

Ministry of Water Resources
Government of the People's Republic of Bangladesh

COASTAL DEVELOPMENT STRATEGY

(Approved at the 2nd meeting of the Inter-Ministerial Steering Committee
on ICZMP held on February 13, 2006)

Water Resources Planning Organization

February 2006

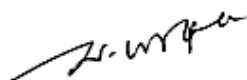
PREFACE

The coastal zone of Bangladesh is often perceived as a zone of multiple vulnerabilities. But it has much potentials and opportunities. Moreover, it contains several important and critical ecosystems. By harnessing and exploiting its opportunities in systematic and coordinated way, the coastal zone can make a substantial contribution to achieve the national goals of accelerated poverty reduction and economic growth.

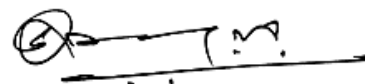
The need for an area specific program in coastal Bangladesh was recognized in a number of earlier initiatives and the policies and programs of different government agencies. Integrated Coastal Zone Management Plan (ICZMP) project was implemented by Water Resources Planning Organization. One of the key outputs of the project is the Coastal Zone Policy (CZPo) which was approved by the government on 17 January 2005. The policy provides the directives and the framework for the development and implementation of integrated coastal zone management plan. It also gives direction for management of the coastal development process. The Coastal Development Strategy (CDS) focuses on the implementation of the coastal zone policy. The CDS was approved at the second meeting of the Inter-Ministerial Steering Committee on ICZMP held on 13 February 2006.

The distinctive development opportunities of the coastal zone are considered as instrumental in reducing vulnerability and poverty of coastal communities. This strategy is an attempt to unlock the potentials of the coastal zone along with strategies to mitigate natural and man- made hazards and to preserve, restore and enhance coastal ecosystems. The CDS has been prepared through multi-level and multi-sectoral dialogues. It describes priorities and targets based on coastal zone policy objectives and the available resources. The strategic priorities are to be implemented through three strategic routes: mainstreaming, investment and governance. In such selective approach, the strategy aims to be complementary to the ongoing but often segmented activities of different government agencies, NGOs and development partners. It focuses on participation and partnership. This strategy will lead to an integrated management of the coastal zone.

We express appreciation and sincere gratitude to all concerned, specially coastal communities, NGOs, civil society, district administrations, relevant ministries and agencies, Program Development Office for Integrated Coastal Zone Management Plan and particularly the Government of the Netherlands and Department for International Development, UK for their significant support.

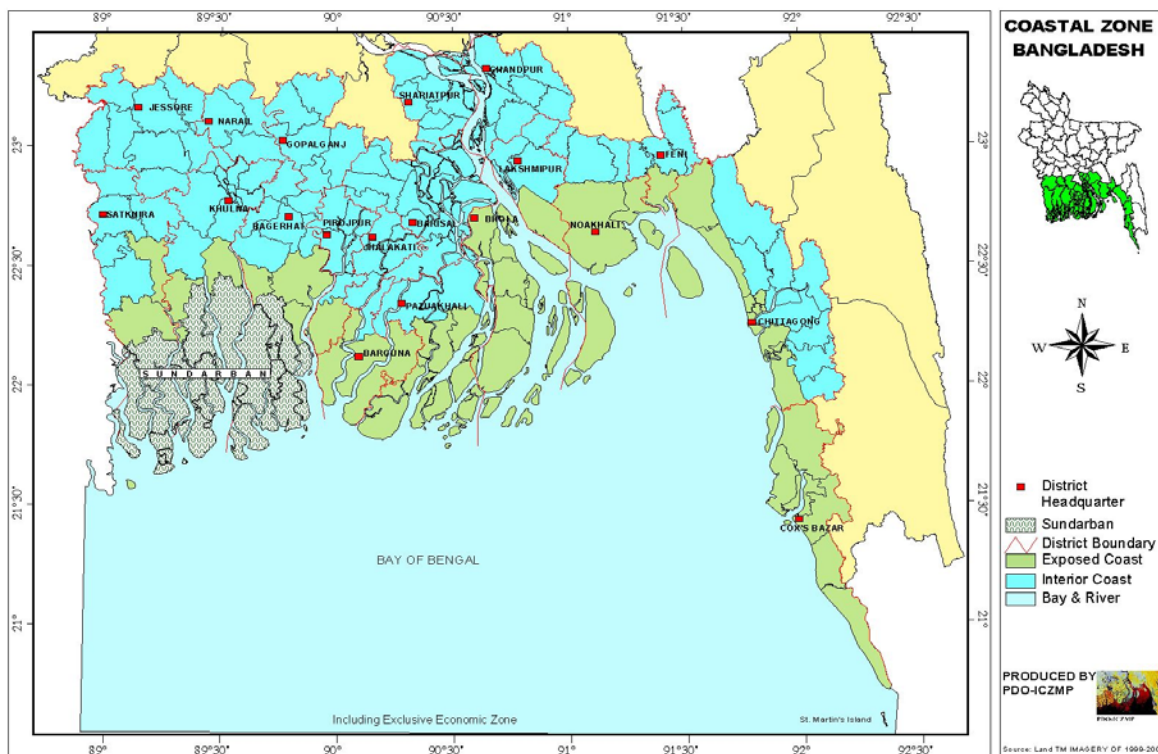


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Map of the coastal zone of Bangladesh



Basic statistical fact sheet

	Unit	Coastal Zone	Bangladesh	Data year & data source
Overview				
Land area	km ²	47,201	147,570	2001 (BBS, 2003)
Sea area (boundary)	nautical miles	200	200	Territorial Waters & Maritime Zones Act, # 26; April 1974
Administration				
Administrative units				
districts	number	19	64	2001 (BBS, 2003)
upazila	number	147	507	2001 (BBS, 2003)
Natural resources and environment				
Biodiversity	number of endangered species	32	201	IUCN, 2000
Accretion and erosion				
accretion	ha / year	5,080		1973-2000 (MES, 2001)
erosion	ha / year	3,199		1973-2000 (MES, 2001)
Demography & Poverty				
Total	million	36.8	130.0	2001 (BBS, 2003)
male	million	18.8	67.1	2001 (BBS, 2003)
female	million	18.0	62.9	2001 (BBS, 2003)
urban	million	8.5	30.4	2001 (BBS, 2003)
rural	million	28.3	99.6	2001 (BBS, 2003)
Poverty				
absolute poor HH	% of HH	52	49	1998 (BBS, 2002)
extreme poor HH	% of HH	24	23	1998 (BBS, 2002)

HIGHLIGHTS

- The Coastal Development Strategy (CDS) is based on the approved Coastal Zone Policy (CZPo) 2005.
- The CDS is the *linking pin* between the CZPo and concrete interventions. It prepares for coordinated priority actions and arrangements for their implementation through *selecting strategic priorities and setting targets*.
- The CDS represents a departure from ‘business as usual’ in the management of the coastal zone towards utilizing its potentials. It describes ‘governance’ of the coastal zone.
- The CDS is a homegrown document and presents aspirations of the coastal people developed through an extensive process of consultation, review and endorsement. The draft has been discussed with Members of Parliament representing coastal constituencies.
- The objectives and methodologies of the CDS are consistent with ‘National Strategy for Accelerated Poverty Reduction’ (PRSP document). The PRSP supports not only ‘Implement Integrated CZ Management Plan (ICZMP)’ but also ‘Implementation of Priority Investment Programme (PIP) to be developed under Integrated CZ Management Plan Project (ICZMPP)’.
- The CDS takes into account the emerging trends: increasing urbanization, changing pattern of land use, declining land and water resources, unemployment and visible climate change impacts.
- The CDS takes into account the strength of the coastal zone: untapped and less explored resources, comparatively higher literacy and location of the two sea ports with other ancillary infrastructures.
- The CDS planning horizon for specific actions/interventions is 5 years that fits into the PRSP Policy Agenda (FY 05-07) and (FY 08-10).
- The CDS does not represent one overall framework and recipe for all development actions for the whole of coast. It is a targeted process and the targeting is identified with respect to:
 - ◊ *regions* (islands and chars, exposed coastal zone / districts; high tsunami risk area; South-West region);
 - ◊ *disadvantaged groups* (erosion victims, women and children, fisher and small farmers);
 - ◊ *issues* (shrimp culture, land zoning; groundwater management, climate change); and
 - ◊ *opportunities* (tourism, renewable energy, marine fisheries)
- Nine strategic priorities, evolved through a consultation process, guides interventions and investments in the coastal zone:
 - ◊ *ensuring fresh and safe water availability*
 - ◊ *safety* from man-made and natural hazards
 - ◊ *optimizing use of coastal lands*
 - ◊ *promoting economic growth emphasizing non-farm rural employment*
 - ◊ *sustainable management of natural resources: exploiting untapped and less explored opportunities*
 - ◊ *improving livelihood conditions of people; especially women*
 - ◊ *environmental conservation*
 - ◊ *empowerment through knowledge management*
 - ◊ *creating an enabling institutional environment*

Implementation of these strategic priorities contributes to poverty reduction strategy nationally and achievement of Millennium Development Goals globally.

- The three equally important routes in implementing strategic priorities are mainstreaming, investments and governance.
- *Mainstreaming* focuses on the planning efforts at national level and the approaches by line agencies. In addition, mainstreaming addresses cross-cutting national issues (like gender, urbanization), supporting multi-sectoral regional studies and maintaining existing or new partnerships.
- *Investment program* relates to both public and private sectors Each of nine strategic priorities are translated into 2-5 investment projects, packaged in a Priority Investment Program (PIP).
- *Private Sector investments* are key to coastal development: creating employment and services. Implementation of the CDS will create a conducive investment climate in line with '*Bangladesh Private Sector Infrastructure Guidelines 2004*' for developing less explored and untapped resources by linking these to existing Facility funds.
- A structured approach to investment and financing is taken through such instruments as national budget, local resources mobilization, private sector investment and proposed special funds like Coastal Environment and Development Facility and Coastal Disaster Preparedness and Emergency Mitigation Fund.
- *Governance* focuses on three aspects: a) institutional developments, b) legal frameworks and c) assessments. An enabling environment of '*governance*', is sought to be created based on models of good practices, to implement the multi-sector and mainstreaming actions.
 - ◇ At the national level, a *Program Coordination Unit (PCU)* acts as the core facilitating and co-coordinating platform of the ICZM process. Support structure consists of an inter-ministerial Steering Committee, a Technical Committee; task forces and the Focal Points.
 - ◇ At the district and upazila levels, *DDCC and UDCC* are the platforms to accelerate the process of local level development and efficient resource management. 'Liaison Point' will be established in each of the 19 districts.
 - ◇ Participation of NGOs, CBOs and other stakeholders, as partners, will be promoted.
 - ◇ *Legal Framework*. The emphasis is on enforcement and capacity building of enforcing agencies. Need for an umbrella Coastal Zone Regulations will be assessed later in line with similar regulations in India, USA and other countries.
 - ◇ *Assessment of CZ developments*. On a regular basis, developments in the coastal zone will be assessed against the development objectives formulated in the CZPo and this CDS. This includes information on the inputs, the outputs and outcome into the development process.
- The PCU is the permanent set-up is being established within Water Resources Planning Organization (WARPO), Ministry of Water Resources (MoWR). A few GoB Departmental Experts will be deputed from different ministries.
- The Plan (CDS and PIP) is translated into Program with 3 activities: implementation of the priority investment program, implementation of the district development plans and support to PCU. The 'support to PCU' component has been elaborated in a PPP titled 'Institutionalization & Operationalization of ICZM Approaches' for the period of 2006-2010. This program has 6 components. Funding for this 5-year program is to be sought from the Government and development partners.
- The Integrated Coastal Zone Management (ICZM) approach, described in this CDS, will be piloted at two districts, Bhola and Cox's Bazar. District Development Plans are formulated through 'Participatory Action Plan Development' method under the guidance of district administration and 'Steering Committee' in each districts.
- Implementation of the CDS starts from January 2006, with establishment and operationalization of the PCU.

