

Qatar – Bahrain Causeway

The world's longest fixed sea link connection can become a reality between Qatar and Bahrain in the Middle East. The approximately 40 km long bridge will connect the West Coast of Qatar near the Zubarah fortress with the East Coast of Bahrain south of its capital Manamah. The link will be a natural extension of the King Fahd Causeway that connects Bahrain and Saudi Arabia.

COWI was appointed to undertake the *Preliminary Engineering and Environmental Investigations and Studies* for the Qatar - Bahrain Causeway and complete the studies in only 10 months.

The Phase 1 activities aimed at:

- carrying out studies, surveys and site investigations in a 15 x 40 km offshore study corridor and adjacent land areas
- comparing alternative alignments and selecting three for analysis
- presenting a sketch design for the causeway and its elements
- recommending in favour of one alignment based upon cost and impact assessments.

Special consideration was given to risk assessments for the possible landing points in Bahrain, establishment of a project reference system -



linked to the national systems and the water and salt exchange between the Bay of Salwa and the Gulf, which should remain unchanged. Furthermore the recommendations were based upon a rational evaluation model.

The Phase 2 activities aimed at:

- carrying out detailed studies, surveys and site investigations for the selected alignment
- presenting a conceptual design.

Arrangement of the tolling and border facilities and necessary navigational clearances for the main bridges were major issues.

An Environmental Impact Assessment report was submitted.

Project period: 2001 - 2002

Client: Ministry of Municipal Affairs and Agriculture, Qatar

Subconsultants

- DHI Water & Environment, DK
- Sund & Bælt, DK
- Dissing + Weitling Architects, DK.

Services – Studies

- Planning
- Traffic
- Topography & bathymetry
- Geology & geophysics
- Geotechnique
- Hydrography
- Meteorology
- Marine modelling
- Environment & ecology
- Risk assessment
- Design basis

Services – Conceptual Design

- Alignment
- Roads & plazas
- Embankments & fill depots
- Bridges
- Tolling & border facilities
- Mechanical & electrical installations

