

Climate change and integrated Coastal Zone Management of Cox's Bazar**Rifa Tasfia Zeba**

Climate change is undeniably one of the most pressing concerns of the world community in the contemporary international order. As a non-traditional security threat, climate change does not remain confined to territorial limits and poses challenges disproportionately throughout the population of the world. For instance, while contributing less than 0.35 percent of the world's total emissions, Bangladesh is regarded as one of the most climate vulnerable nations in the world. Global temperature rise, rising sea levels, and extreme weather variability are already affecting people's lives and livelihoods on a daily basis. Coastal locations are particularly vulnerable to the effects of climate change, which are predicted to exacerbate the current challenges. Consequences are substantially detrimental on both the social and economic fronts; the submergence and flooding of coastal land, the intrusion of saltwater into surface waters and groundwater, increased erosion and water pollution are the concerns that need to be addressed in many regions, and these challenges endanger both man-made infrastructure and coastal ecosystems.¹ The coastal zone of Bangladesh covers an area of 47,201 km, 32% of the country, being the landmass of 19 districts. Around 35 million people, representing 29% of the population, live in the coastal zone. The report of the Intergovernmental Panel on Climate Change (IPCC) titled, "Climate Change 2021: The Physical Science Basis" has predicted that the frequency of category 4 and category 5 cyclones will increase in the upcoming days in the coastal areas of Bangladesh.

¹ Ahmad, Hafez. "Bangladesh coastal zone management status and future trends." *Journal of Coastal Zone Management* 22, no. 1 (2019): 1-7.



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Among these coastal zones, Cox's Bazar is one of the most climate-vulnerable areas and is subject to extreme rainfall, landslides, and flash floods.² It is also home to the largest refugee camp in the world and the addition of more than 1.1 million Rohingya refugees, who fled persecution in their home country of Myanmar, have put tremendous pressure on the region's already fragile local ecosystems. In order to address these existing challenges posed by climate change and achieve sustainable development of the coastal zone of Bangladesh, specifically in Cox's Bazar, it is essential to have an integrated management system in place. The coastal zones are complex areas to regulate and require a comprehensive, integrated approach. Various factors, such as the effect of unprecedented, rapid population expansion, unsustainable economic development, and climate change, promote the need for integrated management of coastal areas. Before beginning to emphasize its significance in the context of climate change, an understanding of what is meant by integrated coastal zone management (ICZM) is essential.

Understanding the concept of Integrated Coastal Zone Management (ICZM):

ICZM is a widely accepted approach at all levels of governance as a means of delivering sustainable development in the coastal areas. It is a dynamic, multidisciplinary and iterative process to promote sustainable management of coastal zones, while covering the full cycle of information collection, planning (in its broadest sense), decision making, management and monitoring of implementation.³ 'Integrated' in ICZM refers to the integration of objectives and also to the integration of the many instruments needed to meet these objectives.⁴ It means integration of all relevant policy areas, sectors, and levels of administration. It means integration of the terrestrial and marine components of the target territory, in both time and space".

² Sarwar, Md Iqbal, Md Assaduzzaman Sarker, and Md Abu Bakar Shamim. "Impacts of Climate Change on Coastal Communities of Bangladesh: A Case Study of Kutubdia Para, Cox's Bazar." *Young Power in Social Action* (2016): 27.

³ Post, Jan C., and Carl G. Lundin. "Guidelines for integrated coastal zone management." (1996).

⁴ Thia-Eng, Chua. "Essential elements of integrated coastal zone management." *Ocean & Coastal Management* 21, no. 1-3 (1993): 81-108.

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Broadly, It is regarded as a process of governance and consists of the legal and institutional framework necessary to ensure that development and management plans for coastal zones are integrated with environmental (including social) goals and are made with the participation of affected populations. It unites government, community, management, sectorial interests for the protection and development of coastal ecosystems and resources.

The purpose of ICZM is to maximize the benefits provided by the coastal zone and to minimize the conflicts and harmful effects of activities upon each other, on resources and on the environment. ICZM takes into account all of the sectorial activities that affect the coastal zone and its resources and deals with economic and social issues as well as environmental/ecological concerns. The goal is to harmonize these activities in such a way that all of them are consistent with and support a broader set of overarching national goals for the coastal zone. ICZM focuses on three operational objectives: Strengthening sectorial management, for instance through training, legislation, and staffing; Preserving and protecting the productivity and biological diversity of coastal ecosystems, mainly through prevention of habitat destruction, pollution, and overexploitation; Promoting rational development and sustainable utilization of coastal resources. ICZM maintains a balance between protection of valuable ecosystems and development of coast-dependent economies.

Opportunities and Challenges for Bangladesh on the Implementations of ICZM:

Depending on the need and basis of physical, socio-economic, cultural and political aspects, various nations have developed their own unique forms of ICZM programs.⁵ Coastal zone management, development and planning have received serious attention by the Bangladesh Government in the past decades and implemented a number of measures to support planning and management in coastal areas. For instance, in various fields, including shipping, fisheries, environment, research and tourism sectors, development efforts have recently been taken or are currently being planned to boost economic growth and manage available resources more sustainably at the same time. An

⁵ Post, Jan C., and Carl G. Lundin. "Guidelines for integrated coastal zone management." (1996).

