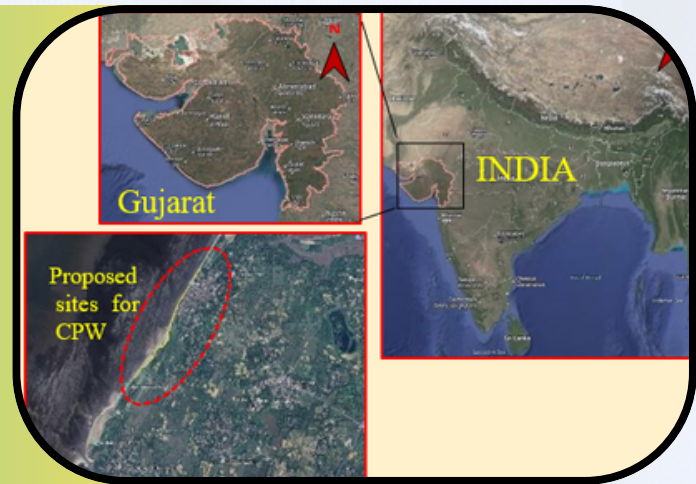




## DESK STUDIES FOR THE DESIGN OF GROYNES FOR BANK PROTECTION WORK AT BORSI-MACHHIWAD, NAVSARI, GUJARAT.



## STUDY OVERVIEW

The project involves bank protection works at the creek mouth of Purna river, Borsi -Machhiwad, Navsari, Gujarat. A severe erosion of bank is observed inside the creek mouth of Purna river which is cutting off the road along the bank. The Mathematical model studies to assess the hydrodynamic condition were carried out for the proposed bank protection work at Borsi-Machhiwad, Navsari, Gujarat at CWPRS, Pune suggesting a series of seven numbers of groynes 50 m in length and 200m apart

## APPROACH

- Desk studies were conducted to evolve a design cross-section for the protection works based on the mathematical model studies report, data such as beach/bank profiles, tidal levels, waves and the site conditions.
- A Design Water Level (DWL) of +9.0 m was considered including storm surge of 1.60 m above Mean High Water Spring (MHWS) of +7.40 m for the design purpose.
- The river flow with a maximum discharge (Q) of 11,500 cumecs, maximum flow velocity (V) = 4 m/s and mean diameter of river bed (d50) of 0.18 mm are considered for the design of protection works.
- A maximum wave height of 1.6 m inside the creek is also considered for the design purpose

## KEY FINDINGS

- 1.The cross sections of coastal protection measures are evolved with 1.0 t to 1.5 t stones in the armour layer.
- 2.The rubble mound structures are flexible structures and it is essential to monitor and maintain them regularly. Therefore, periodic monitoring and maintenance of the seawall, as and when any damage occurs may be undertaken
- 3.A proper provision of toe-berm avoids scour at the toe. Furthermore, dissipation of the wave energy on the sloping/permeable face of the seawall helps in reducing the probable scour at the seabed.

## SIGNIFICANCE

**The project aims at protecting the bank at the creek mouth of Purna river. Borsi - Machhiwad, Navsari, Gujarat.**