TARGETS

Strategic Priority	Type of intervention	Targets
Ensuring fresh and safe water availability	Strengthening Sanitation and Safe Water Supply Programs in Arsenic and Salinity Affected Areas (in selected 10 upazilas of the coastal zone).	- 2006: Decision on proposed water supply & sanitation project and 2007: implementation
	Ground Water Management in the CZ of Bangladesh.	- 2007: formulation of a groundwater management plan - 2008: start implementation of groundwater management mechanisms
	Integrated water resource management of Greater Noakhali.	- 2006: regional IWRM strategy developed - 2007: start investments and implementation of management structure - 2006: start of investment on Gorai river restoration
Safety from man-made and natural hazards	Strengthening and rehabilitation of sea dykes..	- 2006: planning and design of sea dykes completed - 2007: start investments on new dykes and routine maintenance
	Reduction of severe vulnerability in the Coastal Zone through multi-purpose cyclone shelters- including coping mechanisms	- 2005: inventory completed - 2006: design & plan completed - 2007: coping mechanism program implemented - 2008: new constructions
Optimizing use of coastal lands	Development and settlement of accreted land.	- 2007: management mechanism agreed - 2008: guidelines published
	Integrated management of coastal water infrastructures .	- 2007: A project on management of coastal water resources infrastructure: pilot project in 5 polders - 2009: start CDSP-IV - 2008: two feasibility studies on new chars completed
	Coastal land zoning.	- 2006: detailed zoning initiated - 2006: zoning law promulgated - 2008: long term plan for detailed zoning
	Development of coastal agriculture in Bangladesh	- 2007: comprehensive plan for coastal agriculture completed - 2008: start implementation
Promoting economic growth emphasizing rural non-farm employment	Enhancement of coastal livelihoods through enterprise development.	-2006: design of enterprise development support & training -2007: implementation of support to selected trades
	Tourism development in the CZ for improvement of livelihoods and poverty reduction.	-2006: design of economic opportunities in tourism & training -2007: implementation
Sustainable and equitable management of natural resources	Environmental and socially responsive shrimp farming in 4 selected upazilas.	- 2006: zoning concluded - 2007: extension
	Introduction and expansion of solar, tidal and wind energy in the remote coastal areas.	- 2006: energy utilization & generation planning - 2007: unit establishment - 2009: expansion
	Marine Fisheries & Livelihoods	- 2006: assessment of marine and coastal fisheries

Strategic Priority	Type of intervention	Targets
	Development Program.	completed - 2008: start implementation
Improving livelihood conditions of people, specially women	<p>Enhancement of livelihoods in coastal chars areas.</p> <p>Integrated development of remotely located island (Urir Char & Rangabali chars).</p> <p>Capacity building of female fish processors in Cox's Bazar district.</p> <p>Comprehensive Rehabilitation Program for Erosion Victims of Coastal Zone of Bangladesh.</p> <p>Improvement of Livestock services in the Coastal Zone.</p>	<p>- 2006: design and plan of char & island livelihoods completed</p> <p>- 2007: implementation of basic provisions</p> <p>- 2008: development linked to LGIs</p> <p>- 2009: livelihoods program implemented</p> <p>- 2007: Char development plan completed</p> <p>- 2008: feasibility assessment and possible proposal for other special area development plans</p> <p>-2006: groups formed</p> <p>-2007: training imparted</p> <p>- 2008: input support provided</p> <p>-2006: identification of present and predicted erosion prone areas completed</p> <p>-2007: implementation of rehabilitation program</p> <p>-2009: socio-economic opportunities implemented</p> <p>-2006: design and plan completed</p> <p>-2007: poultry development plan implemented</p> <p>-2008: veterinary services introduced</p> <p>-2009: income opportunities in livestock initiated and strengthened</p>
Environmental conservation	<p>Marine and Coastal Environmental Development</p> <p>Strengthening of Coast Guard for Improvement of Coastal Safety and Security, Coordination with Other Law Enforcing Agencies.</p>	<p>-2006: International, regional agreements and national responses monitoring</p> <p>-2006: identification and planning</p> <p>-2007: implementation</p>
Empowerment through knowledge management	<p>Knowledge management, dissemination and social communication</p> <p>Regional/ framework studies Capacity Building & Training</p>	<p>-2006: initiate action</p> <p>-2010: action continues</p> <p>-2007: Guidelines prepared,</p> <p>-2010: project data base linked to national data base</p>
Creating an enabling institutional environment	<p>Set up a PCU for coordination and harmonization among the line agencies</p> <p>Operationalization at district and local level of ICZM.</p> <p>Empowerment of Women Members / Commissioners of LGIs of the CZ.</p> <p>Establishment of IT supported model Unions in sea facing upazilas</p> <p>Capacity Building of the Local Government Institutes (Union Parishads and Paurashavas) for <i>Integrated Coastal Resource Management</i>.</p>	<p>-2005: structure agreed, established and PCU operationalized</p> <p>-2006: PCU operational at both national and local level</p>

ABBREVIATIONS

A		DMB	Disaster Management Bureau
AA	Administrative Arrangement	DoE	Department of Environment
ADB	Asian Development Bank	DoF	Department of Fisheries
ADPs	Annual Development Plans	DoS	Department of Shipping
B		DoYD	Department of Youth Development
BARC	Bangladesh Agricultural Research Council	DPCD	Deputy Program Coordinating Director
BBS	Bangladesh Bureau of Statistics	DPHE	Department of Public Health Engineering
BELA	Bangladesh Environmental Lawyers Association	DPP	Development Project Proposal
BGS	British Geological Survey	DSS	Department of Social Services
BIWTC	Bangladesh Inland Water Transportation Corporation	DWA	Department of Women Affairs
BMD	Bangladesh Meteorological Department	E	
BN	Bangladesh Navy	ECA	Ecologically Critical Areas
BNNRC	Bangladesh NGOs Network for Radio and Communication	ECFC	Empowerment Coastal Fisheries Community
BPC	Bangladesh Parjatan Corporation	EEZ	Exclusive Economic Zone
BRDB	Bangladesh Rural Development Board	EPZ	Export Processing Zone
BS	Block Supervisor	UN ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
BSC	Bangladesh Shipping Corporation	F	
BSCIC	Bangladesh Small & Cottage Industries Corporation	FD	Forest Department
BUET	Bangladesh University of Engineering & Technology	FFP	Fourth Fisheries Project
BWDB	Bangladesh Water Development Board	FIMS	Fisheries Information Management System
C		FSP	Forestry Sector Project
CA	Contributory Arrangement	FWA	Family Welfare Assistant
CBO	Community Based Organisation	G	
CCD	Coast Conservation Department (Sri Lanka)	GDP	Gross Domestic Product
CDMP	Comprehensive Disaster Management Program	GEF	Global Environmental Facility
CDP	Consultants for Development Programme	GoB	Government of Bangladesh
CDPEMF	Coastal Disaster Preparedness & Emergency Mitigation Fund	GSB	Geological Survey of Bangladesh
CDS	Coastal Development Strategy	GTZ	German Technical Cooperation
CDSP	Char Development & Settlement Project	H	
CEGIS	Center for Environmental and Geographic Information Services	HDI	Human Development Index
CERP	Coastal Embankment Rehabilitation Project	I	
CG	Coast Guard	ICRD	Integrated Coastal Resources Database
CIDA	Canadian International Development Agency	ICZMP	Integrated Coastal Zone Management Plan
CNs	Concept Notes	IDA	International Development Association
CODEC	Community Development Centre	IDB	Islamic Development Bank
CPA	Chittagong Port Authority	IFC	International Financial Corporation
CPD	Center for Policy Dialogue	IGAs	Income Generating Activities
CPP	Cyclone Preparedness Programme	IIS	Interactive Information System
CRZ	Coastal Regulation Zone	IMR	Infant Mortality Rate
CZ	Coastal Zone	IPCC	Intergovernmental Panel on Climate Change
CZPo	Coastal Zone Policy	IPRSP	Interim Poverty Reduction Strategy Paper
D		IPSWAM	Integrated Planning for Sustainable Water Management
DAE	Department of Agricultural Extension	ISP	Internet Service Provider
Danida	Danish International Development Assistance	IT	Information Technology
DDCC	District Development Coordination Committees	ITN	?
DFID	Department for International Development (UK)	IUCN	The World Conservation Union
DLRS	Directorate of Land Record and Surveys	IWM	Institute of Water Modeling
DLS	Department of Livestock Services	IWRM	Integrated Water Resource Management

L		R	
LGED	Local Government Engineering Department	RAKUB	Rajshahi Krishi Unnayan Bank
LGIs	Local Government Institutions	REB	Rural Electrification Board
LRB	Local Resource Base	RNF	Rural Non Farm
M		RVCC	Reducing Vulnerability to Climate Change
MDGs	Millennium Development Goals	S	
MFA	Marine Fisheries Associations	SC	Steering Committee
MFD	Marine Fisheries Department	SDC	Swiss Development Cooperation
MMD	Mercantile Marine Department	SEMP	Sustainable Environmental Management Program
MoEF	Ministry of Environment and Forestry	SIDA	Swiss International Development Assistance
MoL	Ministry of Land	SLDP	Smallholder Livestock Development Project
MoWR	Ministry of Water Resources	SLR	Sea Level Rise
MP	Members of Parliament	SMC	School Monitoring Committee
MPA	Mongla Port Authority	SME	Small and Medium-scale Enterprise
MSME	Micro, Small and Medium Enterprise	SMRC	SAARC Meteorological Research Center
N		SoB	Survey of Bangladesh
NAPA	National Action Plan for Adaptation (for climate change)	SPARRSO	Space Research & Remote Sensing Organization
NBR	National Board of Revenue	SRDI	Soil Resource Development Institute
NCA	Net Cultivable Area	T	
NEMAP	National Environmental Management Action Plan	TC	Technical Committee
NGO	Non Governmental Organizations	TNO	Thana Nirbahi Officer
NILG	National Institute of Local Government	ToT	Training of Trainers
NOAA	National Oceanic and Atmospheric Administration (USA)	TPP	Technical Project Proposal
NORAD	Norwegian Agency for International Development	TRM	Tidal River Management
NWMP	National Water Management Plan	TYRP	Three-Year Rolling Plans
O		U	
O&M	Operation & Maintenance	UDCC	Upazila Development Coordination Committees
OECD	Organization for Economic Cooperation and Development	UHC	Upazila Health Centre
P		UNDP	United Nations Development Program
PAs	Protect Areas	UNFPA	United Nations Population Fund
PCD	Program Coordinating Director	UNICEF	United Nations Children's Fund
PCU	Program Coordination Unit	UNO	Upazila Nirbahi Officer
PDB	Power Development Board	UP	Union Parishod
PDO-ICZMP	Program Development Office - Integrated Coastal Zone Management Plan	USA	United States of America
PIP	Priority Investment Program	V	
PMC	Project Monitoring Committee	VDP	Village Defense Party
PPP	Preliminary Project Performa	VGD	Vulnerable Group Development
PRSP	Poverty Reduction Strategy Paper	VGF	Vulnerable Group Feeding
PSC	Project Steering Committee	W	
PSF	Pond Sand Filtering	WARPO	Water Resources Planning Organization
		WDCC	Ward Development Coordination Committee
		WRIP	Western Region Integrated Project

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1 SETTING THE FRAMEWORK

The Coastal Zone Policy, 2005 states that ‘a CDS shall be developed and adopted in line with national strategy documents as a commonly agreed framework document’. A framework of the CDS is introduced in this chapter. Main components are elaborated in subsequent chapters.

1.1 Context

The coastal zone (CZ) covers 19 districts¹ facing or having proximity to the Bay of Bengal and the exclusive economic zone (EEZ).

The zone is generally perceived as a zone of multiple vulnerabilities [Box]. Moreover, it contains several important and critical ecosystems. However, the opportunities and potentialities of the zone have not yet received adequate attention. By harnessing and exploiting its opportunities, the CZ can make a substantial contribution in achieving the national goals of accelerated poverty reduction and millennium development goals.

Official poverty indicators show a slightly higher percentage of the population living below the absolute poverty line in the CZ compared to the country as a whole (52% vs 49%), while GDP per capita and the annual GDP growth rates in the CZ are more or less similar to the national averages.

There is, however, a *substantial regional differentiation*: in 15 out of the 19 coastal districts, the GDP per capita is below national or CZ averages. High vulnerabilities in terms of insecurity of food, income, water, health and poverty are prominent in Bhola, Noakhali, Satkhira and Bagerhat districts.

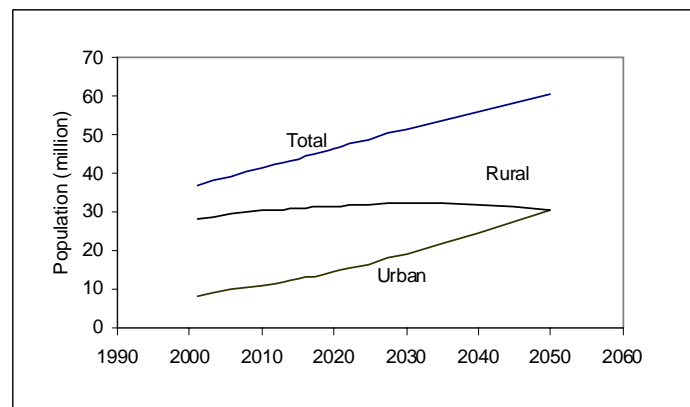
More changes are underway in the coastal zone with increasing population and other accompanying stress factors. According to projections, CZ population will increase from the current (2001) 36.8 million to 60.8 million in 2050.

The present urban population will grow from 8.5 million to 12.8 million in 2015 and to 30.2 million in 2050. This is 23 percent of the total population in 2001, 29 percent in 2015 and 50 percent in 2050. At least, 30% of the urban population will live in two major urban centers, Chittagong and Khulna in 2050 (PDO-ICZMP 2005b).

Increasing demand for land for urban and other infrastructure needs will drastically reduce availability of land for agriculture. Per capita availability of net cultivable area will decline to less than half, from 0.53

Salient features

- Cyclones, storm surges, floods, drought, earthquakes, erosion, salinity intrusion and arsenic contamination are some of the natural hazards. Lack of safe drinking water, over-exploitation of natural resources, water logging, river siltation and hill cutting also add to vulnerabilities. The zone is also vulnerable to tsunami and impacts of climate change.
- Coastal zone has diverse eco-systems: mangrove, marine, estuary, islands, coral, sandy beaches, sand dunes and has both 'world heritage sites' and 'ecologically critical areas'
- Coastal zone offers immense potential for economic growth. Renewable and non-renewable energy, marine resources, beach minerals tourism are some of the less explored areas.



¹ The districts are Bagerhat, Barguna, Barisal, Bhola, Chandpur, Chittagong, Cox's Bazar, Feni, Gopalganj, Jessore, Jhalkati, Khulna, Lakshimpur, Narail, Noakhali, Patuakhali, Pirojpur, Satkhira and Shariatpur. Together these districts account for 32 percent of the area and 28 percent of the population of Bangladesh. Detailed information on the coastal zone of Bangladesh is elaborated in the book 'Where Land Meets the Sea: A Profile of the Coastal Zone' (PDO-ICZMP 2004).

ha (2001) to 0.24 ha (2050). This will strain future decision-making process on land use planning caught between the priorities of releasing land for infrastructure development and retaining land for agriculture for ensuring food security².

Coastal Bangladesh is also at great risk from both global climate change and tsunami because of its very low elevation and exposure to various water related hazards. Coastal resources are especially endangered by the projected climate change and consequent sea level rise. At least, 4.8 million people are at high risk from tsunami.

In the above scenarios, the challenge is to go for CZ management as a program to reduce poverty, to enhance livelihoods and to improve governance. The program include:

- ◇ improved disaster management;
- ◇ adaptation to sustainable use of declining natural resources;
- ◇ ensuring basic needs for increasing population;
- ◇ harnessing untapped and/or less explored opportunities;
- ◇ continued economic growth: increased non-farm employment generation;
- ◇ private sector involvement in service delivery;
- ◇ attention to growing coastal urbanization;
- ◇ investment in human development, specially women;
- ◇ area wise integrated planning including zoning, sub-zoning and modeling;
- ◇ decentralization: local government involvement with area based budgetary allocation; and
- ◇ institutionalization of coastal management: co-ordination, resource mobilization and knowledge management.

