

Environmental restoration of the Natural Reserve of Tarquinia salt-works - IT

1. Policy Objective & Theme

- SUSTAINABLE USE OF RESOURCES: Preserving coastal environment (its functioning and integrity) to share space
- SUSTAINABLE USE OF RESOURCES: Sound use of resources and promotion of less resource intensive processes/products

2. Key Approaches

- Socio-economic
- Technical

3. Experiences that can be exchanged

Restoration of abandoned and degraded salt-pans with socio-economic advantages.

4. Overview of the case

In Tarquinia, abandoned, overgrown salt-pans of international importance were restored by improving the drainage and excavating silted-up areas. An awareness-raising campaign and monitoring scheme were also implemented.

5. Context and Objectives

a) Context

Located in the Viterbo province in central Italy, Tarquinia Municipality has 15,910 inhabitants and a total area of 279.5 km². The Salina di Tarquinia, nearly 150 ha. of which 100 ha. is occupied by the coastal lagoon-ponds, is one of the few remaining salt marshes on the Tyrrhenian coast. The Salt works are an SAC and SPA site on account of the plant content and strategic location for migrating birds from sub-Saharan African wintering areas to Europe. The main habitats are coastal lagoons, Salicornia and other annuals colonising mud and sand, and Mediterranean halophilous scrubs (*Sarcocornetea fruticosi*). In addition, ca. 17 bird species of Community interest will benefit from the conservation of the ecosystem as it is an important resting ground for migrants: these include the black-winged stilt (*Himantopus himantopus*), the little egret (*Egretta garzetta*), the avocet (*Recurvirostra avosetta*), the sandwich tern (*Sterna sandvicensis*), the little tern (*Sterna albifrons*), the Caspian tern (*Sterna caspia*), and the black tern (*Chlidonias niger*). There is also a consistent group of greater flamingo (*Phoenicopterus roseus*) for which Tarquinia saltworks are an important wintering ground. More than 50 species of birds, accounting for 3-4000 individuals are regularly counted every year.

As the Salina is a human-made environment, its basins and canals require continuous maintenance to ensure an adequate flow of water to prevent poor water exchange, water stagnation, silting up and the consequent disappearance of the ecosystem.

b) Objectives

The initiative aimed to preserve the Tarquinia salt marsh as part of a strategy for the protection of coastal lagoons in Europe and within the Natura 2000 network. It took a global approach to the ecosystem: its first key objective was to improve water

exchange in the marsh basins by restoring the old canal embankments, carrying out maintenance on the locks and pumps and re-opening the canals connected to the sea. Another key objective was the removal of sediment from the basin and canal bottoms to prevent silting. Chemical, physical and biological monitoring would be carried out throughout to assess the effects of the actions and to plan further action.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

The municipality of Tarquinia was responsible for the actions.

b) ICZM tools

The project activities restored the Tarquinia saltpan by removing excess sediment that had accumulated in the partially (55,565 m³) and completely (46,000 m³) filled-in ponds. Rather than using mechanical dredging, a hydraulic dredger usually adopted for mouths, canals and port dredging was employed (operating here at a limited water depth of just 50 centimetres). Other key results of the work included the restoration of:

- 1,450 m of wooden and stone (520 m) banks as well as the western and eastern mouths.
- Four pumps and the building holding the pumps
- the hydraulic functionality of the saltpan was improved by raising the water level in certain ponds.

Restoration work also included the substitution of 70 wooden sluices.

Monitoring activities of habitat and species through chemical-physical and biological parameters was undertaken. A management plan for the saltpan was also produced for the continued protection of the salt marshes which was approved by the managing body of the Natural Reserve (the State Forestry Service) and by the Municipal Council.

Good co-ordination among the different institutions involved in the management of the protected area was further ensured by an agreement signed by the two above institutions and the University of Tuscia, which carried out the scientific studies and helped draw up the management plan.

7. Cost and resources

The total budget was €1,056,549.00 of which there was a Life contribution of €633,926.00. Three full-time workers were employed to carry out the in situ restoration tasks.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The wet areas were increased by about 20% and the maintenance of the equilibrium among the habitats guaranteed the conservation of *Salicornia* species which had been declining since 1997. The greatest benefit was, however, the birds which have been increasing annually. The restoration has opened the site to sustainable bird-watching tourism with a forecast of visitor numbers to increase from 3-5 thousand to more than 10 thousand in the next 10 years.

9. Success and Fail factors

The drawing up of good management plan which guaranteed the correct hydraulic regime when implemented and allowed the recovery of the salt works environment within a period 42 months.

10. Unforeseen outcomes

The initiative has helped to regenerate the area and create new jobs at the salt museum, hotel and visitors' centre. The project

has also led local authorities to access other EU funding lines to support further activities. Owing to their closeness to Rome, the Tarquinia salt-marshes have a very important place for educating the public about nature protection and the impact of EU environmental legislation. Nonetheless, there are doubts whether the conservation practices can be sustainable in the long-term considering the limited financial resources available.

11. Prepared by

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12. Verified by

It has not been possible to verify this case.

13. Sources

- Environmental Rescue of the Natural Reserve “Saltworks of Tarquinia ” Layman’s report LIFE NATURA project LIFE02NAT/IT/8523



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