

## INTEGRATED COASTAL MANAGEMENT (ICM) FOR SUSTAINABLE DEVELOPMENT

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### ABSTRACT

This paper examines how the coastal areas are highly productive rich in biodiversity and support intense economic and social activities. Indian subcontinent has a vast coastline extending 8129 km with enormous potential for development. These coastal areas are often the sites of wealthiest settlements and the most dynamic growth centres and as a consequence rapid development has taken place utilising the vast resources sustaining the life of coastal villages and the fishermen, besides economic gains for the country as a whole. Over the years, due to diversified activities and human interference, intense deterioration of such areas has taken place leading to several intra and inter-sectoral conflicts . In order to protect the resources and promote coastal area development Integrated Coastal Management (ICM) plan has been drawn by the Government of India for its effective implementation . However, the ICM plans have not been fully operational due to various reasons. Therefore, the present paper communicates some of the major issues involved in the ICM plans which can be thought of for their effective and immediate implementation

### I. INTRODUCTION

Rapid growth of population in coastal areas coupled with urbanization and competition for land and water resources has resulted in a number of major coastal management issues. These issues include damages to coastal ecosystems, pollution, destruction of natural resources, over exploitation of common property resources, shrinking of balanced economic development options, increasing vulnerability of people , property and investment to natural and man-induced hazards such as flooding , erosion and increased risks to human health. Integrated Coastal Management can form a tool to resolve some of these issues by promoting improved planning and management of development activities within coastal zones.

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## II. INTEGRATED COASTAL MANAGEMENT - CONCEPT

Integrated Coastal Management (ICM) is a management tool which can be utilised to improve the protection of the biological resources of the coastal environment while meeting human needs. The term "Integrated Coastal Management is used to describe a "Continuous and dynamic process that unites government and the community, science and management, sectoral and public interests in preparing and implementing an intergrated plan for the protection and development of coastal systems and resources (GESAMP, 1996) . The main aim of ICM is to improve the quality of life of human communities who depend upon the coastal resources for their livelihood. In this process, it also ensures maintenance of biological diversity and productivity of coastal ecosystems. ICM can be used as a means both for maintaining short term and long term economic and social benefits accruing from the judicious use of coastal resources.

## III. ICM - A FRAMEWORK AND A PROCESS

ICM can be viewed both as a framework and a process for formulating and implementing plans and management strategies for promotion of sustainable use of coastal resources. It has to be agreed upon that there is no standard model of ICM which could be prescribed for every country . The model will depend on the issues being addressed in that area. The principles of ICM will remain same and only the methodologies vary over a period of time and are applied in different ways in different places

Individual ICM provides a framework within which individual strategies for sustainable development have to be worked out . These strategies could be wide ranging from highly centralised, national ICM as is the case of the Coastal Zone Management Act in the United States to highly localised ICM based on traditional management practices.

### Benefits of application of ICM

- 1) Facilitation of sustainable economic development based on natural resources generated coastal ecosystems.
- 2) Improvement of livelihoods of coastal communities.

- 3) Conservation of natural habitats and species .
- 4) Control of pollution and the alteration of shorelands and beach fronts.
- 5) Control of watershed activities that adversely effect coastal zones.
- 6) Control of excavation , mining and other alteration of coral , water catchments and sea floors .
- 7) Rehabilitation of degraded resources.
- 8) Provision of a mechanism and tools for rational allocation of space and resources.

The Expert and Practitioners Workshop on "Integrated Coastal Area Management" for Eastern Africa and the Island States (Humphery and Frances, 1997) identified some of the benefits of ICM as improved quality of life, easier resolution of conflicts, sustainable utilisation of resources within the community, enhanced community welfare and improved infrastructure at the local level .

ICM benefits not only the people and environment but it also helps in improving efficiency and effectiveness . It results in rational use of funding and resources, improved co-operation between government departments/NGOs / educational institutions, participatory approach which brings together politicians, business, general public and scientists, dissemination which will assist in decision making and above all integration of knowledge of resources in solving problems

#### IV. POTENTIAL SCOPE OF ICM

ICM provides institutional and legal framework , focusses on environmental planning and management, and co-ordinates various concerned agencies to work together towards a common objective ( Chua , quoted in Clark, 1992).

The decision making process in a constantly changing environment requires a constant monitoring and analysis of information that is gained so that it could be modified as needed to achieve the management objective. ICM is a cyclical process in which due to constant feedback among stages in this cycle, it may be necessary to repeat or change the sequence.

**The management process must include:**

- (a) Assessment of issues (environmental, social and economic) in ICM
- (b) Setting of objectives that meet local, regional and national, social and economic needs.
- (c) Monitoring and improvement in the ICM plans by incorporating the necessary changes which are beneficial.
- (d) Effective implementation of ICM plans for the economic benefits.
- (e) Comprehensive area development programme should be drawn in CRZ region by giving adequate importance to tourism development, aquaculture, marine parks, sports fisheries etc., on the basis of model town planning.
- (f) Development of GIS for entire coastal zone.
- (g) Five yearly marine fisheries census on the line of live stock census should be organized for marine fishermen population and craft and gear investment details by National Fishery Research Institutes.
- (h) CRZ regulations should be strictly implemented in the ICM plans to protect coastal health and resources.
- (i) The concept of participatory approach with the involvement of fishermen community for promotion of responsible fisheries and create awareness regarding benefits of ICM.

ICM process must start with a modest objective and focussed management actions which should be improved upon based on the experience gained and lessons learnt from these experiences. The long term goal of ICM is to move towards more sustainable and equitable development. The achievement of this long term objective may take several years or even decades. It is even possible that in certain cases management objectives may have to be adjusted based on the experience gained from previous management practices. Therefore it is most ideal to have short-term, medium-term and long-term objectives before establishing an effective ICM.

ICM to be successful requires co-ordination among different economic sectors and the governmental and non-governmental institutions. This will call for substantial inputs of information and skills from a wide variety of different disciplines and finance to support the management process. The investment of this kind not only improves the sustainability of coastal activities but also is reflected in economic gains through increased efficiency of coastal uses and achievement of management objectives.

Awareness , co-operation and co-ordination are the key words in the successful ICM plans. A strong political will and clear policy guidance at national as well as regional level are necessary for sustainable development . To bring about increased awareness among policy makers , ICM demands well trained professionals with inter - disciplinary skills and technical expertise who will work with active support of the coastal communities.

#### V. CONCLUSION

The concept of ICM has been successfully adopted in a number of developing countries, particularly Thailand . Sustainable utilization of coastal resources in response to demand for expansion and diversification of economic activity poses a major challenge . Application of ICM tools and methodologies will be instrumental in achieving the major objectives of sustainable development of coastal areas.

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