The CZ of Bangladesh and its features, potentials, development trends and challenges are elaborated in **Annex A**.

Attempts to introduce area specific approach in the CZ, however, are not new. This was already pursued through a number of earlier initiatives:

- ◇ the Off-Shore Islands Development Board (1977-82);
- ◇ the Bangladesh National Conservation Strategy (1987);
- ◇ the UN/ESCAP-GoB Coastal Environment Management Plan for Bangladesh (1987);
- ◇ the Coastal Area Resources Development Plan (1988).
- ◇ the formation and activities of the Special Parliamentary Committee on Coastal Area Development (1988-90); and
- ◇ national capacity building on ICZM initiative (1997)

All these initiatives gradually prepared the ground for the government's initiative in 1999 to embark on a process of ICZM. In that year, the government expressed its commitment through a policy note titled 'Integrated CZ Management: concept and issues' to prepare for a plan for the operational and effective introduction of ICZM in Bangladesh (MoWR 1999). The conceptual approach as formulated in the policy note was further elaborated through a Joint Mission of the Bangladesh Government, the IDA and the Netherlands Development Assistance. Eventually, the preparatory phase for introducing ICZM in Bangladesh formally started from February 2002.

1.2 The approach

The key elements of the ICZM approach are participation; partnership; targeting; developing PIPs and assessment.

² PDO-ICZMP 2005. Coastal land use and Indicative Land Zones, WP 040; June 2005.

Participation

In order to facilitate participation of coastal communities, the livelihoods approach has been adopted. This provides a structure where coastal communities discuss their priorities and participate in the decision-making and implementation.

Partnership

The partnership approach to development is a process under which organizations work together and get things done in a collaborative way for the common good. Broadly, four elements constitute the foundation of partnership: commitment, mutual benefits, governance structure and networking (PDO-ICZMP 2004d). Such partnerships can be functional by involving local administrative bodies and grass-root organizations in planning and implementation.

Targeting

ICZM is not a single generic recipe for the entire coast nor does it seek to address all problems and issues. Taking into account the present 'institutional environment', the limited resources available and the incipient stage of the ICZM process, targeting is important, specially in relation to areas, social groups, issues and opportunities:

Target areas

- ◇ *regions* (islands and chars; exposed coastal zone / districts; high tsunami risk area South-West region);
- ◇ *disadvantaged groups* (erosion victims, women and children, fisher and small farmers);
- ◇ *issues* (shrimp/salt cultivation, land zoning, and groundwater management, climate change); and
- ◇ *opportunities* (tourism, renewable energy, marine fisheries)

Developing PIPs

Develop PIPs by groups of government agencies through multi level consultation, which will also be implemented by these agencies. This is a important component of institutionalizing ICZM approach that depends on networking with government and non-government organizations, local government institutions and development partners.

Assessment

Achievement of targets are assessed on the basic of indicators developed to measure progress on different dimensions. An impotent mechanism is to periodically monitor progress on the basis of the indicators and use the findings as feedback to the project cycle for removing the identified bottleneck.

Based on the approach described above, the process of ICZM is structured through three-tier outputs: a policy, a strategy and a priority investment program.

- ◇ The first tier is the Coastal Zone Policy (CZPo) approved by Government of Bangladesh on 17 January 2005, which creates the policy framework. It describes common goals, overall development objectives and establishes the basis for the institutional environment.
- ◇ The CDS forms the second tier. As the main mechanism for implementation of the CZPo, it describes approaches for realistic translation of policies into concrete actions. It sets targets for priority actions and arrangements for their implementation and assessment framework. It

describes about building a process to implement policies, not preparing a classic master plan. The CDS is updated to accommodate changes in the Coastal Zone and changes in the priorities of the Government, if necessary.

- ◇ The third tier consists of concrete proposals for projects and actions, program in a well structured Priority Investment Program (PIP).

1.3 The Coastal Zone Policy 2005

The CZPo, the first tier, was approved at the cabinet meeting on January 17, 2005 (MoWR 2005). This policy document was formulated through a process of multi-level consultation over a period of two years.

The CZPo is built on different sector policies of the Government of Bangladesh³. The policy states that the coastal development process aims to comply, on an overall basis, with: the National Goal for Accelerated Poverty Reduction (PRSP); the Millennium Development Goals (MDGs), the Code of Conduct for Responsible Fisheries and with other international conventions and treaties.

The CZPo establishes the goal of integrated CZ management: “*to create conditions, in which the reduction of poverty, development of sustainable livelihoods and the integration of the CZ into national processes can take place*”.

More specifically, the following development objectives are determined in the CZPo:

- a. ***economic growth***;
- b. ***basic needs*** and opportunities for livelihoods;
- c. reduction of ***vulnerabilities***;
- d. ***sustainable management*** of natural resources;
- e. ***equitable distribution***;
- f. ***empowerment*** of communities;
- g. ***women’s development and gender equity*** and
- h. ***conservation and enhancement*** of critical ecosystems.

1.4 Attributes of the CDS

The CDS is the “linking pin” in the ICZM process, linking the CZPo with concrete development programs and intervention. In general terms, objectives of the CDS are: *to select strategic priorities and actions in implementation of the CZPo with emphasis on the creation of the institutional environment that will enable GoB to embark on a continuous and structured process of prioritization, development and implementation of concerted interventions for the development of the CZ.*

Following the *holistic approach*, outlined in 1.2, CDS does not provide one overall framework and recipe for all development actions in the CZ. The CDS describes priorities and targets based on CZPo objectives, the problems and issues in the CZ and the available resources. In such a *selective* approach the CDS aims to be *complementary* to the ongoing but often fragmented activities of many government agencies, NGOs and development partners, focusing on participation and partnership.

In doing so, the CDS goes beyond the traditional “one-shot approach” and facilitates a *continuing planning process* for the government and development partners. The CDS is thus an evolving document. It gives guidance to action plans and should be revised periodically, at least once in five years, adapting to changing problems, priorities and means for interventions.

³ These policies are: the Environment Policy and Implementation Plan (1992); the National Tourism Policy (1992); the Livestock Development Policy (1992); the National Forestry Policy (1994); the National Energy Policy (1996); the National Education Policy (1997); the National Policy for the Advancement of Women (1998); the National Fish Policy (1998); the National Policy for Safe Water Supply and Sanitation (1998); the National Water Policy (1999); the National Agricultural Policy (1999); the Industrial Policy (1999); the National Shipping Policy (2000); the National Health Policy (2000); the National Rural Development Policy (2001); the National Land Use Policy (2001); the National Policy on Information and Communication Technology (2002); the National Energy Policy (2004) and the National Policy for Arsenic Mitigation (2004)

The CDS is built on existing national sectoral strategies and plans⁴ (detailed in **Annex B**) and the document on National Strategy for Accelerated Poverty Reduction (PRSP) (GoB 2005).

The PRSP acknowledges the CZ as a special focus area that is distinct in many respects and indeed suggests for special attention (**Annex C**). The document very well acknowledges the fact that “*there is considerable interface between the persistence of chronic poverty and unfavorable agricultural environments, (e.g. salinity-prone, flood-prone, river-erosion prone, drought-prone areas)*”. The PRSP document is very specific not only to mention ‘Implement Integrated CZ Management Plan (ICZMP)’ but also ‘Implementation of Priority Investment Programme (PIPs) to be developed under Integrated CZ Management Plan Project (ICZMPP)’.

The strategy *prepares* for the third tier: priority investment program. The PIP is a portfolio of possible programs and interventions. The PIP is structured in the form of Concept Notes (CNs).

Though projections and developments are considered over a period of 25 and even 50 years, the time horizon for the CDS-planning is 5 years.

Like the CZPo, the CDS has also been formulated through a process of multi-level consultations and reviews (detailed in **Annex D**).

- An annotated and extended outline was prepared in August-September 2004. In preparing this outline, all relevant documents were reviewed.
- The outline was presented at a national and four regional consultation workshops in October 2004.
- Based on workshop recommendations, the first draft was prepared in February 2005 and sent to all focal points and members of the task forces.
- ‘CDS highlights’ was disseminated through Coast News and posted on the website.
- Comments and suggestions were solicited from general people through a *public announcement* in four national dailies (February 2005).
- The draft was presented during March -April 2005 at 28 consultation meetings: 3 remote chars/islands, 3 selected unions, 3 selected upazilas and 19 coastal district headquarters. These consultations contributed in further revision of the draft CDS, including strategic priorities and prioritization of concept notes.
- A *Peer review* of the draft by selected experts was organized in June 2005.
- The draft was presented to the Members of Parliament in July 2005
- The draft was presented at the 8th inter-Ministerial Technical Committee meeting and finally endorsed at the 9th inter-Ministerial Technical Committee meeting held on October 16, 2005.

Based on relevant conceptual documents, CZPo, multi-level consultations, dialogue with relevant government and non-governmental organizations and comments received on earlier drafts, nine strategic priorities and three routes of implementation have been adopted in this CDS.

1.5 Nine Strategic priorities

Development objectives, described in the CZPo, have been translated into nine strategic priorities. Table 1.1 gives a schematic overview how the policy objectives relate to strategic priorities. Each strategic priority is briefly described in subsequent paragraphs.

⁴ Sustainable Environment Management Plan 1998-2005, Forestry Master Plan & Integrated Forest Management Plan 1993-2012, Development Strategy & National Water Management Plan (2001), Bangladesh Tourism Vision 2020 (2004),

Table 1-1: Linkage between CZPo objectives and strategic priorities

Strategic priorities	CZPo objectives							
	Economic growth	Basic needs and opportunities for livelihoods	Reduction of vulnerabilities	Sustainable management of natural resources	Equitable distribution	Empowerment of communities	Women's development and gender equity	Conservation & Preservation of critical ecosystems
Ensuring fresh and safe water availability (in the context of regional water resources management)								
Safety from man-made and natural hazards								
Optimizing use of coastal lands								
Promoting economic growth emphasizing non-farm rural employment								
Sustainable management of natural resources								
Improving livelihood conditions of the people specially women								
Environmental conservation								
Empowering through knowledge management								
Creating an enabling institutional environment								

- Ensuring fresh and safe water availability (in the context of regional water resources management).* The conditions of the water resources systems (WRS) in the CZ are a decisive factor for social and economic development. Lack of availability and access to safe drinking water is a major issue, reaching to a crisis level in the south-west. The reasons are reduced inflow of fresh water causing saline water intrusion, over-extraction of groundwater, and prolonged drainage congestion. This strategic priority calls for a blending of local knowledge with technical expertise for a sustainable use of the regional water resources systems through a participatory and partnership approach at all management levels. Adoption of the Tidal River Management (TRM) has evolved through such participatory and partnership approach. Proposed interventions are adapted to region-specific hydrological and water use conditions and are in line with the priorities in the National Water Management Plan. A better understanding and management of the groundwater aquifers are of crucial importance.
- Safety from man-made and natural hazards.* The CZ of Bangladesh is a zone of multiple vulnerabilities. The challenge is to evolve a long-term comprehensive disaster management program that facilitates risk management and enhances coping capability of coastal communities. Better preparedness has paid dividends in reducing death tolls in recent cyclones.
- Optimizing the use of coastal land.* Land use in the coast is diverse, competitive and often conflicting. Erosion of land is a common feature, especially in the Meghna estuary and on islands. Land is also degrading due to increased salinity and water logging. Moreover, new lands are accreting and

gradually developed. Acceleration of land accretion process and optimum use of these coastal lands would significantly contribute to the regional economy and well-being of the local people. Land zoning is one instrument that optimizes the use of coastal lands. The GOB has accepted an indicative land zoning for the coast (PDO-ICZMP 2005c).

- *Promoting economic growth emphasizing non-farm rural employment.* Employment opportunities in traditional agriculture are declining. Non-farm employment has to be generated and promoted. Employment opportunities have to be created in specialized coastal agriculture, coastal aquaculture, industry and tourism development⁵.
- *Sustainable management of natural resources.* Presently, fish and forest resources are not sustainably exploited; their depletion is highly alarming. Resources are becoming scarce and less accessible to the poor. It is an imperative to take suitable measures for their conservation and sustainable exploitation.
- *Improving livelihood conditions of the people specially women.* Based on adopted livelihoods framework, safety nets should be strengthened in the CZ and should be development-oriented rather than relief-oriented. Through better combinations of employment opportunities, capacity building and safety net measures, more could be done for poverty reduction with special focus on women and children.
- *Environmental conservation.* Major thrust areas are: conserving coastal ecosystem, biodiversity, pollution control and mitigating climate change impacts. Meaningful conservation shall be enforced in respect of critical ecosystems including ECAs, heritage sites including the Sunderban and marine reserves. Efforts shall be made to harmonize the provisions of different laws to protect and preserve the coastal environment and its resources. Linkages with the newly activated 'Climate Change Cell' and the formulation and implementation processes of the 'National Adaptation Plan of Action (NAPA) for Climate Change will be maintained.
- *Empowerment through knowledge management.* Knowledge and understanding of coastal conditions are of strategic importance to ICZM. Many agencies and stakeholders, ranging from local beneficiaries to high level decision making institutions, are involved in the collection, analysis and dissemination of knowledge. Under ICZM, knowledge management will be structured as a two way process between all parties involved in which special emphasis will be given to reach the people in the coast (social communication). Knowledge at household level (for example on expected changes in their direct environment, existing safety net procedures or intended government actions) is considered an important asset, helping households to reduce their vulnerability.
- *Creating an enabling institutional environment.* Institutional arrangements will be so designed as to create the *conditions and instruments* for all the partners involved in the ICZM process to work together. More specifically these include: (i) the organizations with their mandates, capacities and capabilities; (ii) arrangements and procedures for such issues as: communication and coordination; financing; monitoring and evaluation; and (iii) tools that enable and support ICZM. These relate to all levels of government including local government and to all functions of management: policy making, planning, implementation, monitoring and evaluation. Participatory role of NGOs, CBOs and the private sector is also important.

