

Introduction

Halcrow is now the largest maritime consultancy in the World. Halcrow's expertise covers container and ro-ro terminals, bulk terminals, oil and gas terminals, breakwater construction, dredging and reclamation, fishing harbours and marinas.

Halcrow undertakes feasibility studies, financial, operational and market analyses, port privatisation studies, due diligence studies, port planning, design, and construction supervision.

Halcrow is committed to providing the full range of services necessary to meet the needs of its client. Halcrow was founded as a ports practice some 130 years ago, and continues to be at the forefront of the maritime field with extensive experience in the study, design and construction of all types of maritime engineering. In their ports & dockyards practice, Halcrow employs around 250 port engineers, planners, modellers and simulation specialists, and can call on environmentalists, geotechnical engineers, materials experts and other skills from the wider Halcrow Group of projects on a worldwide basis.

The Halcrow has a comprehensive in-house capability and is able to provide the full range of services required for the implementation of port and dockyard projects.

Halcrow's maritime expertise covers data collection and analysis, studies, planning, design, project management, mathematical and simulation modelling, construction supervision and management, and monitoring for the following:

- ✓ Break waters
- ✓ Dredging, reclamation and ground improvement
- ✓ Quays, wharfs and jetties
- ✓ Container terminals
- ✓ General cargo and multi-purpose berths
- ✓ Liquid and dry bulks terminals
- ✓ Shipyards and dry docks
- ✓ Cruise ship, ferry and Ro-Ro terminals
- ✓ Structural assessment and repairs
- ✓ Naval and coastguard bases
- ✓ Fishing harbours

- ✓ Marinas and small harbours
- ✓ Port infrastructure including roads and pavements, bridges, buildings, water and power supply, sewerage and communications
- ✓ Port privatisation and due diligence
- ✓ Pollution and water quality control
- ✓ Safety management systems

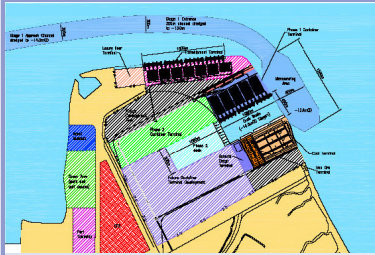
Services

Halcrow provides a full range of engineering, planning and environmental consultancy services for the development of port projects. These services include:

- **Port planning**
- **Institutional reform and private sector participation**
- **Pre-investment studies**
- **Container terminals**
- **Oil & Gas and dry bulk terminals**
- **Breakwaters**
- **Dredging and reclamation**
- **Quays and jetties**
- **Geotechnical engineering**
- **Electrical engineering**
- **Project Management**
- **Port operation simulations**
- **Technical advice**

Halcrow – sustaining and improving the quality of people's lives





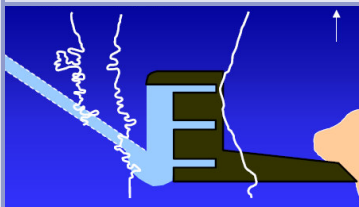
Maharashtra: Rewas-Aware Port Development – Review of Stage I, Port Development – The scope of work covers the review of the Stage I report prepared by WAPCOS to comprise; Data collection, Review of the channel concept design, estimates of the quantities of capital and maintenance dredging, Review of the estimates of the quantity of work and the capital, maintenance and operating cost estimates, preparation of revised estimates, Risk analysis to determine the contingency, Preparation of a cash flow, Preparation of a report on the findings of the study.

Pondicherry: DPR for the development of a deep water port at Pondicherry – The scope of services involves mobilisation, collection of existing data, traffic/customer survey, surveys and investigations, port plan, port connectivity study, coastal and wave modelling, sizing of port components, hotel and leisure area study and plan, port infrastructure, organisational plan and works to be completed by the Government, cost estimates, financial analysis, environmental study, preparation and submission of the DPR and quality assurance.



Goa: Development of a Business Plan for Mormugao Port Trust) – Prepare the most appropriate Business Plan / Action Plan for the Mormugao Port Trust, that is technically suitable and economically/financially viable for implementation in the immediate future (7 years) and for the long term vision increasing the sustainability of the port and reducing the dependence on Government funds.

Dighi Port Development – Review study involves establish the adequacy of engineering surveys and studies conducted so far and revalidate the port design rationale, determine any additional studies that may be required and their terms of reference, provide possible value addition for the Phase I Development Plan.



Vadhavan International Port Study – Feasibility study of new major international port, including breakwater protection, layout of facilities and conceptual designs. Preparation of development programme and phased cost estimates. Preliminary design of navigation requirements

Maharashtra: Nheva Sheva Port, Mumbai – Halcrow was appointed by International Container Terminal Services Inc (ICTSI) to provide due diligence services for a concession agreement issued by Jawaharlal Nehru Port Trust (JNPT) to convert and operate an existing bulk terminal to a new container terminal at Nheva Sheva, Mumbai. The studies include site visit, conceptual design of marginal quay conversion and container yard with facilities.

