



## Reclamation and Rehabilitation of Al Karaana Lagoon

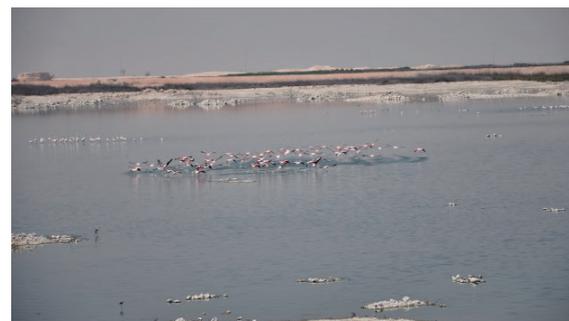
Water reserves and animal sanctuaries are extremely rare in Qatar. As part of their Pre and Post Contract Professional Consultancy Services, Egis managed to convince the Client to maintain Al Karaana as a nature reserve and apply sustainable solutions to avoid further loss of amenity.

The Project includes four major stages: design; cleaning and removal of all sources of pollution; rehabilitation of the lagoon to “no-development” land status; and protection of the existing habitats.

### IMPORTANT ENVIRONMENTAL ISSUES

Egis not only had to find sustainable solutions for Lagoon rehabilitation, but also had to convince the Client that environmental protection was crucial for the Project. The biggest issues faced by Egis were:

- > Ensuring that the Client agreed that the preservation of the natural reserve was the best solution for the Project;
- > Industrial waste water still being discharged into the Lagoon;
- > Protection of existing wild life;
- > Ensuring that discharge will not continue in the future;
- > Linking the Project with the construction of Industrial Waste Water Treatment Plant;
- > Not enough Treated Sewage Effluent storage facilities in the surrounding areas.



## >> Thematic fact sheet

### Sustainable Development - CSR

## PRESERVING THE WILDLIFE

### THE GROUNDS OF THE PROJECT

Al Karaana Lagoon is approximately 4 km<sup>2</sup> in size and was constructed in 2007. It contains several old lagoons that accept untreated sewage, industrial effluents and treated sewage water from nearby small waste water treatment plants.

Presently the Lagoon possesses high levels of pollution and it is a major source of contamination of the surrounding area.

Egis looked at the available options for resolving the pollution issue and preserving the existing wildlife.

Together with the Ministry of Environment of State of Qatar, it has been decided that the Lagoon will not only be covered and closed, but that it will be reclaimed and rehabilitated wherever possible.

An ecology survey was undertaken on site for duration of 10 days and the findings proved that Lagoon is remarkably still very much alive:

- > Around 55 species of birds were recorder, of which 2 species are marked as "Vulnerable" and 4 as "Near threatened", according to the Red List

of Threaten Species 2015, published by the International Union for Conservation of Nature;

- > 4 species of mammals were found on adjacent land;
- > 2 species of reptiles, including one listed as "Vulnerable";
- > Various species of fish.

Due to the size of the Lagoon and its water levels, the wild life habitat is fully settled and maintained over the summer period.

### SOLUTIONS PROPOSED BY EGIS

When Egis secured the Pre and Post Contract Professional Consultancy Services for the Reclamation of Al Karaana Lagoon, Egis proposed solutions that would minimize the pollution and preserve the settled wild life in a long term vision:

- > To avoid further pollution, the discharge of industrial sewage should be stopped quickly and it should be temporarily stored in fully waterproofed evaporation ponds before being redirected to a treatment plant under construction
- > Set up a specific classification for contaminated matter that could be sludge but also coming from unrecorded dumping as discovered by Egis
- > Dry out any contaminated matter to avoid long term biogas, and use quick lime to condition material from unrecorded dumping and highly

contaminated sludge. Quick lime also allowed for a reduction in of TPH contamination and pathogenic organism.

- > Design a fully waterproof engineered landfill and other disposal areas to store contaminated material based on the classification.
- > The project was designed by EGIS to avoid any import or export of material and to manage odor emissions limiting the environmental impact of the remediation.
- > The wild life area will be developed into TSE storage ponds, of which a minimum one will always be full in order to protect habitat during dry and hot months;
- > During site remediation the discharge of TSE would continue and existing lagoon wastewater evaporated.



The rehabilitation of Al Karaana Lagoon Project proves that the understanding of local conditions is vital for the design process. Egis has been using its core values to develop solutions that balance economic requirements with the protection and preservation of wildlife.

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