Project Paper

Successful Integrated Coastal Zone Management (ICZM) Program Model of a Developing Country (Xiamen, China) – Implementation in Bangladesh Perspective.

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Abstract

This paper represents the overall current situation of two Integrated Coastal Zone Management (ICZM) programs- one is as a successful model like Xiamen ICZM program in China and another is as a developing project like ICZM program in Bangladesh. The paper begins with an attempt to track the evolution of policies and their implementation on coastal zone management with particular reference from both the countries. It then discusses the coastal management and livelihood issues that predicate the different socio-economic and environmental situation between the two countries. The paper then goes on to discussion how the institutional management and policy initiatives of Xiamen ICZM have dealt with in the perspective of Bangladesh. There is a brief consideration of the progress of the management for ICZM of Bangladesh and how this project might be more effective and beneficial for Bangladesh.

Key words: Integrated coastal zone management, Socio-economic, Bangladesh, Institutional management

Introduction

Bangladesh, facing 710 km long coast to the Bay of Bengal (Sarwar 2005) which contains several ecosystems that have important conservation values. As a zone of vulnerabilities as well as opportunities this coast prone to natural disasters like cyclone, storm surge and flood. This poses a daunting challenge to the sectoral coastal management programs, active since the 1960s, aiming at simultaneously ameliorating people’s livelihood and supporting the ecosystem. The limitations of these programs include the tendency to adopt an exclusionist approach, a narrowly departmentalized administration and weak management (Iftekhar 2006). The city of Xiamen, located on the southeast coast of China. It has 64.3 km long natural coastline, little sediment and is ice-free. The Integrated Coastal Zone Management (ICZM) project in Xiamen, which started in the mid-1990s, is considered a successful example of ICZM implementation (Hong and Xue 2006). Hong and Xue (2006) argued that ICZM of Xiamen, in general, has proven to be a workable environmental management scheme, and it has been replicated elsewhere in China and in other countries.
Methodology

Existing ICZM program of Bangladesh

Location of ICZM of Bangladesh

Bangladesh, located in the tropical climate zone. The coastal zone of Bangladesh covers an area of 47,201 km$^2$, or 32% of the country, being the landmass of 19 districts (Figure 1). Around 35 million people, representing 29% of the population, live in the coastal zone (MoWR 2005). The Government of Bangladesh in 1999 adopted a Policy Note expressing its support for the ICZM approach (MoWR 1999). Under the directive of the 1999 Policy Note, a program development office to facilitate the ICZM process was set up in 2001, located within the Water Resources Planning Organization (WARPO) of the Ministry of Water Resources (Iftekhar 2006).

![Figure 1: Map of the coastal zone of Bangladesh](image)

The Activities of the ICZM of Bangladesh

Integrated Coastal Zone Management (ICZM) activity policy has eight objectives to address the vulnerabilities and opportunities of the coastal areas, where environmental friendly industrial activities and other sustainable use of natural resources have been addressed very carefully and lawfully (Akhter 2005).
The ICZM process consists of three main components such as:

- A coastal zone policy;
- A coastal development strategy; and
- A priority investment program.

The Coastal Zone Policy of 2005 was adopted with the overall goal to create conditions in which the reduction of poverty, development of sustainable livelihoods and the integration of the coastal zone into national processes can take place. One of the objectives of the Policy is the preservation and enhancement of critical ecosystems and ecological processes (MoWR 2005). Strategy and investment programs have been developed to implement policy objectives. The salient features of the present ICZM approach (Pickaver et al. 2004) are outlined in the following sections.

**The Challenges for the ICZM of Bangladesh**

The adoption of the 2005 Coastal Zone Policy in Bangladesh was a significant step towards implementing ICZM. The immediate effect of the adoption of the Policy was that it laid the foundation (Olsen 2005) for the management infrastructure on which better coastal management can be built (Pickaver et al. 2004). But the coastal zone has suffered from a large number of management-related problems that have produced poor economic returns and extensive environmental damage. Many of the problems caused could have been avoided if good management practices had been followed (Hossain 2001). Some of the major challenges confronting the conservation and management of coastal ecosystems are outlined below.