1.6 Three strategic routes

The three equally important routes towards implementing nine strategic priorities, described above, are mainstreaming, investments and governance.

⁵ PDO-ICZMP 2005. Generating Sustainable Employment in the Coastal Zone of Bangladesh – present situation and future potentials. WP 042. July 2005.

- *Mainstreaming.* This attempts to embed ICZM approaches in mainstream national policies, strategies, plans and development programs. The purpose of mainstreaming is to make implementing organizations aware of the benefit in ICZM approaches and to support these organizations in developing and implementing such approaches through identification of coast-specific projects, monitoring the coastal developments and becoming sources of information. The emphasis is to incorporate more and more coast-specific projects/programs in ADPs (Annual Development Plans), TYRPs (Three Year Rolling Plans) and the PRSP (Poverty Reduction Strategy Paper).
- *Investment Program.* This relates to both public and private sector investments. Proposed public investments are *complementary* to the ongoing and planned activities in the CZ and relate to strategic priorities. It is important to coordinate their preparation and implementation.
- *Governance.* The enabling environment encompasses institutional arrangements for coordination of planning, implementation, monitoring and evaluation, both at national and local levels. An indicative governance mechanism has been presented in the CZPo. The CDS focuses on:
 - ◇ models of good practice of the country;
 - ◇ the establishment of the Program Coordination Unit (PCU) and designing the regulatory and support structure, including: the CZ Development Board / the National Council, the inter-ministerial Steering and Technical Committees (SC and TCs);
 - ◇ the mechanisms and procedures for a coordinated planning and implementation at the local level through district and upazila development co-ordination committees and local government institutions (LGIs);
 - ◇ the mechanisms and procedures for a coordinated involvement of NGOs, CBOs and private sector;
 - ◇ an assessment mechanism based on measurable indicators; and
 - ◇ a legal framework
- The framework of the CDS is elaborated in the following three chapters: mainstreaming of ICZM (chapter 2); investment program- public and private sectors (chapter 3); and governance - enabling institutional environment (chapter 4). Finally, Chapter 5 deals with implementation of the CDS.

2 MAINSTREAMING ICZM

As mentioned before, one of the strategic routes in the implementation of ICZM is its mainstreaming. Efforts will be made to implement ICZM programs through the existing GoB agencies and their mechanisms for policy formulation, project prioritization, implementation, continuous planning and monitoring. The social and economic development goals for the CZ to reduce poverty and enhance economic growth do not differ from those of the country as a whole. The main emphasis is to mainstream coastal needs and issues into national and sectoral programs.

Many documents identify readiness of agencies, institutions, and development partners working in Bangladesh to mainstream ICZM, as a process of harmonization and co-ordination:

'We have taken initiatives for development of an Integrated Coastal Zone Management Program (ICZMP). 'Coastal Zone Management Board' be constituted in every coastal district to implement the (aforementioned) integrated management' [National Report for the WSSD, 2002, Ministry of Environment & Forest, August 2002]

'The Integrated Coastal Zone Management Programme offers a unique chance to integrate a shrimp sector policy within a framework policy document for the coastal zone and improve interagency co-operation' [Shrimp aquaculture in Bangladesh: a vision for the future, Department of Fisheries, Ministry of Fisheries & Livestock, October 2002]

'In the long run, the Integrated Coastal Zone Management (ICZM) concept will be essential for ensuring sustainable development of the project's polders' [Implementation Completion Report for a Coastal Embankment Rehabilitation Project, World Bank, March 2003]

The United Nations Development Assistance Framework in Bangladesh (2006-2010), signed by all UN agencies active in Bangladesh (UNDP 2005), expressed its aim to support GoB to develop and implement an *"integrated plan for the management of coastal areas and wetlands (ecologically critical areas)."*

Mainstreaming of ICZM will be: *a set of activities that promote a better understanding of the needs of the CZ through building partnership among existing organizations and stimulate and support CZ oriented initiatives of these organizations.* The CZPo sets the common goals and creates the national commitment as well as the reference framework for mainstreaming ICZM.

Mainstreaming focuses on the planning efforts at national level and the approaches by line agencies. In addition, mainstreaming addresses cross-cutting national issues, supporting multi-sectoral regional studies and developing partnerships. The above activities are elaborated further in the following sub-sections:

2.1 National planning

At national planning level, Bangladesh is in transition from a rather static 5-year planning approach to a dynamic system of three-year rolling development plans under the umbrella of a National Strategy for Accelerated Poverty Reduction (GoB 2005). A mechanism of continuous feedback, through the use of indicator framework, will be established for incorporation of coastal issues in development plans. The target is to have the CZ and the institutionalized structure for ICZM fully recognized in the national planning process and incorporated in sector strategies.

The purpose of mainstreaming ICZM is to make government and non-government organizations aware of special needs and potentials of the coast and support these organizations in developing and implementing sectoral strategies accommodating coastal issues.

2.2 Cross-cutting national issues

There are several cross-cutting issues that are important for the social and economic development of the CZ. Some of the important ones are discussed below:

2.2.1 Women and Children

Although the Gender Development Indicators in Bangladesh in recent years have shown encouraging upward trends in development, the majority of women in the CZ, as elsewhere, are still outside the development fold (detailed in **Annex E**). On the basis of three major variables, namely total population, literacy rate and proportion of economically active population, CPD-UNFPA has developed a Gender Related Development Index and has ranked the districts according to gender disparity⁶. Only two districts, Satkhira and Shariatpur, fall under high disparity.

Women's advancement and removing gender gaps is an explicit and important issue in the PRSP and also in the CZPo. Efforts will be made to bring the special position of women in the coast to the attention of these national programs. Specific programs that have been suggested for the women of the CZ are: skill training for female fish processors in Cox's Bazar and training of women members of upazilas and pourashavas. Mainstreaming of women and children issues will be done by incorporating special components in each of coastal projects and programs.

2.2.2 Urban coastal areas

From the present urban population of only 8.5 million, it will be 12.8 million in 2015 and 30.2 million in 2050. This is 23 percent of the total population in 2001, 29 percent in 2015 and 50 percent in 2050. In 2050, 30% of the urban population will live in two major urban centers, Chittagong and Khulna. Growing urbanization has its own demand for service provisions including increased demand for housing, energy, waste management, drinking water etc. About 0.26 million new jobs will be needed annually of which 0.20 million alone in urban areas. The PRSP (2005) identified that the special needs of urban poor of the coasts are: primary education program for the poor; a health and nutrition program for slum dwellers; and urban waste management projects. Apart from NGO programs, some of the existing initiatives are:

- Local Partnership for Urban Poverty Alleviation Project
- Basic Education for Hard to Reach Urban Children
- Environmental Sanitation, Hygiene & Water Supply in Urban Slums & Fringes Project
- Water Supply, Sanitation, Drainage and Waste Disposal Project
- Rehabilitation and Upgrading of Water Supply System in Paurashavas
- Day Care Center for the Children of Working Mothers at District Towns

The Government has established specifically 'Bangladesh Municipal Development Fund' for urban area development. Urban development and issues cannot be addressed in isolation. There is a need to mainstream these issues in a holistic way, specially in relation to rural-urban migration, market linkages etc.

2.3 Multi-sectoral regional studies/plans

The importance of regional studies, in the context of overall ICZM framework, has been spelled out and elaborated, for example, in the Formulation Mission report for the Char Development & Settlement Project⁷. Findings from these proposed studies will provide guidelines, targets and boundary conditions

⁶ CPD-UNFPA 2002. Gender Related Development Index for 64 districts of Bangladesh. CPD, October 2002

⁷ Char Development & Settlement Project, Extension Phase 2005-2009, Joint Bangladesh-Netherlands Formulation Mission, Final Report, June 2004.

and will be mainstreamed into individual projects and programs planned for the area. Implementation of these multi-sectoral studies is, the mission argues, usually beyond the scope of individual projects/agencies. This gap needs to be covered through regional studies carried under the auspices of the PCU. Proposed regional studies are:

- Vision for future char development & settlement
- Resource inventory of the EEZ and its management plan
- Coastal groundwater management plan
- Detailed assessment of the tidal river management (TRM) in the southwest
- Compendium on polder development and settlement
- Model development for coastal zone (i.e. erosion prediction, flood forecasting, land accretion and degradation and river morphology)

An important mechanism to be promoted by ICZM to address these cross-cutting issues and studies is the development of partnerships for an institutionalized mechanism to “learn” from experiences.

2.4 Partnership building

A critical success factor of the ICZM process is its ability to develop partnership among many and varied stakeholders. Instituting such a system of management requires greater involvement of line agencies to ensure line agency buy-in and to develop a widely-based constituency for an ICZM process. In the past, a limited partnership building has been attempted. This process needs to be mainstreamed to continuously identify existing strengths, weaknesses, opportunities and challenges among the stakeholders and build on past success stories. Focal points, at different agencies, should be made instrumental in forging stronger partnership.

An important mechanism of forging partnership process is through data, information and knowledge sharing. It has been initiated to establish linkage between newly developed ICRD with projects/agencies database and should be continued. In Char Development & Settlement Project-III, this linkage of databases will be established, tested & operationalized. Further establishing ‘Resource Centre’ where coastal zone management related books, reports and documents from Bangladesh and Overseas countries will be maintained. This will become a reference center for all coastal managers.

Through partnership building, efforts will be made to pursue agencies to undertake and implement coastal projects through sectoral allocations in Annual Development Programs (ADPs) and the Three Year Rolling Plan (TYRP). Departments or agencies active in the CZ are the Bangladesh Water Development Board (BWDB) the Local Government Engineering Department (LGED), the Department of Fisheries (DOF), the Forest Department (FD), the Department of Agricultural Extension (DAE), the Department of Environment (DOE), the Disaster Management Bureau (DMB), the Department of Public Health Engineering (DPHE), the Coast Guards (CG), the Bangladesh Parjatan Corporation (BPC), the Bangladesh Navy (BN), the Department of Livestock Services (DLS), the Directorate of Land Records and Surveys (DLRS), the Bangladesh Rural Development Board (BRDB), the Department of Women and Children Affairs (DOWCA), the Palli Karma Sahayak Foundation (PKSF), the Bangladesh Bureau of Statistics (BBS), the Space and Remote Sensing Organization (SPARSO), the Bangladesh Shipping Corporation (BSC), the Bangladesh Meteorological Department (BMD), the Survey of Bangladesh (SoB), and the Port Authorities.

Not all interventions are multi-sectoral in nature and can be implemented by individual agencies themselves. An attempt has been made to indicate such projects that can be instrumental in overall coastal development (see **Table 2.1**). These have emerged from the interactions with individuals and institutions in the CZ during the CDS preparation. It should be reemphasized that the projects are simply indicative and mainly uni-sectoral in nature. Agencies will be pursued to undertake and implement these projects.

Table 2-1: Indicative List of Project that can be implemented by agencies themselves

Indicative Project Titles	Agencies
Popularizing crab, shell and pearl cultures as means of livelihoods among coastal communities	DOF
Create small water reservoir to capture tidal water to enhance minor irrigation	BWDB, LGED and BADC
Introduction of community participated mangrove forestry program	FD
Understanding and formulating a program on 'Coastal Agriculture' as a distinct approach in agricultural management	MOA DAE
Establishment of risk management efforts in identified tsunami high risk zone	DMB
Construction of killahs in char lands	DMB LGED
Dredging of main rivers and channels for inland navigation	BIWTC
Training of local people as tour guides in tourism zones	BPC
Create awareness regarding responsible ecotourism to visitors to ECAs	DOE BPC
Establishment of deep sea port at Moheshkhali / Kutubdia	MOS
Introduction and support to environment friendly ship breaking (recycling)	MOS
Introduction of ferry services between mainland and islands and among islands	BIWTC
Establish earthquake measuring stations including tsunami warning system	BMD
Formulation of land zoning regulations	MOL
Extension of improved salt production technology and facilitating farmer's co-operatives	BSCIC

2.5 Regional co-operation

Besides being a signatory to many international treaties, Bangladesh is a member of international organizations with a variety of objectives, that often have a bearing on the coastal zone, such as:

- ◇ the International Labour Organization (ILO), especially focusing on safety for port workers and marine labourers;
- ◇ the International Maritime Organization (IMO), promoting safety at sea, as well as efficient shipping;
- ◇ United Nations Environmental Program (UNEP)
- ◇ various United Nations programs (such as ESCAP);
- ◇ various international programs (such as LOICZ) and
- ◇ various regional programs (such as BOBP, SAARC and SACEP).

During the eighties, ESCAP was instrumental in preparing the 'Coastal Environmental Management Plan for Bangladesh' (ESCAP, 1987). SAARC Coastal Zone Management Centre has been inaugurated in June 2005. Bangladesh program is mainstreamed into these global, international and regional programs.

3 INVESTMENT PROGRAM AND FINANCING STRATEGY

The Government has expressed its commitment to support investment in the CZ through implementation of the PRSP (GoB 2005) that not only broadly commits to ‘Implement Integrated CZ Management Plan (ICZMP)’ but also specifically mentions about the ‘Implementation of Priority Investment Programme (PIP) to be developed under Integrated CZ Management Plan Project (ICZMPP)’.

The United Nations Development Assistance Framework in Bangladesh (2006-2010), signed by all UN agencies active in Bangladesh (UNDP 2005), expressed its aim to support GoB to develop and implement an “integrated plan for the management of coastal areas and wetlands (ecologically critical areas).”

The investment program is the second of the three equally important routes for implementation of the CDS. This program relates to both public and private sectors. For formulating public sector investment program, strategic priorities, elaborated in Chapter 1, remained as the basis for identifying specific projects. For private sector, only indicative areas have been identified. Finally, in this chapter, financing strategy is also elaborated.

