

ADMINISTERING MARINE SPACES: THE PROBLEMS OF COASTAL EROSION IN NIGERIA.

A CASE STUDY OF FORCADOS SOUTH POINT, DELTA STATE SOUTHERN NIGERIA.

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INTRODUCTION

- The ubiquitous nature of environmental hazards over the period had made man a watchman over his environment.
- These environmental hazards includes Earthquake, Land Tremors, Desert Encroachment, Sea Surges and Coastal Erosion.
- Forcados south point is a case in point of a coastal erosion. This problem is as old as anyone can remember.
- Incursion of erosion has necessitated continuing retreat of the Shoreline, exposing the settlement to periodic flooding.
- Various effort in recent past to curb this insurgent menace had been defeated.
- The enormity of the erosion problem could be seen against the backdrop of the various attempts by Shell Petroleum Development Company (SPDC) Nigeria at protecting her Oil and Gas installations in the vicinity.

THE VARIOUS CONTROL MEASURES

1. 1974 – 1976 Ad hoc remedial works commences
2. 1977 Sheet Piling
3. 1979 Sheet Pile extension and Anchorage system.
4. 1980 Extra toe protection and sand replenishment.
5. 1984 Addition of sheet piling to flow line crossing.
6. 1984 Emergency repairs (sheet pile anchor, toe protection scarp `SPDC hoses, permeable groin and beach replenishment).
7. 1986 Revetment plus flexible longard tube drains.
8. 1987 Repair works to tube grains (armour rocks).
9. 1988 Beach nourishment (48" CLL crossing)
10. 1991 Rock Dyke (well 15).
11. 1991 Revetment (Estuary).
12. 1993 48" CLL corridor protection
13. 1994 South Point Protection.
14. 1995 – 1996 Protection extension, which include burial ground.
15. 1999 Water disposal line Protection.
16. 2001 Groynes 1 & 2 Effluent discharge.
17. 2002 Groynes 3 & 4 Barge slots.



FACTORS THAT INFLUENCE COASTAL EROSION

Principally categorised into two (2) factors

- i. Natural Factors
- ii. Man Made Factors

NATURAL FACTORS INCLUDES:

- Waves / Wind
- Long shore Current
- Tides and Tidal Stream
- Sea Level Changes
- Low Relief
- Rhythmic Topography

HUMAN IMPACT

- Oil and Gas Exploration
- Dredging Of Port Channels
- Construction of The Beach

SURVEYS ASSOCIATED WITH COASTAL EROSION

The accurate delineation of the coastline and coastal features is an essential feature of the surveyor.

The main method of coast line surveys is enumerated below:

- 1) Visual Examination.
- 2) Photogram metric Method
- 3) Traverse Method.

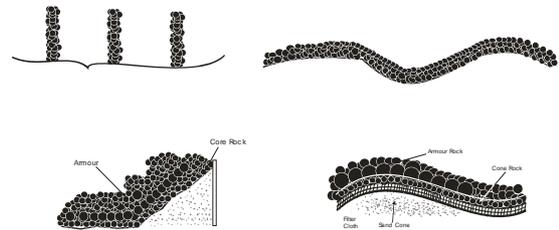
Only two of the above methods were used in Forcados South Point.

DETERMINATION OF RATE OF EROSION

The rate of erosion is defined as distance or depth eroded over time.

- Though only one method is discussed here, there are various other methods by which erosion could be monitored and the rate determined as the one utilised in this project under review.

PRESENTATION AND INTERPRETATION OF DATA



THE SURVEYORS ROLE IN EROSION CONTROL

The Surveyor's role in erosion control could not be over emphasized.

Various professionals are involved including the Surveyor. The Surveyor's role is vital because he is the only one that can coordinate effectively with other professionals in the team and give accurate information of the area of interest that is the erosion site. The surveyor is also the one that provides the engineer with one of the vital information he needs for his designs and constructions.

THE SURVEYOR'S PRECISE ROLE INCLUDE:

- REQUIRED MEASUREMENT
- PLANNING AND LOGISTICS
- CURRENT OBSERVATION
- CURRENT METERING
- METEOROLOGICAL STATION
- TEMPERATURE
- SEA BED SAMPLING
- CONCRETE SEA WALLS
- ROCK SEA WALLS
- REVETMENT
- BATHYMETRIC SURVEY OPERATION
- TIDE OBSERVATIONS
- EROSION CONTROL MEASURES
- SEA WALLS
- INTERLOCKING BLOCK REVETMENT
- BULKHEADS/SHEETS PILING
- MATERIALS AND CONSTRUCTION
- GROYNES

PROBLEMS ASSOCIATED WITH EROSION SURVEY

The major problems associated with erosion survey are:

- Time Limitation
- Unpredictable Nature of Waves
- Inaccurate Positioning

MULTI DISCIPLINARY APPROACH

- Combine efforts with other Professionals had yielded remarkable results.
- These should examine specific cases and come out with their isolated solution.
- Thereafter, meet in a round table discussion to analyze their solutions together. And thus combine and draw out a single line solution cutting across their various hitherto isolated contributions.

CONCLUSION /RECOMMENDATION

- Coastal Erosion is a complex problem.
It should be approached with more caution.
- Information available.
- The advantage position of a Surveyor (can not be undermined).

THANK YOU.