- Generation of information and filling knowledge gaps
- Appreciation of ecosystem linkages
- Dissemination of information to assist decision-making
- Harmonizing sectoral policies, plans and laws
- Improved governance
- Ensuring sustained political support

**Results and Discussion**

**ICZM Program of Xiamen (As a Model ICZM in Developing Country)**

**The Structure of ICZM in Xiamen, China**

In 1994, Xiamen was selected as one of the national demonstration sites for the implementation of an ICZM program which has made significant achievements in the integrated management of marine and coastal resources (Hong and Xue 2006). The development of ICZM in Xiamen involves the establishment of cross sectoral management, implementation of integrated land-sea use planning, and active participation of scientists and stakeholders in resource conservation and environmental protection (Peng et al. 2006).
The implementation and management procedure of this ICZM can be described by the Table 1.

### Table 1: Management instrument under ICZM

<table>
<thead>
<tr>
<th>Marine pollution prevention and mitigation</th>
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<tbody>
<tr>
<td>✓ Ocean use licensing</td>
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<tr>
<td>✓ Use fee system</td>
</tr>
<tr>
<td>✓ Total pollutant discharge limit</td>
</tr>
<tr>
<td>✓ Controlling pollution from ships and ocean disposal of solid waste</td>
</tr>
<tr>
<td>✓ Cleanup of Yuandang Lake</td>
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</tbody>
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<table>
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<tr>
<th>Protection of endangered species</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Establishment of nature reserves for</td>
</tr>
<tr>
<td>✓ Lancelet (<em>Branchiostoma belcheri</em>)</td>
</tr>
<tr>
<td>✓ Egret (<em>Egretta spp.</em>)</td>
</tr>
<tr>
<td>✓ Chinese white dolphin (<em>Sousa chinensis</em>)</td>
</tr>
<tr>
<td>✓ Mangroves</td>
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<th>Preservation of scenic spots</th>
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<tbody>
<tr>
<td>✓ East coast scenic spots</td>
</tr>
<tr>
<td>✓ Sandy beaches</td>
</tr>
<tr>
<td>✓ Cultural sites</td>
</tr>
<tr>
<td>✓ Maluan Bay scenic spot</td>
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<th>Ocean use zoning</th>
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<tbody>
<tr>
<td>✓ Xiamen sea area functional zoning scheme was constitute in 1997 for managing multiple use of the ocean and minimizing adverse environmental impacts</td>
</tr>
</tbody>
</table>

Source: Peng *et al.* 2006

**Benefits with the Activity of the ICZM in Xiamen**

The indicator for assessing the success of an ICZM program is its socioeconomic benefits (Chua 1998). The ICZM program in Xiamen has led to an impressive increase in net socioeconomic benefit from its marine sectors (Table 2).
### Proposed Management Procedure of Xiamen ICZM in Bangladesh Perspective

As the development of the coastal zone progresses and the national and local interest in coastal and marine resources rise, the coastal zone needs to be managed sustainably. Coastal Zone Management as a planning and implementing program (Lau 2005). ICZM sustainability mostly dependent on some considerable factors like legal, socio-economic, institutional, bio-physical, and project design (Christie, 2005). So to implement the management procedure of Xiamen ICZM in Bangladesh we have to compare some of these factors within these two countries. And we also have to identify as a successful ICZM program how Xiamen is going through and how Bangladesh can do better with these factors.