3.1 Public Sector Programs

Public sector investments are usually declared through ADP, backed up by the TYRP. ADP is a list of projects and programs, proposed by individual agencies through respective ministries and finally selected by competent authority on the basis of national priorities and sectoral resource allocations.

Through a multi-level participatory consultation and following agreed criteria and procedures (elaborated in **Annex F**), a total 32 projects have been identified and presented in the PIP. In developing concept notes and the PIP, interest and commitment of government agencies remained crucial and vital. In plain words, a project concept, despite its immense viability, importance & popularity, has not been included in the PIP in the absence of agency interest. This has ensured continued commitment of agencies in pursuing the projects for their approval and inclusion in ADPs.

Inclusion of projects in the PIP does not mean an automatic financing under the umbrella ICZM framework. Funding has to be sought from the Ministry of Finance and/or development partners by following the established GOB and donor procedures.

In this section, each of the nine strategic priorities is translated into 2-5 proposed investment projects. Each subsection starts with a few preamble paragraphs, followed by a list of existing or pipeline projects addressing the priority, 2-5 proposed projects (including lead and associated implementing agencies) and a time-bound table of targets.

Though interventions are identified and described under one strategic priority only, it is emphasized that most of them relate to different priority issues. For example, “Integrated water resource management of Greater Noakhali”, described under “ensuring fresh and safe water availability”, also serves many of the other issues, such as “safety from man-made and natural hazards” and the “improving of livelihood conditions”.

3.1.1 Ensuring fresh and safe water availability

As mentioned before, the availability of fresh and safe water is considered as the most critical issue. This is linked to people’s vulnerability and the prospect for economic development of the CZ (for many industries, the availability of and access to fresh water is an essential condition). The only reliable source of fresh water in the coastal areas is the deep-water aquifer, which is under high risk of being mined or becoming infiltrated with salt or arsenic contaminated water. Adequate knowledge on the deep-water aquifer is still absent.

A central theme of the MDGs is the provision of sustainable services for urban and rural water supply and sanitation. An essential prerequisite is the development and promotion of small-scale alternative to fresh water supply systems, such as rainwater harvesting and pond sand filter techniques.

In relation to water availability, unilateral withdrawal of water upstream by India has already caused severe water stress in Bangladesh during the dry season. This situation may further worsen if the Indian River Linking Project is executed by India. While Bangladesh will continue to demand its rightful share of water from international rivers, the government needs to take initiatives for effective management of available fresh water. Implementation of the proposed 'Ganges Barrage Project' and/or the 'Gorai River Restoration Project' are crucial for effective management of available fresh water.

For effective management of water resources, the Government has adopted the National Water Management Plan (NWMP). Regional programs figure predominantly in NWMP's development strategy and the development of regional integrated management plans with decentralized management systems is identified as one of the strategic regional issues. ICZM also considers an integrated and decentralized approach as an important mechanism for addressing the growing water resources problems in the coastal regions and sub-regions. Relevant issues are siltation of rivers and drainage channels, drainage congestion, salinity intrusion and tidal river management.

In this context, the following interventions related to CZ are on-going or in pipeline.

- ◇ Southwest Area Integrated Water Resources Planning & Management Project
- ◇ Integrated Planning for Sustainable Water Management (IPSWAM) project (1999-2006)
- ◇ Water Management Improvement Project
- ◇ Bangladesh Arsenic Mitigation Water Supply Project (1998-2006)
- ◇ GoB-DANIDA Arsenic Mitigation Project (2001-2006)
- ◇ Rural Water Supply and Sanitation Project in Coastal Area (GoB-DANIDA) (1999-2006)
- ◇ Small Scale Flood Control, Drainage and Irrigation Project (Phase-II - 27 sub projects) (1997-2006)
- ◇ Mohora Water Supply Project (2003-2007)
- ◇ Second Small Scale Water Resources Development Sector Project (2001-2008)
- ◇ IDB Assisted Water Supply Project in the Coastal Belt of Bangladesh (Phase II) (2003-2006)

In view of the above, concept notes have been made on the following projects/programs:

- *Strengthening Sanitation and Safe Water Supply Programs in Arsenic and Salinity Affected Areas (in selected 10 upazilas of the coastal zone).* The coastal zone of Bangladesh is the most affected due to high salinity and arsenic contamination in groundwater. Water salinity and groundwater contamination is in alarming situation in the coastal area due to high arsenic concentration. The coastal people especially the children and women suffer in ailments related to unsanitary conditions and lack of personal hygiene. The overall goal of this project is supplying convenient arsenic and salinity free water for the people in the coastal zone, and providing sanitation facility to reach at 100% sanitation coverage specially one hygienic sanitary latrine for each family by 2010 as per plan of Government of Bangladesh. To increase awareness among the community for harvesting rain water as alternative sources of water supply and to motivate people in personal hygienic practices. The projects activities will be installation of tubewell, construction of low cost latrine for families, community latrine and school latrine, rally, miking & film-show for promotion of hygiene behavior and capacity building at community/ institutional/private/user level. The project will be implemented in ten (10) upazilas of six (6) districts in the coastal zone. The project will be carried out in 5 (Five) years, starting from early 2006. The project will be implemented by Department of Public Health Engineering (DPHE) as lead agency, in collaboration with Department of Women Affairs (DWA). Linkage with LGIs and NGOs will be established during implementation.
- *Ground Water Management in the CZ of Bangladesh.* Deep aquifer is the only safe source of fresh water in the exposed districts of the CZ. Its uncontrolled use might lead to exhaustion of this resource

in the near future. Management of groundwater has to be based on a better understanding of the available resource and the present and future demand for it. Main components of the proposed project are geological study, hydro geological investigation and development of Database and Interactive Information System (IIS) including user-friendly maps and guideline for groundwater use. [Agencies involved : DPHE (lead), GSB, BWDB, CEGIS and IWM]

- *Integrated water resource management of Greater Noakhali.* The area suffers from flood due to drainage congestion. Over the years, land accretion has taken place around south of Noakhali and newly formed lands have elevations above the middle and northern areas in Begumganj-Laksam area. Moreover, many village roads and projects have been implemented in the proposed area without considering the needs of the over all drainage systems. The drainage regulators, which were constructed long ago at the outfalls of some main drainage channels are now overloaded by the extra discharge from newly accreted lands as well as from the overlapping of catchment areas. The combined effects of all these factors have led to serious drainage congestion in the greater Noakhali area. This project aims at comprehensive development of the rural area through infrastructure development (including planning, implementation and monitoring) and rationalizing the existing projects. The major activities would include water management, removal of drainage congestion, control monsoon flooding and saline water intrusion, strengthen safe and equitable access to water for production, health and hygiene, facilitate capture and culture fishery, strengthen agricultural development, promote stakeholder participation and multipurpose use of the embankments/*bundh*; and develop a long-term inter-district sustainable mechanism (structure and procedures) for IWRM of the area. The proposed project components will deal with water control structures (old and new), regular maintenance and rehabilitation, plantation, re-excavation works, setting up communication network and support to agriculture and fisheries development. Under the auspices of the project some specific studies will also be carried out [Agencies involved : BWDB (lead), DAE, DoF, FD, LGED, DPHE and BRDB]
- *Integrated drainage improvement of tidal influenced southwest region of Bangladesh.* The project aims at applying the Tidal River Management (TRM) technique developed and implemented successfully in the Khulna-Jessore Drainage Rehabilitation Project. The proposed project will mainly focus on sustainable solution of the drainage congestion and siltation problem in Khulna, region (Khulna, Jessore, Satkhira, Gopalganj, Bagerhat etc.). The recently developing flooding problems that occur due to flows from outside of the country are also a concern to deal with. Along with application of TRM, the project would also consider all possible alternatives for long-term solutions like dredging, excavation and river linking. An important aspect would be further institutionalization of the water management and other related organizations. The project will deal with different options for integrated management to reduce drainage congestion in the low lying beel areas, rivers and channels, and to conserve and enhance ecosystem of the region in order to improve the living conditions of the people and reducing their poverty level. [Agencies involved: BWDB (lead), LGED, DoF, DAE, FD, DPHE and BRDB]

Table 3.1 summarizes the proposed ICZM action programs with time-bound targets to materialize the above strategic priority.

3.1.2 Safety from man-made and natural hazards

The Ministry of Food and Disaster Management is the focal ministry for risk management. A number of other organizations are mandated to oversee one or the other aspects, including coping mechanism. The Ministry has released an Action Plan to enhance capacity building and upgrade response mechanism by detailing a framework of action for 2005-2009. A 'Climate Change Cell' has been established at the Ministry of Environment & Forests.

Table 3-1: Interventions for ensuring fresh and safe water availability

Type of intervention	Proposed action under ICZM	Targets
Sanitation and safe water supply	- Strengthening Sanitation and Safe Water Supply Programs in Arsenic and Salinity Affected Areas (in selected 10 upazilas of the coastal zone)	-2006: Approval process -2007: implementation
Effective system of groundwater management	- Ground Water Management in the CZ of Bangladesh	- 2007: formulation of a groundwater management plan - 2008: start implementation of groundwater management mechanisms
Regional integrated water management plans (hydrological regions)	- Integrated water resource management of Greater Noakhali	- 2006: regional strategy developed - 2007: start investments and implementation of management structure
	- Integrated drainage improvement of tidal influenced southwest region of Bangladesh	- 2006: planning and design completed - 2007: start investments and implementation of management structure
	- Implementation of the Gorai River Restoration Project	- 2006: start of investment

The challenge is to evolve a long-term comprehensive disaster management program that facilitates risk management and enhances coping capability of coastal communities. Better preparedness has paid dividends in reducing death tolls in recent cyclones.

In this context, the following interventions are on-going or in pipeline in the CZ.

- ◇ Comprehensive Disaster Management Program (2004-2007)
- ◇ Construction of Multi-purpose Cyclone Shelter Centers (Phase-II) (1998-2006)
- ◇ Construction of Disaster Shelter in South-west region of Bangladesh (2000-2006)
- ◇ Cyclone Rehabilitation Project: Entire Coastal Areas (Phase-II) (2002-2006)
- ◇ Rehabilitation of Most Vulnerable Polders in Coastal Areas (2003-2006)
- ◇ Protection of Embankments from river erosion in Tazumuddin upazila of Bhola district (2003-2008)
- ◇ Jamuna-Meghna River Erosion Mitigation Project (2002-2009)

In view of the above, concept notes on the following projects/programs have been made:

- *Strengthening and rehabilitation of sea dykes.* Sea dykes (1000 km) have been constructed at locations facing the Bay of Bengal and along the banks of major rivers or channels. The dykes do not cover the entire sea coast, though they provide the first line of defense against storm surges and possible sea level rise. It is apprehended that by 2030 the sea level will rise by 30 cm. The maintenance cost of sea dykes is very high and presently the embankments are in a terrible state of disrepair. Given these vulnerabilities, it is imperative to strengthen and maintain these dykes. Components are risk analysis of sea dykes against the projected climate change scenario; prioritize the intervention measures and locations; new sea dykes if necessary (with relevant structures), regular maintenance program, etc [Agencies involved: BWDB (lead), FD, DoF, LGED and DoE]
- *Reduction of severe vulnerability in the Coastal Zone through multi-purpose cyclone shelters-including coping mechanisms.* Bangladesh suffers from various natural hazards of which cyclones and associated storm surges are unique to the coast. Cyclone associated risks are high; leaving an impact that in many cases is beyond repair. The combined wind and surge effects make the coastal population extremely vulnerable. These vulnerabilities create a context of insecurity, which in turn, discourage investments, limit economic activities and squeeze employment opportunities. In view of the above, identification of these vulnerabilities and adaptation of suitable coping mechanism is of prime importance and current demand of time. Activities under the proposed project include need assessment of cyclone shelters, socio-economic baseline survey, development of mathematical model

for prediction of impact due to storm surge, development of database and an Interactive Information System (IIS), design and development of cyclone monitoring system, construction of cyclone shelters, earthen killas and connecting roads, coastal afforestation using deep rooted fibrous plants, public awareness and communication. [Agencies involved: LGED (lead), DMB, BMD, BWDB, BRDB]

Table 3.2 summarizes the proposed ICZM action programs with time-bound targets to materialize the above strategic priority.

Table 3-2: Interventions for safety from man-made and natural hazards

Type of intervention	Proposed action under ICZM	Targets
Strengthening and rehabilitation of sea dykes	-inventory of sea dykes ▪ gap identification ▪ maintenance of sea dykes	- 2006: planning and design completed - 2007: start investments on new dykes and routine maintenance
Reduction of severe vulnerability in the Coastal Zone through multi-purpose cyclone shelters- including coping mechanisms	-inventory of existing cyclone shelters -design and plan of new shelters including strengthening of community houses -Construction of shelters -Strengthen coping mechanisms	-2005: inventory completed -2006: design & plan completed -2007: coping mechanism program implemented -2008: new constructions

3.1.3 Optimizing use of coastal lands

Land is the basic natural resource that provides habitat and sustenance. Land use in the coast is diverse and often conflicting: it is intensively used for agriculture, settlements, forests, shrimp ghers, natural fisheries, salt production, industrial and infra-structural developments and tourism. The coastal areas are ecologically important, as they provide a number of environmental goods and services to people. The coastal zone contain critical terrestrial and aquatic habitats, such as the mangrove forests, wetlands and tidal flats. Char lands also have special use. All these have resulted into the following features: demand for expansion in all land uses (urban area, settlement, shrimp etc.); increasing demands for new uses (tourism, export processing zones and others); conflicting land uses and demands, and encroachment and conversion of land from one use to the other. Considering these factors an indicative land zoning of the coast has been demarcated.

The population is increasing and the land is being converted from directly productive purposes, such as crop cultivation, to other uses like housing and roads and urban development. This trend is expected to continue. Present per capita agricultural land of 0.056 ha will be decreased to 0.025 ha by 2050. Land reclamation would possibly offer a new dimension of poverty alleviation by allocating new lands to landless people.

In this context, the following interventions are on-going or in pipeline in the CZ.

