MARINE DRIVE SEA WALL, MUMBAI

Background
A sea wall from Nariman Point to Chowpatty, Mumbai, was constructed in 1920 as a retaining wall for the reclamation as well as to protect the promenade and a main road provided on the reclamation. The total length of the sea wall is about 3340 m and was protected by Tetrapods and stones in some reaches during 1960-61. A parapet wall is also provided to avoid overtopping. However, in early 1980’s damages were noticed to the rubble protection provided on the sea side of the wall. Furthermore, the splash/spray of sea waves was causing obstruction to the vehicular traffic and the pedestrians during the monsoon. The road surface needed frequent repairs due to pooling of water.

Studies Conducted
- The Govt. of Maharashtra referred the problem to the CWPRS to conduct model studies and to suggest suitable measures for
  a) Strengthening the existing sea wall from Nariman point to Chowpatty sea face
  b) Reducing the splash/spray action coming on the roadway due to wave striking the seawall during high water.
- Two-Dimensional hydraulic model studies taken up in a wave flume to recommend remedial measures by providing suitable modifications in the seawall cross-section.
- Data collected like topography of the backbay, bed material, wave climate and tidal levels for deciding the appropriate design of seawall.

Outcome and Benefits
- Strengthening of seawall, armour layer with 2.0 tonne Tetrapods placed in double layer and supported by 800 kg to 1000 kg stones/concrete cubes in the toe.
- The curved parapet with its crest level raised to about +8.5 to +9.0 m to reduce the splashing of water on the road / footpath.
- Footpath level on the lee side was raised upto +7.5m so that view of the sea would not be obstructed.
- The toe berm and the layer of Tetrapods enhanced the stability of the seawall. Furthermore, the
dissipative surface of the armour layer and the toe reduced the run-up and thereby the splashing of
the waves. Beautification of the marine drive area and the aesthetics of the area for attracting the
tourist