

MASTER PLAN FOR COAST PROTECTION

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"Sea erosion which has been with us from time immemorial, attracts attention only when it attacks works of human construction or cultivated lands."

"Indeed even then, it is only when the objects to be saved are worth the rather high cost of protection that this becomes a business proposition."

Dassenaiké 1928

Coast Protection - do we need it?

Few areas require a more multi-disciplinary approach and management than the Coastal Zone.

It is believed that those engaged in this work, even coastal engineers, would prefer management solutions to coastal problems rather than engineering solutions.

However it is evident, that development has gone far beyond the point, where major tracts of the coast can be redeveloped from the present coast back to original natural coasts.

The enjoyment of beautiful virgin, tropical beaches is still possible in Sri Lanka, but it should not be forgotten that man has a right and need to develop in the Coastal Zone.

This introduces the coastal engineer who designs harbours, inlet and tidal control structures when encroachment

conflicts with coastal dynamics; he is also called to plan, design and execute coastal defence works.

Coast Protection

The concept of protection implies that *overall* trends in natural processes - erosion only can be controlled partially and/or temporarily. It also implies a more flexible, approach in the use of 'hard structures' - coastal defence works - to preserve the development opportunities and recreational values so abundant in the coastal zone.

Unwise planning, will deprive the visitor the pleasure and beauty of undisturbed beaches and the resident fishermen will find his daily operations hindered by constructions, making beaching of boats and seine fishing difficult.

The coastal engineer therefore uses modern techniques - soft engineering solutions - and works with nature rather than against. Erosion is basically a negative balance in the coastal material budget. A logical solution to the problem is therefore to supply the balance material in order to make even.

This process is named "Artificial Nourishment" whereby material, predominantly sand and gravel are supplied to the coast either mechanically or hydraulically by pumping from dredgers.

Plan Preparation

Over the decades useful and successful coast protection works have been executed in Sri Lanka.

However the priorities and funding have often been governed by emergencies, which itself explains the increasing need for better planning and organization of works.

Realizing this need the Coast Conservation Department obtained Government approval to prepare a plan

which is an integral part of the Coastal Zone Management Plan. The plan has two major components.

The Short Term Plan 1986 - 1990

This plan will formulate proposals for appropriate solutions to a number of problems of immediate concern.

The Long Term Plan 1986-2000

A contingency plan to direct development and investigations within this field. Both plans will be engineering oriented and prepared with consideration to all vital interests of coastal zone users, in a multidisciplinary methodology of approach.

Stage I of Plan Preparation

Stage I commenced in October 1984 and continues into March 1985. Stage 2 is scheduled to start in May 1985. The plan is being prepared by a team comprising two consultants provided by the Danish International Development Agency and two engineers and three assistants from the Coast Conservation Department.

The work on stage I has been directed towards:

*Collection, review, preparation of existing information and preparation of a 15 volume inventory

*Performance of investigations and preparation of investigation programmes.

*Development of Coast Protection concepts and testing of these.

*Preparation of proposed investment level 1986 - 1990.

Preliminary Findings

*The coasts of Sri Lanka have been divided into 6 sectors. Of these the present study is restricted to the three sectors; West, South-West, South.

*The intensity of erosion is on a preliminary basis assessed to:

West Coast	140,000m	2/yr.
South West	50,000m	2/yr.
South	80,000m	2/yr.

	West Coast %	South West Coast %	South Coast %
Investigations	5	4	4
Maintenance (rebuilding)	29	19	48
Revetments	16	20	2
Groynes/Jetties	4	10	1
Breakwaters	16	23	10
Nourishment	30	24	16

Percentage Distribution of proposed investments in the Master Plan for 1986 - 1990.

*The highest level of development pressure is in the South-West

*Sri Lanka has a long tradition in coastal engineering, manifested in a number of valuable articles and papers by national and foreign experts. It is also evident that until now these contributions have not been prepared within an overall plan and thus it remains for the Master Plan Team to prepare the mosaic.

*The present value ('84 level) of coast protection structures in the three sectors is approximately Rs. 200 mn. Groynes Rs. 50 mn and Revetment Rs. 150 mn.

*Preliminary analysis shows that these structures need to be improved and supplemented. The target envisaged is a level of protection including the existing structures valued at about Rs. 500 - 600 mn.

The proposed activities are distributed as follows:

The Future

The more we see, the more we know and the more we want to know. There is still a long way to go, but the work during stage I has convinced the Coast Conservation Department that it is possible to prepare a Master Plan which has the necessary reliability and foresightedness.

But *"There is no royal road to cheapness in Coast Protection"*

Dassenaiké 1928