

COASTAL ZONES IN GOA

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'Coastal zones in Goa' and its management are under much discussion these days. Before considering anything else covered in this subject, coastal zone by itself needs to be defined, so that generic points could be discussed evolving on to specific situations. For this, one needs to start off by drawing the playing field. What does one mean by the coastal zone, the playing field that we have? It is this little strip around the coast, which has always been inviting people to build up a house or start an investment venture without much thought being given to the kinds of impact created. But now, the times have changed, and one has to hold back and reflect; first, is that the only plane for interaction between the societies and the coastal zone? Second, how does the coast as an interface between land and the ocean, relate with the rest of the planet system? The last is important because environment really has no boundaries, geographical or political.

The subject is presently being discussed in international science circles and studied in a programme called LOICZ - Land Ocean Interaction in the Coastal Zone. The programme has a definition for coastal zone, (albeit workable definition used by man and something that nature does not respect too much), "from the zero level, or the datum level, 200 meters above and from the datum level 200 meters below". This definition, if used for Goa, will probably include all of Goa, up to the Western Ghats and sizable chunk of its continental shelf. There are scientific bases in describing such a large coastal zone for a tiny place such as Goa. This approach is adopted in recognition of the contiguity of the land-ocean system, whose various parts do not function in isolation, but are portions of a larger system. Besides, the coastal zone of Goa that is under consideration, an area of plus 200 to minus 200 m. around sea level, is a small part of the Earth system when the environment is considered as a global issue.

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These considerations allow us to draw a new playing field, not arbitrarily, but after being subjected to brainstorming, agreed upon by international bodies, and used in their international science programmes. India being one of the signatories to this programme has to incorporate these approaches and their implementations into its policies. The coastal zone basically looks at all the causes, including all the point and long line sources of land based discharges that affect the sea, their pathways into the coastal waters and processes of their interaction in the marine system. It appears to be a one way process, but could also reverse its direction, for the material that goes from the land to the sea gets absorbed, and resides in what humans have always considered to be an infinite dumping site. From here, as in terms of Arabian Sea and Bay of Bengal, a reverse process has been discovered where green house gases causing Global Warming are released into the atmosphere. This forces scientists to perceive all these phenomena in an integrated manner, including those on the land, the sea and the atmosphere. In one of the programmes (of National Institute of Oceanography), at present, (March 1998), one of our ships sailing around the equator has been looking at how pollutants are being carried from the Indian sub-continent all the way to the tropical convergence zone, and how they are finally absorbed in the sea. The vehicle for this, interestingly, has been the atmosphere.

The above considerations define the playing field as a broad one. Scientists have not stood up and drawn for them that playing field, but it is the web woven by Mother Nature herself. Only a 'total perspective' can make us understand the inter-linkages between the strands of this web. Even when only a coastal zone and the setback lines of 500 m. and the 200 m. are considered, one faces long drawn out arguments. As the cause and effect scenario of the coastal environment unfolds itself, the environmental process incorporated in these become far more complicated. Not only the solutions but also asking the right questions becomes difficult. Hence there is a need to look at the management policies and plans of the coastal zone as a strong component of science.

Non scientists often demand scientists to supply answers to social problems. But many of these have social and economic aspects too. Earlier, lay people separated science, societal issues and the economic cost/benefit aspects. But intellectual integration of the present era has made us realize that in such complex situations, a holistic approach has to be employed involving all relevant disciplines. Over the last couple of decades, concerned individuals, agencies and international organizations are therefore developing the idea of "Integrated Coastal and Marine Area Management".

The UN in its efforts to attract global attention towards the precarious conditions of the world's coasts, declared the year 1998 as 'The International Year of the Ocean' with the slogan "(coasts are) THE HERITAGE FOR THE FUTURE". An inhabitant of this planet earth, a passer-by, Man never owns it for himself but for his son. And he in turn holds it for his own son and ad infinitum. We have therefore with us the concepts of a coastal zone that is unique; first it is a dynamic interface between the land and sea, and second, because of this, there is a need to develop special instruments to be able to evaluate projects planned and executed there. The guidelines needed are :-

1. The land, sea and atmosphere are to be managed together. People have been using coastal zones for millennia, therefore their traditional uses must be respected. It's the 'idea of commons' practiced by civilizations before ours. Commons, or areas which the villages used to keep aside for everybody to use, should once again be incorporated in our social life styles. The idea of commons aims at conserving resources. The traditional resource management must be followed, which in other words means, 'use it sustainably'. In this scenario, everybody needs to be involved in it at all levels. This brings to the forefront the social and economic benefits to everybody.

2. All activities need to be assessed. The EIA - Environmental Impact Assessments need to be predictive since what is assessed is a heritage, to be handed over to succeeding generations. Coasts are used by different sectors. Among the user groups, there's tourism, industry, traditional land uses, housing and aesthetics etc. Possibly, the concept that nature itself is a customer can also be introduced.

3. The generic guidelines should also contain the facts that one should be able to prevent and mitigate damage from the natural hazards. These get further aggravated because in some areas the lands are low, extend deep inside and remain prone to flooding. That is a simple reason to care about not having structures too close to the sea. Holland, which is a low lying land and had a big scheme involving sea wall prevention, concluded in the end that the only way one can tackle nature is to just let it be by itself and 'The Man Stands Back From It'. What one hopes to gain from this is a minimum damage to the environment and its resources, minimum losses to various users including nature and, as far as resource depletion and denial of access go, there would be minimum conflicting uses.

4. Lastly, there are different instruments available, such as tools of legislation, tools of social awareness and scientific capabilities. The scientific capabilities involve technological capabilities in terms of satellites with unattended sensors in terms of computer modelling for predictive capabilities. There are available at present tools such as information technology, modeling techniques, remote sensing applications, etc. The policy planners should stop taking decisions from gut reaction and emotions and make use of the offers of science and technology.

Everything is not lost yet. One may define sustainability in any manner. Generically, the resource availability is the central theme and its use should be within the ecological constraints for the principle of sustainability to work. One could consider it as of use to industry; then as long as there is zero pollution, the environment is protected and aesthetics are maintained, sustainable development could result. Also, people should be taken in confidence to avoid project delays and cost over runs.

In a framework of Integrated Coastal Zone Management, if one focuses too closely on little problems, one can lose sight of a much bigger canvass. We need to keep in sight the bigger canvas and the fact that nature is more multi faceted and much more complex than what meets the eye immediately.