Conclusion

The study has made a thorough investigation of the coastal and marine environmental characteristics and has identified the root causes of the severe erosion taking place at the site. The main cause of erosion is the presence of the rock and concrete wall immediately east of the site upon which waves during an extreme events break and gets accelerated towards the site. The wall further drives and facilitates the water mass movement towards the site which eventually arrive at high speed and power. If nothing is done, erosion at the site will persist and will result in great loss. With the view to counteract this water current, a permeable breakwater structure was found to be the most appropriate method to be implemented at the site.

The wall has had for effect to leave the beach at the site more vulnerable and as such direct wave attacks have also contributed to cause erosion. By elevating the height of the existing rocky outcrop in the lagoon, it was found to be an ideal solution to counteract the wave attacks on the shoreline. This solution further require that the beach is reprofiled with a slope of around 7 to 8 degrees made up of coarse carbonate sand and cobbles so as to better absorb the wave energy.

It was further investigated the effect of removing the wall, the major cause of erosion at the site. It was eventually concluded that while this solution would have been appropriate and would help in reducing the erosion of the site, it should be accompanied by appropriate protective measures. Moreoever, removing of such wall has further issues, physical, environmental and legal and as such would take time in order to materialise. Such delay would cause even more erosion at the site.

The design of the permeable breakwater structure would have minimal effect upon the coastal and marine environment and can be left in place even if the wall is pulled down. The structure has been designed such that it would not be a hazard to navigation nor will it hinder the access to regular beach users.

The measures to control erosion at the site should be implemented before the peak of the cyclonic season so as to ensure that no more erosion is caused at the site.

It is anticipated that the proposed measures would be favourably considered and that the necessary EIA licence is issued for implementation of the work and their maintenance.

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