- ◇ Char Development and Settlement Project – III (2005-2009)
- ◇ Estuary Development Program (2002-2007)
- ◇ Rehabilitation of Most Vulnerable Polders in Coastal Areas (2003-2006)
- ◇ Hatiya-Nijhum Dwip Cross Dam project

In view of the above, concept notes on the following projects/programs have been made:

- *Development and settlement of accreted land.* Protection from cyclone damage afforded by the sundarbans natural mangrove forests led the Forest Department in 1966 to commence a programme of afforestation over the greater district of Chittagong, Noakhali, Bhola Barisal and Patuakhali. Mangrove plantation in the newly accreted Char lands, not only stable lands at the quickest possible time but also help enlarge the accreted areas. The success of the plantation programme resulted in setting some additional objectives like stabilization of land for agriculture, production of timber, pole

and fuelwood, creation of employment opportunity and development of suitable environment for wildlife, fishes and other estuarine and marine fauna. People in that area continuously become land-less facing erosion. There is no established system of providing stabilized lands and sustain living to these people. Land distribution strategies to the eroded and other land-less people are missing. There is no coordinated initiative, guideline and responsibilities by relevant GOB agencies in the settlement of the issue. The area suffers from fisheries and non-fisheries development in the coastal resources in an integrated and responsible manner. The proposed project aims at: Establish criteria for identification of land (different types), which are mature for agriculture and suitable for rehabilitation of land-less people; identification of newly accreted land along the waterline suitable for plantation and create/enhance plantation coverage; identification of FD land for settlement; establish a process for handing over lands from FD to DLRS to local Govt. (DC). Major activities will be limited within: Newly accreted land in the form of mud shall be utilized for planting mangrove plants; the existing mangrove forests shall be managed through participatory way; the degraded/depleted forests land shall be planted and which will act as green wall/wind break. Necessary infrastructure development for the rehabilitated people will be considered along with the integrated water resource management. Other facilities like education & health will be address too. It is experienced that a forest covered land takes about 20-25 years time to mature for settlement, but in some places/ islands/ charlands are vulnerable to high erosion causing very unstable condition in this limited time frame of 20-25 years. The proposed project will cover Barisal, Jhalokati, Pirojpur, Barguna, Patuakhali, Bhola, Lakshmipur, Chandpur, Noakhali, Feni, Chittagong and Cox's Bazar. [Agencies involved: FD (lead), MoL, BWDB, DoF, DPHE, LGED, DAE and DLRS]

- *Integrated management of coastal water infrastructures* . Once a coastal water *management* infrastructure is created, its operation and maintenance becomes the main concern for an optimal and equitable use of the coastal lands (in particular in coastal polders). A system of embankment maintenance with foreshore afforestation and fisheries and agricultural development has been proposed in 5 polders (P35/1, P48, P59/3C, P63/1A and P68) dispersed in different hydrological regimes. The embankment groups would get benefits out of the income generating activities around the embankments and these arrangements may lead to their proper maintenance.[Agencies involved: BWDB (lead), DAE, DoF, FD and LGED]
- *Coastal land zoning*. The diversified uses of Coastal land (agriculture, settlements, forests, fisheries, salt production) have resulted into conflicting land uses, degradation of coastal eco-system, encroachment and conversion of land from one use to the other. There are also demand for expansion in all land uses (urban area, shrimp ghers etc.) and increasing demands for new uses (tourism, export processing zones and others). The need for zoning has been emphasized in many policy documents of the government. The National Land Use Policy 2001 (Ministry of Land) specially highlights the need for definite guidelines and raises the possibility of doing coastal land zoning through an inter-ministerial taskforce. PDO-ICZMP of WARPO under the guidance of the MoL has initiated the process of coastal land zoning. An indicative land zone has been prepared recognizing diverse uses, such as, agriculture, shrimp cultivation (brackish and sweet water), salt production, forestry, urban and commercial area development and tourism (under the guidance of a technical support group formed by representatives from relevant government and non-government organizations). In the Land Use Implementation Committee meeting held on 13 February 2005 decisions were taken in favour of Detailed Land Zoning. The present Project Proposal / Concept Note has been prepared in consideration of this decision taken by the Ministry of Land (MoL). The Detailed Coastal Land Zoning could be considered as one of the proposed tools to help government in planning for maximize the use of land. Major activities of the proposed project would be data and mapping with GIS output, development of Coastal Land Zoning Information System, database, drafting of zoning law & village improvement Act, Regional and National level workshops. [Agencies involved: MoL (lead), BARC, DLRS, DoE, MoLGRD&C, WARPO, DoF, FD and SRDI]

- *Development of coastal agriculture in Bangladesh.* In Bangladesh over thirty percent of the net cultivable area is in the Coast. Development of coastal agriculture has potential to improve sustainable livelihood and congenial environment. The rigorous effort to develop the coastal agriculture focuses mainly on flood protection and crop production in the recent past. Apart from this, development intervention such as soil less agriculture can work without altering the natural environment and also promote the conservation of wetlands. Soil-less cultivation system (hydroponics system) has been traditionally practiced in the southwest region of the Coastal Zone for more than two centuries. More than 20 different kinds of vegetables and five different types of spices are cultivated in this hydroponics system. In view of the above, the proposed project aims at: increase agricultural production, adapt management practice for producing crops in saline soil, promotion and dissemination of soil-less cultivation system, proper utilization of wetlands, development of agro based industries. Major activities include: baseline survey, development of Knowledgebase and Agricultural Information System (AIS), development of infrastructure and physical facilities, expansion of soil-less agriculture, financial assistance to the beneficiaries, capacity building and training. [Agencies involved: DAE (lead), BRDB, BARC, SRDI, BWDB, BADC, LGED, BARI and relevant NGO]

Table 3.3 summarizes the proposed ICZM action programs with time-bound targets to materialize the above strategic priority.

Table 3-3: Interventions for optimizing use of coastal lands

Type of intervention	Proposed action under ICZM	Targets
Development and settlement of accreted land	-Development and settlement of accreted land including manual for the development of accreted lands and settlements	- 2007: management mechanism agreed - 2008: guidelines published - 2008: coastline management including land reclamation plan submitted
	- Char development and settlement projects	- 2008: at least two feasibility studies on new chars completed - 2009: start CDSP-IV
Integrated management of coastal water infrastructures	- Management of coastal water resources infrastructure	- 2006: Survey and design - 2007: A project on management of coastal water resources infrastructure: pilot project in 5 polders
Coastal land zoning	- Formalizing the zoning approach through the Ministry of Land	- 2005: decision on detailed land zoning
	- Detailed zoning in all coastal upazilas	- 2006: detailed zoning initiated - 2006: promulgation of zoning law
	- National plan for detailed zoning	- 2008:national plan prepared and approved
Development of coastal agriculture in Bangladesh.	Development of coastal agriculture (e.g., floating agriculture; saline tolerant crops; agrobased industries & marketing network)	- 2005: seminar on 'coastal agriculture' - 2007: comprehensive plan for coastal agriculture completed - 2008: start implementation

3.1.4 Promoting economic growth emphasizing rural non-farm employment

The rural non-farm (RNF) sector has registered impressive growth over the nineties. The green revolution driven growth in the grain sector, coupled with diversification into non-crop enterprises, prompted the growth of farm machinery manufacturing, servicing and ancillary services predominantly in the private sector. The RNF sector includes both farm oriented and non-farm oriented activities, encompassing rural manufacturing, transportation, trade and a whole range of services including employment in tourism. These different activities require different working conditions, skills, education and infrastructure support. To a large extent, increasing employment opportunities is an outcome of a self-propelling process that is focused on profit making. The role of government is to foresee and facilitate such developments and create conditions to enhance desired developments.

In this context, the following interventions are on-going or in pipeline in the CZ.

- ◇ Market Infrastructure Development Project in Charland regions (2006-2012)
- ◇ *Establishment of Karnaphuli EPZ at Chittagong Steel Mills Area (2004-2006)*
- ◇ Mongla Export Processing zone – 1st Phase (1998-2006)
- ◇ Noakhali Industrial Estate (2000-2006)

In view of the above, concept notes on the following projects/programs have been made:

- *Enhancement of coastal livelihoods through enterprise development.* Small and medium enterprise development in the coastal area is widely viewed as a prime vehicle for rapid development. Meanwhile, type and size of private sector enterprises are also diverse ranging from micro (one-person operation) to large (employing several hundred workers). Some activities that are unique to the CZ have already been assessed, and that assessment clearly leads to the conclusion that the opportunities in the CZ largely remained un-tapped. Attempt, therefore, will be made to implement projects in those un- and under-tapped areas such as floating agriculture, crab fattening, pearl culture, crocodile rearing, cage fingerling development, salt farming, wind mill, wood-based industries, boat making industries, Goal Pata- based industries, etc [Agencies involved: BRDB (lead), DoSS, BARC and BSCIC]
- *Tourism development in the CZ for improvement of livelihoods and poverty reduction.* There are a number of islands in Noakhali, Bhola and Patuakhali districts exposed to the sea. Among these are Damar Char, Nijhum Dwip, Manpura, Bashon Bhanga, Puber Char, Dhal Char, Sonar Char, Rupar Char, Char Patalia, Char Kukri Mukri, Totar Char, Char Kabir, Char Tufania and so forth. People have already settled on some of these and some are still virgin with mangrove plantations. The project will develop infrastructure necessary for the expansion of tourism in the islands of selected districts aiming at accelerating the pro-poor economic growth. Through multi-stakeholder participation, the project (by following the Bangladesh Tourism Vision 2020, BPC 2004) will develop the infrastructure (e.g., tourist resort, roads, launch and ferry ghats, drinking water supply, boating and angling facilities, bird and wildlife watching facilities, etc.) necessary for the tourism development. The project will involve the community in the tourism-based livelihood activities. [Agencies involved: BPC (lead), FD, LGED and DoE]

Table 3.4 summarizes the proposed ICZM action programs with time-bound targets to materialize the above strategic priority.

Table 3-4: Interventions for promoting economic growth emphasizing rural non-farm employment

Type of intervention	Proposed action under ICZM	Targets
Enhancement of coastal livelihoods through enterprise development	-enhancement of coastal livelihoods through supporting enterprise <i>development</i> -entrepreneurship training -support to selected trades	-2006: design and training -2007: implementation
Tourism development in the CZ for improvement of livelihoods and poverty reduction	-tourism development in the CZ for improvement of livelihoods and poverty reduction - tourist guide training - eco-tourism, support to cottages etc	-2006: design and training -2007: implementation

3.1.5 Sustainable and equitable management of natural resources

Over the years, uncoordinated development activities have led to the depletion of natural resources like fish and forests and overall degradation of the natural environment. These activities have also sometimes created conditions of scarcity for the poor and the disadvantaged by different kinds of social, economic, technical or institutional barriers which limit access to common property resources on which they are dependent for their livelihood. Natural resources in the CZ will have to be managed in a manner that will not only ensure their sustainability but will also secure access to the poor for meeting their livelihood needs.

This CDS focuses on the access of people to the sustainable use of these resources. Lack of access is an important aspect of people's vulnerability and poverty. However, it is equally important that such access does not in any way adversely affect the natural eco-system as well as the existing social relationships. In designing these interventions, balance must be maintained between the imperatives of poverty reduction and conservation of natural resources.

In this context, the following interventions are on-going or in pipeline in the CZ.

- ◇ Extension of Culture Technology of Marine Shrimp (1997-2006)
- ◇ Fourth Fisheries Project (1999-2006)
- ◇ Empowerment of Coastal Fishing Community for Livelihood Security Project (2000-2005)
- ◇ Greater Noakhali Aquaculture Extension Project (1994-2006)
- ◇ Patuakhali and Barguna Aquaculture extension Project (1994-2006)
- ◇ Community Based Fisheries Management Project (Phase-II) (2001-2006)
- ◇ *Diffusion of Renewable Energy Technology (Phase-II) (1999-2006)*
- ◇ Rural Electrification through Solar Energy (2002-2007)
- ◇ *Forestry Sector Project (FSP) (Revised) (1997-2006)*
- ◇ *Afforestation of coastal charlands (2004-2009)*
- ◇ *Master Plan for the St. Martin's Island*

In view of the above, concept notes on the following projects/programs have been made:

- *Environmental and socially responsive shrimp farming in 4 selected upazilas.* Unplanned practice of shrimp farming has been causing a great harm to the environment as well as creating social conflict in many coastal regions in the world. The situation in Bangladesh is not yet that alarming but it needs to make more investments in socially responsive shrimp farming following recent global trends that favor semi-intensive shrimp aquaculture practices. This is also in line with 'Vision 2008' developed by shrimp producers and exporters. The proposed project will encourage socially responsive shrimp farming by inculcating semi-intensive farming practices and greater social cohesion also hygienic and safe sea food supply from farm to plate. The activities of this project will be baseline situation assessment, aquatic and terrestrial biodiversity study, water management and soil quality study in shrimp farms within polders, study on major social issues and development of management tools for environmental and social responsible shrimp farming. For this purpose, pilot projects will be taken in four upzilas of four coastal districts. The upzilas are: Shyamnagar (Satkhira), Dacope (Khulna), Rampal (Bagerhat) and Chakaria (Cox's Bazar). Linkage with LGIs and NGOs will be established during implementation. [Agencies involved: DoF (lead), FRI, DAE, BWDB, LGED, DoE, CEGIS, FD]
- *Introduction and expansion of solar, tidal and wind energy in the remote coastal areas.* In remote coastal areas, specially islands and chars, normal electrification is a distant reality but expansion of renewable energy has potential. The project is designed to ensure generation and distribution of energy in selected islands and chars by utilizing solar energy. By adopting appropriate modes encompassing public-private partnerships, the project will establish some Photo Voltaic Installations, form and maintain user groups and develop a sustainable O&M mechanism. Similarly, the possibility of power generation and distribution by using wind energy at suitable locations in the CZ will be tested. The project will install wind turbine, develop distribution mechanism, form and maintain user groups and develop sustainable O&M mechanism. LGED has recently developed a model of green energy development for the St. Martin's island. PDB has also implementing a pilot project. The possibility of electricity generation using tidal fluctuations at suitable locations in the CZ, especially at Sandwip channel, can be tested. [Agencies involved: PDB (lead), REB and BUET]
- *Marine Fisheries & Livelihoods Development Program.* In the Coastal Zone of Bangladesh around 0.5 million (family members 2.7 million) household's primary income source is fishing. Over 160,000 fishermen and estimated 185,000 shrimp fry collector are involved in the sector. It is widely believed and out cry from all levels of functional stakeholders of the marine fisheries sector that the

sector output is declining and is having a over all crisis. Recently fisheries sector has been reviewed (FSRFD- Fisheries Sector Review and Future Development) and reported that inshore capture fishery is in decline with estimates that the overall catch has dropped by as much as 50,000 metric tons since 1995. The primary cause of this decline is unregulated over fishing by the expanding number of fishers, the intrusion of industrial trawlers into inshore waters which exploit juveniles of fish and shrimp and the use of non-selective destructive fishing methods- particularly the ESNB (Estuarine Set Bag Net) and nets used for shrimp larvae collection. On the other hand there are untapped and partially tapped fish resources (specially in the deeper water) needs to be explored. The goal of the proposed program is to establish and institutionalize a coordinated system that enables optimized and sustainable marine fisheries resources management and to enhance well being of the coastal fisher community. Activities proposed for the program grouped in 5 (five) components: Artisanal coastal fisheries management and fishers livelihood support; Marine fisheries development and identification of new fishing areas; Environmental impact assessment (pollution, Ballast water exchange, ship breaking, polderization); Post-harvest Fish Handling, Processing and Marketing of marine fishes and shell fishes; Decentralization and strengthening of govt. institutions. [Agencies involved: DoF (lead), CG, MMD, FD, SPARRSO, DoE, MFD and MFA]

Table 3.5 summarizes the proposed ICZM action programs with time-bound targets to materialize the above strategic priority.

