

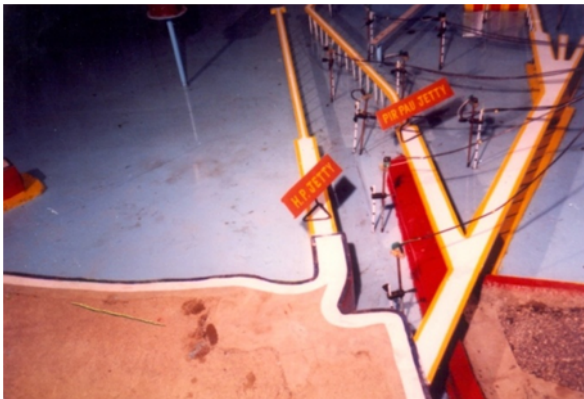
COOLING WATER JETTY, TROMBAY, MUMBAI

Background

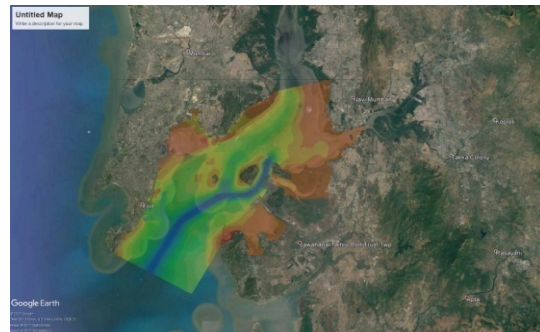
Tata Power Company has been operating their thermal power plant at Trombay, Maharashtra since 1956. The first unit of 62.5 MW generating capacity was installed for supply of power to Mumbai city. Later, a number of units were added to the system. The present generating capacity of the Trombay Thermal Power Station is 1430 MW. All the units of a power plant are operating on 'once-through' cooling system. The cooling water required for the power plant is being drawn from Thane Creek through pumps. The warm water from all the units is being discharged back to the Thane Creek through a pre-cooling channel. The water depths near the intake are shallow and as a result lot of mud/ sand also enters the pump chamber along with water affecting performance of sea water handling machinery and thus increasing the maintenance cost. It is proposed to relocate the cooling water intake further deep into the sea

Studies Conducted

- Hydrodynamics and siltation studies for the proposed new location of the cooling water intake.
- To study the effect of the proposed new intake on the other facilities in the near vicinity.
- Field investigations for extension of cooling water system.
- Hot water recirculation studies for cooling water system.
- Model studies for cooling water discharge channel.
- Physical model studies for evaluation of quantity of water re-circulated through CW system.
- Assessment of performance of cooling water channel.



Physical Model



Location Plan

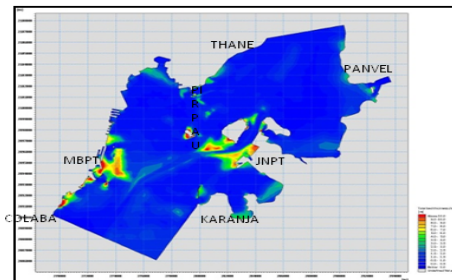
Outcome and Benefits

- The model for the existing conditions predicts an annual silt deposition rate of 3.9 m in front of CW Jetty.
- In the proposed conditions, the siltation near the cooling water jetty is found to have been increased from 4.0 m/annum to 6.5 m/ annum. However, once the bed level regains its original regime, the siltation rate is expected to stabilize. Based on results of the model studies the intake and outfall structures were designed in such a way that, no warm water recirculation takes place. A pre-cooling channel was proposed to bring down the warm water temperature rise to within the acceptable limit prescribed by the MoEF before being discharged in to the creek system.





Physical Model of Pre-Cooling Channel



Sedimentation in the Proposed Condition

