TOWARDS SUSTAINABLE & ENVIRONMENTAL FRIENDLY SHORELINE MANAGEMENT APPROACH TO THE COASTAL EROSION PROBLEM, SRI LANKA

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Sri Lanka has a 1770 Km of coast line and coastal zone contains, 24 % of the land area and 32 % of the population; about 65 % of the urbanized land area; approximately 80 % of the tourism activities and 67 % of the nation's industrial facilities. Coastal areas in Sri Lanka are increasingly threatened by natural processes such as storm surges that cause severe coastal erosion along portions of the southwest coast. Due to open economy policy in early 1980's, increasing demand for coastal lands for tourism, a lot of infrastructure development came along the coastal zone resulted increase of erosion and pollution by human activities and degrade valuable habitats that support livelihood of coastal community and became a major threat for the national economy.

As a policy response to the above situation, the Coast Conservation Department has placed great emphasis on adopting more technical oriented solutions within past two decades especially to control coastal erosion in the southwest coast of Sri Lanka, as these areas has been identified as economically active. To overcome this situation, the southwest cost of Sri Lanka has been protected by providing upland protection mainly by revetments as all the other coast protection methods are expensive.

Sri Lanka is having a strong northward longshore sediment transport along the southwest coastline. The Coast Conservation Department has a collection of offshore wave measurements from 1989 - 1993 for five years in the south coast of Sri Lanka. The said wave data has been used to calculate the total quantity of longshore movement along the southwest coastline and estimated that the sediment transport is in the range of 250,000 – 300,000 m3/year.

Basically an eroding shoreline supplies material to the littoral transport budget. When erosion is stopped at certain section by seawalls or revetments, the supply of sand from that section of the shoreline to the transport budget will cease, exposing the adjacent areas to increased erosion. Structures that actively trap sand such as groynes and breakwaters also act as this way, in addition to their more direct lee-side erosion.

However, due to partial management interventions focusing more on short term engineering solutions (such as revetments) have made no or little positive results with compared to the severity of the erosion problem prevailed within the coastal zone and created a situation that there are no beaches along the urbanized areas. With the realization of increasing capital expenditure on short term engineering solutions done on adhoc basis ultimately resulted boulder barriers all along the southwest coast without any beaches, Sri Lanka Government shifted its policy approach to Sustainable & Environmental Friendly Shoreline Management Concept to address the prevailing Coastal Erosion Problem in Sri Lanka.

After several requests made from donor agencies, in 2001 Sri Lanka Government received a loan of US$ 80 million from the Asian Development Bank(ADB) for the Coastal Resource Management. The major component of a sum of US$ 40 million has been allocated for coastal stabilization by providing long term coast protection schemes along the said coastline and rest part have been allocated for three other components. A critically eroding 52 Km long coastal areas in seven sites has been identified for providing protection under this shoreline management component. After several studies on longshore sediment transport and other site conditions, much more environmental friendly coast protection methods have been introduced in these seven sites. Since there is a large deficit of sand due to the short-term coast protection methods done, beach nourishment artificially by dredged sand from offshore (one of the best environment friendly solution) together with structures have been proposed, to recreate the lost beaches with the consent of all stakeholders of the beaches. The construction is now ongoing and will be completed by mid 2005. This paper discusses the values and benefits of environmental friendly shoreline management concepts tested in Sri Lanka, a step forward for the coastal erosion problem.