CENTRAL WATER & POWER RESEARCH STATION

MATHEMATICAL MODEL STUDIES FOR TIDAL HYDRODYNAMICS & SILTATION FOR THE DEVELOPMENT OF PROPOSED RECLAMATION & LNG BERTH AT JAWAHAR DWEEP IN MUMBAI HARBOUR

STUDY OVERVIEW

The project involves the assessment the effect reclamation proposed by Mumbai Port (MbP) at Jawahar Dweep (JD) on the flow field at nearby waterfront facilities of MbP at JD and Pir-Pau. The suitability of location and alignment of proposed LNG berth at JD is to be assessed along with estimation of likely rate of siltation in berth pocket of LNG berth.

APPROACH

- Tidal hydrodynamic studies were carried out to study the flow field near the Jawahar Dweep for existing condition and assessed the effect of reclamation proposed by MbP on the same.
- The modification in shape of reclamation is suggested to minimise its impact on flow field.
- The flow at proposed two locations of LNG berths were assessed to finalise the alignment of LNG berth.
- The hydrodynamic model was coupled with silt module to evolve the quantum of likely siltation in the proposed berth pocket of LNG berth to be dredged at 13 m below CD.

KEY FINDINGS

The shape of reclamation at Jawahar Dweep is modified by CWPRS as well as the location near JD-5 terminal is found suitable for the development of LNG berth with orientation of 56° N - 236° N. The likely rate of siltation of about 24,000 cum per annum is estimated through siltation studies.

OUTCOME

The tidal hydrodynamics & siltation studies facilitate assessment of effect of proposed reclamation at JD and evolve suitable shape of reclamation with minimal impact. It also facilitate to decide the location of proposed LNG berth with suitable alignment for safe berthing and operations of LNG vessel in complex flow conditions and estimation likely siltation to facilitate stakeholders for planning of dredging efforts.