Table 3-5: Interventions for sustainable and equitable management of natural resources

Type of intervention	Proposed action under ICZM	Targets
Environmental and socially responsive shrimp farming in 4 selected upazilas	-shrimp zoning -piloting and demonstration	-2006: zoning concluded - 2007: piloting and demonstration started
Introduction and expansion of solar, tidal and wind energy in the remote coastal areas	■ local level energy utilization planning ■ establishment of energy generation unit specially in remote islands and chars	-2006: planning - 2007: unit establishment - 2009: expansion
Marine Fisheries Development Program	- assessment and action plan - investment	2006: assessment completed 2008: start implementation

3.1.6 Improving livelihood conditions of people, specially women

Livelihood conditions and the issues of poverty and vulnerability are implicitly addressed in all the nine strategic issues. Under this, the focus is on improving access to services and administrative offices and on ensuring security and social protection. Both are crucial components in efforts to reduce the vulnerability of the local people, particularly in the hazard prone exposed zone. It is considered of high strategic importance that the issues of social protection and safety nets get exclusive and concerted attention. Improvements can be expected from better coordination of GoB line agencies in their regional and local interventions and more involvement of the stakeholders in the decision-making process.

Implementation of this strategic priority depends on developing planning capacity at district level and facilitating an integrated approach for special development areas, such as islands.

In this context, the following interventions are on-going or in pipeline in the CZ.

- ◇ Empowerment of Coastal Fishing Community for Livelihood Security Project (2000-2005)
- ◇ Poverty Alleviation Programme through Integrated fish Cultivation (Phase-II) (1999-2005)
- ◇ Rural Livelihood Project (1998-2007)
- ◇ Rural Women Employment Creation (2nd Phase) Project (1999-2006)
- ◇ Smallholder livestock development in five southern districts (SLDP-II) (2000-2006)
- ◇ Rural development Project: Infrastructure Development (2003-2008)
- ◇ Rural development project-25: Greater Kushtia, Jessore, Khulna, Barisal and Patuakhali Districts (2002-2009)
- ◇ Construction of Cox's Bazar-Teknaf Marine Drive (2004-2007)

◇ Construction of Third Karnaphuli Bridge (2003-2007)

In view of the above, concept notes on the following projects/programs have been made:

- *Enhancement of livelihoods in coastal char areas.* About 12 million people live in the exposed coast (upazilas exposed to the sea including chars and offshore islands). These areas are characterized by poor physical infrastructure (transport, telecommunication, marketing, etc). Poverty is aggravated by lack of access to essential services, e.g., water and sanitation, health, housing, education and disaster management. The situation is precarious for five million char and island dwellers. The proposed project envisages enhancing livelihoods of the char and island dwellers by providing basic social and economic infrastructures. Community participation through CBOs and the Local Government (UPs) with meaningful and effective women's participation will be an integral component for local level planning for resource mobilization, budgeting, resource management and monitoring. This would be a prototype of the Char Livelihoods Program being implemented in the chars of the Jamuna River. Targeted provision of infrastructure (transport, communication, disaster preparedness, protective infrastructure), services (health, water and sanitation, education); business development and financial services (skill training, credit and marketing promotion); and community participation in planning and management involving local government and CBOs will constitute the major goals of the program. This will be piloted in selected coastal districts. [Agencies involved: LGED (lead), BRDB, FD, DoF, BWDB and DWA]
- *Integrated development of remotely located island.* Remote islands are difficult to access and lacks basic amenities of life. Initiatives in all fronts are needed to ensure sustainable livelihood and poverty reduction along with its integration into national process. This project will address the dynamics of the natural systems with the livelihood conditions; consider available resources and their uses; and involve local stakeholders intensively and decisively in planning and resource management. Major components of the project are: development of physical infrastructure, e.g., road, telecommunications, power (solar); infrastructure for human resources development (e.g. school, health/family welfare centers and mobile clinics, water and sanitation, tourist resort); infrastructure for security (e.g. cyclone shelter and killa, skill training, credit for income generating activities); and nature conservation. [Agencies involved: LGED (lead), BWDB, BRDB, DoF, FD and DPHE]
- *Capacity building of female fish processors in Cox's Bazar district.* A large number of women in the coastal districts are involved in fish processing activities, including fish drying. These activities largely involve traditional technology, which lacks quality control and thus becomes less remunerative. The goal of this project is capacity building of the coastal female fish processors through improvement of the livelihood condition and the socio-economic condition. The proposed project would embark on formation of group (a large extent has already been done through ECFC project of DoF) and imparting training, demonstration of extended knowledge, skill development in fish processing and development of small trade/ cooperative business to empower the coastal female fish processors. Major components are: baseline study; establishment of training center; module and material development for training; trainers training; training of fish processors; demonstration and extension; credit; and marketing support. The project will be implemented in all (8) upazilas namely Cox's Bazar Sadar, Chakaria, Kutubdia, Ukhia, Maheshkhali, Ramu, Teknaf and Pekua of Cox's Bazar district. This project will be carried out in 3 (three) years. [Agencies involved: DWA (lead), DoF and FRI]
- *Comprehensive Rehabilitation Program for Erosion Victims of Coastal Zone of Bangladesh.* River bank erosion is the dynamic morphological feature in the coastal zone of Bangladesh. A huge amount of fertile and old land is exposed to erosion every year. Erosion occurs regularly due to morphological process of the big river system with alluvial soils. Most of the coastal districts are affected by erosion. The overall goal of this project is to rehabilitate the erosion victims and provide them with physical safety and social security and also provide livelihood opportunities for sustainable

development. To identify the present and future erosion prone areas and to provide the victims with necessary training for income generation activities. The projects activities will be baseline study, geological study, development of knowledgebase and land information system, physical interventions for erosion protection, program for comprehensive rehabilitation, management tools for comprehensive rehabilitation, economic support for livelihoods, impact assessment study, erosion prediction, forecasting and monitoring system. The project will be implemented all erosion prone coastal districts and carried out in 5 (five) years. The Ministry of Land (MoL, lead agency) with the co-operation of BWDB, LGED, GSB, DAE, DoLS, DoF, DPHE, DMB, BRDB, FD, CEGIS and local NGO's will implement this project.

- *Improvement of Livestock services in the Coastal Zone.* Poverty, malnutrition, ill health and illiteracy are the main features of the rural people in the Coastal Zone like Bangladesh. Poultry rearing for egg and meat production is an efficient way to bridge this nutritional gap in a faster rate than other livestock sources. In recent years, Livestock is considered as one of the most important sub-sector for alleviation of poverty and employment generation. Livestock is still managed traditionally. However a Smallholder Poultry Model has been developed in the past 20 years in Bangladesh. Survey and evaluation shows that the Smallholder Livestock Development Project (SLDP) has made substantial positive impact on poultry production, employment and income generation in rural areas. The major beneficiaries of the project are poor women. Further extension of this Poultry Model in coastal districts is desirable. In view of the above the development objective of this proposed project is to reduce rural poverty of costal region of Bangladesh. Immediate objective is to enhance the livelihood among rural poor women through increased income generating activities and employment from Poultry Model enterprises. Components of the project are: supply of vaccination kits, disbursement credit, training of beneficiaries and DLS staffs, provide technical assistant support. The project will be implemented in twenty-nine (29) upazilas of four (4) coastal districts. [Agencies involved: DLS (lead), DWA, DoYD, BRDB and BARC]

Table 3.6 summarizes the proposed ICZM action programs with time-bound targets to materialize the above strategic priority.

Table 3-6: Interventions for improving livelihood conditions of people, especially women

Type of intervention	Proposed action under ICZM	Targets
Enhancement of livelihoods in chars and islands of the CZ	- design and plan - provision of infrastructure, services, trades and business development - local government linkage - coastal char livelihoods program	- 2006: design and plan completed - 2007: implementation of basic provisions - 2008: development linked to LGIs - 2009: livelihoods program implemented
Integrated development of remotely located island	- special area development plans	- 2007: Dublar Char development plan completed and implementation started - 2008: feasibility assessment and possible proposal for other special area development plans
Capacity building of female fish processors in Cox's Bazar district	- group formed - training and demonstration - input and establishment support	- 2006: group formed - 2007: training imparted - 2008: input support provided
Comprehensive Rehabilitation Program for Erosion Victims of Coastal Zone of Bangladesh	- identification of present and predicted erosion prone areas - rehabilitation program on newly developed lands - socio-economic opportunities	- 2006: identification completed - 2007: implementation of rehabilitation program - 2009: socio-economic opportunities implemented
Improvement of Livestock services in the Coastal Zone	- design mechanisms and steps for improvement - poultry development for hard core poor - veterinary services in remote areas - introduction of improved stocks - goat and beef fattening program	- 2006: design and plan completed - 2007: poultry development plan implemented - 2008: veterinary services introduced - 2009: income opportunities in livestock initiated and strengthened

3.1.7 Environmental conservation

A major thrust of the CDS is on conserving the coastal ecosystem, biodiversity, pollution control and mitigating climate change impacts. Special attention will be given to conservation of critical ecosystems including ECAs, heritage sites including the Sunderbans and marine reserves. Efforts shall be made to harmonize the provisions of different existing laws and enact new laws, where required, to protect and preserve the coastal environment and its resources. The Coast Guard, whose services has not so far been actively sought till now in environment management will be assigned specific role for the purpose. All industrial units will be required to install built-in safeguards against pollution within a given timeframe and steps will be taken to handle the issue of discharge of bilge water from ships and oil-spill according to international conventions to which Bangladesh is a signatory. Environmental standards in relation to ship breaking industry will be adopted. Adaptive measures identified for coping with the adverse impact to climate change for CZ shall be gradually undertaken, especially in relation to National Adaptation Plan of Action (NAPA). Efforts shall be made to continuously maintain sea-dykes along the coastline as first line of defense against predicted sea-level rise. The Government has established the 'Climate Change Cell' for establishing an integrated approach to climate change risk management.

In this context, the following interventions are on-going or in pipeline in the CZ.

- ◇ Bangladesh Environment and Management Project (1998-2006)
- ◇ Sustainable Environment Management Programme (1998-2005)
- ◇ Conservation of Bio-diversity, Establishment of Marine Park and Development of Eco-tourism at St. Martin Island (2000-2007)
- ◇ Development of Dulhazara Safari Park, Cox's Bazar (Revised) (2003-2008)
- ◇ Natural Environment/ Biodiversity Conservation & Development at Bashkhali, Chittagong (2003-2008)
- ◇ Coastal and Wetland Biodiversity Management at Cox's Bazar & Hakaluki haor (2002-2009)
- ◇ Establishment of 5 Eco-Parks and Park development (2004-2007)
- ◇ Nijhum Dwip National Park Development (2004-2007)
- ◇ Reduction of Vulnerabilities to Climate Change Project (Phase II)
- ◇ Strengthening Coast Guard Project

In view of the above, concept notes on the following projects/programs have been made:

- *Marine and coastal environment development.* One of the major concerns in the coast is the marine environmental management. The adverse effects of some the equipment introduced in the 1970s for exploitation of marine resources and lack of government regulation as well as enforcement have already done lot of damage to that environment. It is now an imperative to halt this process by limiting the exploitation of the marine resources within sustainable limits by following the major regional and international programs for their conservation. Under this project, steps will be taken to protect the sea from land-based activities such as destruction and alteration of habitats, destructive fishing, untreated sewage and eutrophication and others. [Agencies involved: DoE (lead), FD, DoF, BWDB and LGED]
- *Strengthening of Coast Guard for Improvement of Coastal Safety and Security, Coordination with Other Law Enforcing Agencies.* Presently about 400,000 marine fishers operate in the CZ under high risks of natural calamities, piracy and degradation of the marine habitat. Forestry resources are also dwindling fast because of lack of enforcement of conservation laws. To address the increasing concerns regarding law and order situation in the peripheral and remote coastal areas and to enforce conservation laws and regulations, capacity building and strengthening of the Coast Guard is needed. Under this project, critical areas would be identified for enforcement of conservation laws and regulations by the Coast Guard on such issues as sustainable harvesting of marine resources and forestry, action against pollution and piracy and emergency assistance and evacuation service to marine fishers during storms and cyclones. Components of the project are: setting up district unit of

Coast Guard with necessary law enforcing and evacuation infrastructure, procurement of vessels, equipment and logistics; and recruitment and training of sufficient number of personnel. [Agencies involved: CG (lead), BN, CPA, MPA, FD, DoS and NBR]

Table 3.7 summarizes the proposed ICZM action programs with time-bound targets to materialize the above strategic priority.