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oceanographic research institute was recently established in Bangladesh for all types of coastal and oceanic study. In order to preserve vital habitats and biodiversity, a number of Ecologically Critical Areas (ECA) have been implemented in diverse coastal ecosystems.

The selection of a series of distinct coastal projects served as the initial step in the transition from planning to implementation towards ICZM. However, several projects have not been implemented due to decreased financing and complex project organization.⁶ Hence, we need to put more emphasis on how we can harness the available resources more efficiently. The instances of opportunities within the coastal zone of Cox's Bazar comprises a long and large coastal area enriched with resources and dynamic biodiversity of coastal ecosystems. In order to utilize these opportunities, a comprehensive and thorough framework is needed to implement the strategies of ICZM.⁷ Although, the obstacles to the implementation of ICZM include policy flaws, a lack of coordination, insufficient human resources, a lack of investment, inadequate public participation, and stakeholder exclusion, these obstacles can be overcome with robust engagement from both public-private stakeholder communities.⁸ The management of coastal communities, coastal resources, the coastal environment, and the coastal economy are all within the scope of ICZM in Cox's Bazar. In order to maximize the use of these scopes, factors such as population growth and infrastructure development, a study of supply and demand, as well as an evaluation of coastal hazards and obstacles, should be taken into consideration as well. This will enable the coastal community, policy, and environment to engage in mutual interactions and simultaneously facilitate the pathway for sustainable development that can contribute to the reduction of coastal poverty and the growth of both social and economic domains.

⁶ Islam, M. Rafiqul. "Bangladesh's ICZM efforts in practice." Robbert Misdorp, ed.

⁷ Ahmad, Hafez. "Bangladesh coastal zone management status and future trends." *Journal of Coastal Zone Management* 22, no. 1 (2019): 1-7.

⁸ Ibid

ICZM in Cox's Bazar to minimize the effect of climate change:

With rising population, presence of more than 1.1 million Rohingya refugees, diminishing natural resources, and the ongoing and intensifying effects of climate change, sectorial planning no longer safeguards the coast as it once did. ICZM in Bangladesh is not just for environmental or ecological advantage; rather, it offers a plan for survival to millions of people who are at the whim of nature.⁹ The strategy of integrated coastal zone management (ICZM) not only helps to mitigate the consequences of disasters, but it also gives opportunity for the sustainable usage of resources.¹⁰ Due to the fact that coastal ecological systems are both vital and fragile, there is a pressing need for the creation of robust and proactive coastal adaptation strategies across several scales of governance in order to improve coastal resilience.¹¹ Existing experiences on coastal management in general, and the ICZM framework in particular, provide an opportunity to investigate the numerous elements that increase the vulnerability of coastal habitats and communities to climatic risk and the ways of resolving these sources of vulnerability in Cox's Bazar.

Although there are a number of ICZM-related activities being carried out in Bangladesh, much more needs to be done at the local and national level within a framework of international cooperation to prepare to tackle the consequences of climate change. By ensuring strong coordination of science-based management solutions supported by broad stakeholder consensus, ICZM can effectively aid in building environmental and societal resilience to the increasing impacts of climate change.¹² Since coastal regions like Cox's Bazar are already addressing associated concerns of environmental and

⁹ Ibid

¹⁰ O'Mahony, C., S. Gray, J. Gault, and V. Cummins. "ICZM as a framework for climate change adaptation action—experience from Cork Harbour, Ireland." *Marine Policy* 111 (2020): 102223.

¹¹ Glaeser, Bernhard, Karl Bruckmeier, M. A. R. I. O. N. Glaser, and Gesche Krause. "Social-ecological systems analysis in coastal and marine areas: A path toward integration of interdisciplinary knowledge." *Current trends in human ecology* 21, no. 1 (2009): 183-203.

¹² Islam, Syed Mamtaju. "A critical analysis of integrated coastal and ocean management in Bangladesh with lessons from global practices." (2015).

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societal challenges, implementing ICZM will put us in a better position to deal with impending threats of climate change.¹³

Specifically in Cox's Bazar, the Cox's Bazar Development Authority can play a vital role in ensuring and harmonizing the objectives of ICZM. The organization has been sustaining their role as an agent for development and regulatory body to oversee development. In addition to carrying out those objectives in an extensive setting, this organization can also establish a comprehensive framework that may incorporate information collection, planning, decision making, management, and monitoring. This framework has the potential to further facilitate the path towards integrated coastal zone management (ICZM) by providing additional assistance in working from the grassroots levels which in turn can contribute to sustainable development of the region. Furthermore, it has the opportunity to promote sustainable management of coastal zones through a dynamic, multidisciplinary, and iterative process. Apart from these aspects, climate change mitigation strategies, such as coastal protection, can be readily incorporated with other coastal management initiatives of existing programs that were made in accordance with ICZM in Bangladesh. Thus, in order to move forward to a sustainably developed Cox's Bazar, the transition to a comprehensive framework for ICZM implementation needs to begin as soon as possible.

¹³ Chemane, David, Helena Motta, and Mussa Achimo. "Vulnerability of coastal resources to climate changes in Mozambique: a call for integrated coastal zone management." *Ocean & coastal management* 37, no. 1 (1997): 63-83.

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