

LAW & ENVIRONMENT

Coastal erosion, pushing the frontiers of remedies (1)

In recent years, the coastal area has been subjected to increasing pressures which are the result of the often conflicting needs of a society expanding in industrial development, in population and the recreational aspirations of its citizens. What are those issues surrounding coastal erosion as a hazard in the environment.

In one sense, this might be thought to be a rather distant debate compared with other environmental problems such as dwindling forest, water pollution, air pollution, industries and factory waste, oil pollution, nuclear wastes, unplanned and encroaching urbanization confronting governments, developers and environmentalists in their consideration of proposals that may have an impact on the environment. There are, however, several reasons why we need to assess the menace of coastal erosion and propose a workable legal framework for its management.

The first reason is simply that coastal erosion has now been recognized as a potential ecological nuisance which has devastating effects that are worrisome. The second, which is a pity of it, is that although there exist a wide gap between the real and 'imagined' causes of coastal erosion, there is now a confusing juxtaposition of the two. In recent years, the popular perception of the prognosis of coastal erosion in some places have been predicted not in the real but rather in the 'spiritual' and the 'metaphysical'. In the hope of at least drawing a proper distinction that would enable us understand the roles that the real and the 'imagined' play in the course of coastal erosion, this debate is essential. Thirdly, it is the thorough assessment of the by who, where and how of coastal erosion that will enable us determine whether the existing legal mechanisms for its prevention and management are adequate. As a first step, we require a clearer understanding of the concept of 'coastal erosion', its implication and importance.

A coast has been defined as the line or zone where the land meets the sea. A coastal area has also been defined as those counties that are in whole or in part adjacent to, adjoining, intersected by or bounded by the Atlantic Ocean or any coastal sound. While some coastal counties are bounded by ocean, others are bounded by shallow, fertile coastal sounds which lie to the landward side of extensive system of barrier islands known as the outer banks. To this extent, it covers such areas as islands, transitional and inter-tidal areas, salt marshes, beaches and wetlands.

In the words of R. B. Burnett, coasts are forever changing - some are retreating under wave erosion and others are advancing under wave deposition. There are also many different types of coast; some are steep, some are gentle, some are sandy, some are rocky. Invariably, the character of a coast results from two or more of the following factors, namely: wave action, nature of the rocks forming the coast, slope of the coast, changes in the level of sea or land, volcanic activity, coral formations, the effects of glaciers and the action of man.

In this piece we are concerned with

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Dr Lanre Fagbohun, associate professor, Faculty of Law, Lagos State University, our guest columnist, takes a critical look at the causes and effects of coastal erosion on national development. He proposes a workable legal framework for protecting the environment against the danger and possible hazards of coastal erosion.

changes in the coast as caused by erosion. Our interest in this also is more in the action of man in conflict with his biophysical environment. As regards our first concern it will suffice we point out that wave erosion consists of three parts, namely, corrosive action, hydraulic action and attrition. As regards our interest, we are collapsing two separate ideas - one from the geographical sciences and the other from the biological sciences.

The latter idea has underlying it protection of the ecosystem. When coastal erosion occurs, the waves and current migrate landward. This interface of migration have tremendous effect both on the aquatic environment and the places into which the water move. It is significant to note that the rate of migration is usually dependent on several factors. Generally, however, where the coastal erosion or coastal retreat (as it is sometimes called when barrier breaches are involved) is natural, it is not uncommon for it to be slow.

Where this is the case all the ecosystems involved would be afforded the opportunity to react within their intrinsic capacities to recover from the effects of shoreline retreat. Where the erosion has been caused by or contributed to by human modification and indiscriminate development, the surge are usually excessive while the physiography changes due to the overwash are more rapid.

With the way coastland cushion the mainland from storm surges and the effects of waves, the protected harbours created have over the years developed into coastal towns. The effect of coastline disruption have resulted in the displacement of the inhabitants of such towns. Many of these environmental refugees who are not fortunate enough to benefit from rehabilitation end up as destitute. Even those who are rehabilitated end up having to contend with violation of their rights. This may come in the form of loss of proprietary rights, well founded fear of persecution for reason of race, religion, membership of a particular social group, or political opinion or the violence of armed conflicts from hostile hosts.

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Also in a study, Onome Osifo - Whiskey, commencing on soil erosion and other forms of ecological degradation in Nigeria noted that many parts of the country, particularly Anambra, Imo, Benue, Akwa-

Ibom, and Bendel (now Edo and Delta) have serious problems with erosion which has ruined farmlands, residential quarters and highways imposing adverse economic calamities running into billions of naira. While these may not directly relate to the coast, they underscore the monstrous impact of erosion.

Mention may also be made of large-scale agricultural development projects all over the country which has greatly accentuated soil degradation. In a study on the ecological impacts of the Hadejia-Jama'are Project, it was concluded that the economy and ecology of the Hadejia-Jama'are flood plain are threatened by development projects both upstream and downstream. Several other irrigation and dam projects such as the Kainji and the Bakalarri projects have had devastating effecting on the ecology of surrounding areas.

Not too long ago in Lagos, Nigeria, it was the turn of the bar beach in Victoria Island. Not only did it phase-out in its entirety a side of the highway adjoining it, the shock of the event sent many of the offices located in the area on flight and their beautiful edifices abandoned.

The dependency of so many important commercial and sport fisheries on coastal wetlands, marshes, estuaries and other inter-tidal and shallow-water zones is one of the major economic reasons for preservation of these habitats. We may similarly consider in this regard the growth stages of some aquatic inhabitant which are indispensable to humanity. Not only is it the case that the coastal complexes provide food, cover and nesting, it also acts as spawning areas for countless fin fish, water fowl, shell fish, fur and game animals. Thus, in the face of coastal erosion these animals are made to suffer the results of reproductive problem and immunity suppression.