#### Legal Factors in Local Level

The legal framework is the fundamental requirement for success and sustainability for a management program (Pomeroy et al. 1997). As part of the Xiamen Demonstration Project, local regulations were enacted concerning resource management, environmental protection and transportation management. In order to strengthen integrated law enforcement, a supervisory force was formed within the Marine Management and Coordination Committee (MMCC). Key personnel from relevant departments, like the harbor supervisor, fishery supervisor, water police and environment supervisor, were organized into an integrated law enforcement group. This group successfully resolved a number of coastal use conflicts (Pang et al. 2006).

In Bangladesh a number of laws are in operation since long authorizing surveillance and patrolling of the coastal and marine waters for the preservation of the natural environment and sustainable use of coastal resources (MoWR 2005). All the laws of Bangladesh are applicable to coastal zone. But the enforcement of existing legal coverage is a key issue in sustainable coastal management. This policy will be given effect, if needed, through revision, modification of existing laws, rules and regulations specifying provisions of the coastal zone policy to facilitate its implementation.

#### Institutional Factors

The development of ICZM in Xiamen involves the establishment of cross sectoral management, implementation of integrated land-sea use planning, and active participation of scientists and stakeholders in resource conservation and environmental protection (Peng et al. 2006). The Xiamen municipal government emphasized the interaction of scientists and decision makers. Therefore it founded an advisory group of marine scientists, legal experts, economists, engineers, and urban planners to provide their expertise to local policymakers. Scientific tools such as Integrated Environmental Impact Assessment (IEIA) were introduced and apparently used to prevent unfavorable ecological and socioeconomic impacts of planned development projects (Lau 2005).
In Bangladesh the coast is an area of institutional weakness: though several government agencies and departments are working in the coastal region, there is hardly any linkage between them and institutional fragmentation is common (A policy review). Only bilateral communication takes place between the Ministry of Land and other executing agencies when the latter require land for construction purposes. Further, the agencies responsible have hardly any presence at the local level. Most of these agencies operate only from their Thana level offices; again this is not the case for all the departments who are responsible for program concerning the coastal areas.

**Economical Factors**

Implementing ICZM is a costly project and the Xiamen ICZM program consists of the cost of regulatory development. About one million US dollars the Xiamen demonstration project was invested in Xiamen to explore and develop the ICZM framework. And also Xiamen government funded various activities to identify key management issues, to formulate relevant regulations, and to establish ICZM management institutions (Peng et al. 2006). In Bangladesh the Government and local Government Institutions, all concerned Agencies, NGOs, private sector and the civil society will put their efforts for the development of the coastal zone (WARPO 2005).

**Social Factors**

The Xiamen Marine Management and Coordination Committee organized several public awareness activities during the Xiamen Demonstration Project, like A weekly column in a local newspaper was published focusing on the marine environment, articles about the marine environment broadcasted on local TV and radio (Chua et al. 1997). A trivia contest was held for employees of the district governments and the Xiamen Municipal Government about marine issues, educational materials about marine environmental issues were prepared for local middle school students. In Bangladesh gender inequalities and gaps exist in the coastal zone, in particular in the fields of access to livelihoods assets and access to resources. Often the economically and politically powerful people with ensuring political protection seized the land of coastal area (Hossain and Lin 2001). So with the brief discussion of two country’s ICZM procedure we can realize that although Bangladesh have so many problems, a big change should be possible. And the adoption of the model ICZM of Xiamen in Bangladesh can be a significant step towards implementing a successful ICZM in Bangladesh.

**Conclusion and Recommendations**

The concept of ICZM is very broadly defined in order to be applicable to most regions and countries. There are numerous approaches of Xiamen ICZM to produce general guidelines for all countries that wished to follow the ICZM concept in order to control problems and negative impacts in the coastal zone and make a sustainable development there possible (Lau 2005). But without significant modification and careful evaluation of involved power structures a successful local ICZM structure cannot be implemented nationwide. So adoption of recommendations made in this paper is likely to improve ICZM sustainability, not all are appropriate for each context or issue at hand. Rather, adopting them is likely to improve the rate of success. For the researcher of ICZM, these concepts also provide guidance for future research on coastal management.
References


