Shore Protection at Radisson Temple Bay Resort, Mahabalipuram

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Shoreline Changes

Erosion at Radisson Temple Bay Resort

- Interruption of northerly littoral sediment transport
- Possible continuing Sea Level Changes

Shore Protection at Radisson Temple Bay Resort, Mahabalipuram

Mahabalipuram

- World Heritage Site
- Sixth Century Pallava Art & Architecture
- Seven Pagodas reported by Mariners
- Only one is remaining at present
  Which is protected by seawall around and behaves as a groin
- Other 6 submerged in the process of shoreline changes
- Erosional regime which aggravated by the protruding temple.

Shoreline Position on 28.03.09 (Blue Line)
Shoreline Position on 07.05.07 (Red Line)

Shore Protection by SAB units
Pre and Post Erosion site conditions

Shore Protection at Radisson Temple Bay Resort, Mahabalipuram

Emergency Protection
Shore Protection at Radisson Temple Bay Resort, Mahabalipuram
Emergency Protection

Criteria for selection of Beach Protection Method

- Essentially tourist friendly – Seawalls are not preferred
- So, thought process to develop satisfying the above criteria has lead to the development of
  SAB Technology

SAB® - Sediment Accumulator in Beach Patented Technology for Beach Development

SAB® - BeachLOCK Unit

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SAB® - BeachLOCK Unit

Sediment Transport in the Surfzone
- Waves float Sediment particle
  Bed Velocity > 0.15 m/s

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Patented Technology for Beach Development

Layout of SAB®/BeachLOCK Units

Sediment Transport in the Surfzone
- Waves float Sediment particle
  Bed Velocity > 0.15 m/s
Sediment Transport in the Surfzone

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  Bed Velocity > 0.15 m/s

Function of Beach LOCK Unit in the Surfzone

- Prevents movement of floated sediments by currents
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Changes in Sediment Transport in the Surf zone due to Beach LOCK (SAB) Unit

- **Bed Velocity** is reduced because of friction. So settlement of sediment around SAB/Beach LOCK units takes place
- **Current Displacement** of sediments is prevented due to obstruction. So the spaces between SAB units is filled due to obstruction and over passing
- **Intensity of pore pressure** reduces and beach hydraulic conductivity will be reduced resulting reduced levels of erodibility
Beach LOCK (SAB) Units from Precast to Beach Placement

25.12.08 05:00 PM

26.12.08 11:20 AM
Accumulated Sand around Beach LOCK (SAB) Units at 03.01.09 16:02 PM
Accumulated Sand around Beach LOCK (SAB) Units at 14.01.09 12:31 PM

Buried Beach LOCK (SAB) Units at 22.02.09 13:09 PM

Shoreline Position at Protected site on 28.03.09

Shoreline Position at Protected site on 10.04.09
Shoreline Position at Protected site on 28.11.10

Shoreline Position at Protected site on 09.02.11

Secondary Protection due to SAB units

Secondary Protection due to SAB units
Physical Details of Beach Front Protection

Total length of Beach protected : 300 m
Start date : Dec 2008.
Completion date : Jul 2010
(Implemented in piecemeal with each period of one to two months just after each monsoon depending on the monsoonal requirements)

Total Cost : Rs.35.4 Lakh
Cost of Concrete length of 160 m : Rs.16.8 Lakh
Cost per meter (Overall) : Rs. 11,800/-
Cost per meter (Concrete Portion) : Rs. 10,550/-

Successful Maintenance of beach front till date and the present technology is patented

Thanks for your kind attention