hopper Dredgers with material sourced offshore.

Results – Discussion:

The ecological aspects in port planning and the sustainable development of areas around the port is a major concern for all. A complex multidisciplinary sediment and soil remediation project such as Taparura is a challenge for all people involved.

The execution of the project (2.5 years – 2006-2008) is only a fraction of the total lifespan of the project (20 years – 1990-2010). However, the benefit for the community and the city of Sfax will last through the coming century.