For example, anadromous fishes such as eels and salmon ascent to the estuaries where they reside for a considerable length of time for breeding purposes. In the same way, coastal nekton use the tidal mouth of river as nursery grounds where young growth stages can take advantage of the protection and abundant food. As has been noted because man often harvests such species off-shore the vital history and energetic connections with the nearby estuary have not always been appreciated.

Reference can also be made to other endemic species of sea-food such as the cymosion nebulous, the menhaden and the commercial species of crabs, oysters and shrimps. Many of these are largely restricted to the estuaries while the others come into the estuaries as larvae. Indeed, we can comfortably assert that the coastal areas are among the most biologically productive regions in any nation. The moment the ecology of the areas are disrupted or destroyed, the more their resources are affected.

Some coastal areas also serve as the harbinger of a nation's historical and cultural resources, while possessing at the same time aesthetic, educational and recreational values. The moment there is a significant

disruption or degradation of a coastal zone, it concomitantly results in the destruction of this unique, fragile and irreplaceable nature.

That coastal area have unique geologic formations and significant coastal archeological and architectural resources can be gleaned from one of California's laws. Under the law, the State Coastal Commission in consultation with local government is authorised to designate "sensitive coastal resources areas". These are defined as special marine and land habitat areas, areas possessing significant recreational value, highly scenic areas, archeological sites, places suitable for low-cost housing or recreation, and areas where land sub-division could impair coastal access. Such "sensitive coastal resources areas" are then described, mapped and a specific list of impacts that could result from development where zoning alone may not adequately protect coastal resources or access is prepared.

Extensive investigations have established that there is a causal link between some forms of human activities in coastal zones and coastal erosion. We may classify human activities in coastal zones in three, namely, activities undertaken by federal authorities, state authorities and private persons. These activities which are usually in the form of diking, filling or dredging of open coastal waters, wetlands, estuaries and lakes are done for a variety of reasons.

We can broadly classify the reasons into four, namely:

- Projects done for the control of erosion, flood, hurricane, and improvement of navigation;
- Projects for the siting of electrical generating facilities and refineries;
- Projects for siting of coastal-dependent developments, including ports, commercial fishing facilities, off-shore petroleum, gas development and liquefied natural gas facilities; and
- Projects aimed at providing public recreation opportunities.

Before we proceed to examine the legal framework guiding the conduct of the above activities and the constraints to which this framework is subject, it is appropriate we put in perspective the spiritual and metaphysical dimensions of coastal erosion.

To what extent can it be said that the cause or causes of coastal erosion has a connection with that relating to the spirit or soul and to physical nature or matter? To answer this, we must look at the basis of spirituality. As is to be expected, there is no one version of spirituality. The varieties of religion reflect not only differences on such fundamental issues as their nature and mode of worship, their idea of spirituality also differs. While we leave extensive accounts of the different versions to experts in the field, we can broadly classify the existing views on spirituality into two, namely that as presented by traditional religion (which is deeply rooted in Africa) and that as has emerged from organized religions such as Christianity and Islam.

Underlying all the existing views on spirituality is a concept of one Supreme Being (God) who is transcendent, Omnipotent, King and Judge. Even traditional worshippers, who conduct their worship through divinities and ancestors, believe that these divinities and ancestors are only approached as intermediaries. But, where they differ is that while traditional religion does not see spirituality as a single order or set of decrees, the organized religion as



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a result of Western education and the fact they are written down.

According to Richard Welford in his book Hijacking Environmentalism, "the spiritual path is not connected with organized religion - itself, too often, a tool of control and suppression. Indeed, organized christian religion has a history of replacing complex, multi-dimensional spiritual beliefs with much more restrictive, ordered and guilt-laden commandments. The arrogance of Christian missionaries has been responsible for the loss of great spiritual and ecological wisdom. The genocide committed in the name of colonization was even more evil. Those of us who live in the West must recognize that we have a history of murderous exploitation. As we wiped out indigenous population and tribal knowledge we lost much of our connectedness with the world".

The importance of how they differ is that for traditional religion, spirituality includes the intuitive, the non-measurable, the aesthetic, the caring and the loving. If we translate this to the issue at hand, traditional worshippers will explain coastal erosion on the basis that a "taboo" or "sin" has been committed against the divinity of the water or that it has not been consulted or properly appeased before the commencement of activity in the area. Constantly, the society hold the water-divinity and its environment in dread and at all times seek to be on the right side of it. There is a belief in the water deity's protection and benevolent capabilities and that there is nothing it cannot do to help those who call upon it.

We can make no pretence of the fact that the above conception have led in several situations to fantastic theorizations ranging from spurious imaginations to the absurd. Yet, and here lies the complexity of it - the fact that traditional religion imbues in the society the idea of the world as whole with all parts of it characterized as "mother", "father", "godness" and "extended family", there is that inter-connectedness of the entire ecosystem as being part of man as well as man being part of it. This is the connection real between spirituality and environmentalism.

Spirituality in the notion of traditional religion requires little materialism. It thrives on simplicity and is very adept at removing institutional power. Most of the organized religion on the other hand see nothing wrong with capitalism. It is true they profess humility while proclaiming that their members should shun greed and avarice. But, all too soon, the entire congregation become engaged in walls that keep them secured and warm. All too soon, they migrate towards what they regard as "basic material comforts of life".

Not surprisingly, because of the dominance of organized religion over traditional religion, its influence in shaping the orientation of the new environmentalism and sustainable development has been enormous. Take for instance, the Rio Declaration which is aimed at serv-

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