Table 3-7: Interventions for environmental conservation

Type of intervention	Proposed action under ICZM	Targets
Marine and Coastal Environmental Development	-Protecting Seas from Land based activities -Mangrove afforestation program through integrated and participatory approach	- International, regional agreements and national responses monitoring - <i>A concept note will be prepared under Forest Department</i>
Strengthening of Coast Guard for Improvement of Coastal Safety and Security, Coordination with Other Law Enforcing Agencies	- Equipping coast guard for environment monitoring - Emergency disaster preparedness including tsunami and oil spillage - Protecting coastal fisher from piracy and other sea hazards	-2006: identification and planning -2007: implementation

3.1.8 Empowerment through knowledge management

Empowerment of the coastal community shall be pursued by equipping them with appropriate knowledge. The coastal community in this context includes resource users at large, key professionals and policy makers. Integrated knowledge base, knowledge generation studies especially on regional scale, multi-dimensional communication mechanism across the coastal community to create awareness at large, and dissemination of information shall be the focus of investment in this regard.

In this context, the following interventions are on-going.

- ◇ Development of the Integrated Coastal Resources Database (2004-2005)

In view of the above, the following projects/programs have been made and accommodated in the PPP, the project to support institutionalization and operationalization of the PCU:

- *Knowledge management and dissemination* is one of the key element for establishing coordination and harmonization mechanism for the ICZM process. Knowledge base is expected to bring and unite the users/ partners for ICZM and provide the basis for holistic decision-making process for the CZ's sustainable development. Emphasis will be given on social communication approaches. The following activities will be pursued:
 - Maintain and update 'Integrated Coastal Resources Database' (ICRD) as the core of the knowledge base
 - Prepare guidelines for structuring project database-
 - Link national with project databases
 - Prepare bi-annual 'State of the Coast' report
 - Establish a 'Resource Center' where coastal zone management related books, reports and documents from Bangladesh and overseas will be maintained. This will become a reference center for all coastal managers.
 - Support links with district information centers.
 - Disseminate information through website, mass media, news letter, library and awareness materials
 - Communicate knowledge and information both horizontally and vertically through partnership development, workshops/scientific meetings and others
 - Coordinate knowledge and information including acquisition (receive from partners and knowledge generator), archiving and assimilation and transaction.

- Establish protocols for smooth transaction of data and knowledge
- Form and operate knowledge user group and knowledge generator network for regular identification of knowledge gap and pursue knowledge generation
- Develop tools for functional operationalization of the knowledge system including knowledge analyzing tools, knowledge portals etc.
[Agencies involved: PCU(lead) in cooperation with all other agencies involved in the ICZM process].
- *Supportive regional studies.* Many projects are being implemented in the CZ in any given period. The scopes of implemented projects are always specific but limited. The need for supporting regional/framework studies is immense. The importance of regional/ framework studies has been spelled out and elaborated, for example, in a recent (June 2004) Joint Bangladesh Netherlands Formulation Mission for the Char Development and Settlement Project. These studies are usually beyond the scope of individual projects. Examples of regional/ framework studies are:
 - Vision for future char development and settlement
 - Resource inventory of the EEZ and its management plan
 - Coastal groundwater management plan
 - Detailed assessment of the tidal river management (TRM) in the southwest
 - Compendium on polder development and settlement
 - Development of a base CZ hydrodynamic model
[Agencies involved: PCU(lead) in cooperation with all other agencies involved in the ICZM process].

Table 3.8 summarizes the proposed ICZM action programs with time-bound targets to materialize the above strategic priority

Table 3-8: Interventions for empowerment through knowledge management

Type of intervention	Proposed action under ICZM	Targets
Knowledge management, dissemination and social communication	-Establish reference center	Initiate 2006 and continuous development till
	-Prepare guidelines for structuring project database	-2007: Guidelines prepared, -2010: project data base linked to national data base
	-Tools development	-2006: initiation -2010: completion
	Training needs; modules; materials development	-2007:needs assessment -2008;modules and materials
	Develop dissemination and awareness program	-2007-program dev. -2010 aware community
	-Promoting community radio networks	2008: community radio relay station established
Supportive Regional studies	Develop multidimensional communication program	2006;program developed Continue feedback: 2010
	Vision for future char development and settlement	
	Resource inventory of the EEZ and its management plan	
	Coastal groundwater management plan	
	Detailed assessment of the tidal river management (TRM) in the southwest	
	Compendium on polder development and settlement	
Development of a base CZ hydrodynamic model		

3.1.9 Creating an enabling institutional environment

Aspects of the institutional environment that enables the processes for co-ordination and implementation of the CZPO and the CDS are described in Chapter 4.

In order to streamline coordination among the agencies at the local and national level, and to create condition for harmonization and concerted effort, a Program Coordination Unit (PCU) will be set-up. Institutionalization of ICZM requires the development of mechanisms for coordination and interaction between and among the many parties involved at national, regional and local levels. In identifying these mechanisms, experiences and lessons learned during the 3-4 year period of the functioning of the PDO for ICZM are considered.

Setting up of institutions is the first step that needs to be followed up by a host of other activities ranging from framing of supporting legal arrangements, preparation of operational guidelines, capacity building of staff, program development and their implementation and others. The approval of the CZPo has initiated a 'process that commits different Ministries, Departments and Agencies to agree to harmonize and co-ordinate their activities'.

In view of the above, concept notes on the following projects/programs have been made. Some of these are accommodated in the PPP, the project to support institutionalization and operationalization of the PCU:

- *Operationalization of a Program Co-ordination Unit (PCU) at national level.* Through this component, a fully operational PCU office with logistics and manpower will be established. Professionals from several Ministries are proposed to be deputed to the PCU. A Program Coordinating Director (PCD) will head the PCU. A technical assistance team is expected to support the PCU in implementation of its activities during its first 3 years. The PCU will implement specific components such as knowledge management and dissemination, supportive regional studies, capacity building and training and supporting initiatives by LGIs, NGOs and media. Besides, the PCU will carry out other activities including: formulation of guidelines/manuals to support CDS, CZ regulations and district development plans for other districts. It will also assist in developing networks and establishing linkages between networks, establishing monitoring mechanism, facilitating policy advocacy and implementation, securing support from development partners and private sectors to invest in the coast, facilitating inter-Ministerial institutional set-ups and preparing technical and annual reports on assessment of CZ development based on assessment framework and/or continued investments and projects. [Agencies involved: PCU(lead) in cooperation with all other agencies involved in the ICZM process].
- *Operationalization of an institutional and co-ordination mechanism.* This involves local government at district level for the purpose of implementation. An institutional and co-ordination mechanism for this purpose has been elaborated later in this document. Under this component, this institutional and co-ordination mechanism will be operationalized through two pilot projects at two selected districts, Bhola and Cox's Bazar. Activities include provision of logistics and capacity building of the participating agencies at upazilas, UPs and others within these districts through meetings and workshops; monitoring and evaluation of progress made: linkage with PCU and others. [Agencies involved: PCU(lead) in cooperation with all other agencies involved in the ICZM process].
- *Capacity Building and Training.* Human resources development is key to economic development which would trigger growth in all sectors. Training is regarded as a core component of human development. This targets two broad strata of population, the people at large and the professionals in the implementing agencies. Training is essential to enhance productive capacity of the people in existing occupations, as well as to create capacity in non-traditional activities that would absorb the "surplus labor" from traditional natural resources-based livelihoods. Training in the form of occupational skill and management is likely to trigger innovations in the job market. On the other hand, the planners and the practitioners in intervening institutions, both public and private, need to

refresh them to understand ICZM linkages in their respective domains. Under this project, support will be given to course and educational material development in universities and other training institutions. Activities include identification of human development (capacity building) needs, training needs assessment, identification of centers for training for different group of stakeholders, ToTs, implementation of training at upazila, zila and national level and specific advanced training in regional countries. [Agencies involved: PCU(lead) in cooperation with all other agencies involved in the ICZM process].

- *Supporting initiatives by LGIs, NGOs and media in coastal management.* There are many initiatives in coastal management by small NGOs, LGIs, CBOs and others. A block fund will be created under this component to provide support to these initiatives on a competitive basis. These activities will be implemented at the village, UP, UZ and district level. An appropriate mechanism, already applied in many programs will be agreed. At this stage the LGIs and NGOs will be able to harness the existing opportunities and resources, consolidating their activities and integrating with other activities of the local government agencies and projects. All these moves will be made in a partnership spirit. Support will also be considered for ‘Coast Watch’ that has emerged as an independent think tank. Media will have twin roles in coastal development, a) highlight the local issues and initiatives in different local and national media and b) disseminate technical information to increase and strengthen their activities. Activities under this project include identification of sectors/issues for support, development of criteria, solicit proposals from all coastal districts, monitoring of implemented activities, harmonizing that initiative with other activities in the locality, inspiring them by giving institutional support and dissemination of information to others. [Agencies involved: PCU (lead) in cooperation with all other agencies involved in the ICZM process].
- *Empowerment of Women Members /Commissioners of LGIs of the CZ.* Half of the population in the country as well as in the CZ is women. Women’s participation in development process at national and local level is very much needed to strengthen good governance. Women members are being elected as a people’s representative as steps have been taken to reform local government institutes. To promote women leadership and reduce the gender gap it is necessary to provide proper training to the members/commissioners to ensure the empowerment of women. The overall goal of the proposed project is to promote good governance; ensure empowerment of women and their participation in the fields of development process, administration and the economy. Special emphasis will be given in planning and management of coastal resources for sustainable livelihoods. Major components of the project include baseline study, training programs, motivation campaign, seminar and workshop, logistic support (such as rickshaw van to provide services during emergency cases). Assistance of local NGO’s would be taken in implementing the project. Initially the project will be implemented in 42 Union Parishads and 4 Pourashavas of two districts in the CZ. Linkage with LGIs and NGOs will be established during implementation. [Agencies involved: DWA (lead), NILG, DPHE, LGED, DoYD]
- *Establishment of IT supported model Unions in sea facing upazilas.* The sea-facing UZs are the most vulnerable to natural hazards but they are the least developed in terms of establishment of communication technologies. This project seeks to address this problem by setting up IT centers at selected unions of 48 upazilas located along the coast on a pilot basis. These centers will cater to the needs of the farmers, fishers and artisans. These centers shall be equipped with computers; internet connections and other facilities to provide textual and visual information on issues related to rural livelihoods, especially market prices, weather, product demand, services available in and around the locality and for routine mailing services. Training will be provided to at least two people on the information technology. A central information generation and dissemination center will be established to generate information catering to the needs of the rural communities. The interventions include detail design study, setting up 48 union-level IT centers, one central information generation and dissemination center (ISP provider), and training. It is proposed to implement in 48 Unions of

48 exposed upazilas. BRDB, are the relevant organization for implementation. [Agencies involved: LGD (lead), BRDB, LGD, NGOs and private sector ISP provider]

- *Promotion of Coastal Community Services through Establishment of Community Radio.* Coastal zone of the country is most neglected area in terms of information sharing. They have no common ground in information sharing. The area becomes more vulnerable to communicate during natural disaster. It is a challenge for the GOB and NGOs to communicate with large number of people of coastal zone with appropriate developed information. In Bangladesh radio is one of the most popular and affordable means of mass communication mainly due to its large coverage, mobility and low cost. With appropriate strategies Radio can be a vehicle of social change particularly for the rural, sparsely populated and remote corners of the country. Considering the situation, the goal of the proposed project is to provide a cost effective means of empowering local communities and enabling them to play a more meaningful role in the course of economic and social development. Community radio will contribute to create awareness about coastal issues; better flow of information; better planning through stakeholder participation; better disaster management; access to better price and market for poor producers; promoting culture and education as well as voice and participation of the coastal people. Main components of the project will be formulation of community radio law and media policy, establish and run community radio in coastal zone, training and logistic support to develop community radio services. [Partners involved: BNNRC (lead), DMB, BMD and DAE].
- *Capacity Building of the Local Government Institutes (Union Parishads and Paurashavas) for Integrated Coastal Resource Management.* Capacity building for the local government institutes (LGI) is a major precondition for effective decentralization and meaningful local autonomy. Capacity building traditionally has three dimensions - administrative, financial and technical competencies for good governance. The local government institutions requires a high level of competence on the part of the local authorities to assume effectively the responsibilities involved to them. Local level capacity building centers on developing competencies in local governments and in the internalization of public accountability in local government administration so that the local governments can be effective and responsive to the needs of their constituencies. The project aims at the capacity building of the local government institutions for integrated coastal resource management. Promotion of good governance, proper tax assessment, ascertain budgeting and accounting system. The necessary activities of this project will be baseline study, development of Union Parishad Management Information System (UPMIS) and Pourashava Management Information System (PMIS), Formation of UPCC and PCC, introduction of planning and development unit, institutional development, training programs, seminar and workshop, credit program and funding. The project will be implemented in 19 Pourashavas and 21 Union Parishads of the coastal zone and will be carried out in 3 (three) years. [Agencies involved: LGD (lead), NILG, DPHE, BWDB, LGED, DYD, DMB, DWA, DoSS and CEGIS.]

Table 3.9 summarizes the proposed ICZM action programs with time-bound targets to materialize the above strategic priority

Table 3-9: Interventions to support enabling institutional environment

Type of intervention	Proposed action under ICZM	Targets
Set up a PCU for coordination and harmonization among the line agencies	-Prepare structure of the PCU set-up components identified as: - <i>Operationalization of a Program Co-ordination Unit (PCU) at national level.</i> - <i>Operationalization of an institutional and co-ordination mechanism involving local government at district level for the purpose of implementation.</i> - <i>Supporting initiatives by LGIs, NGOs and media in coastal management.</i>	-2005: structure agreed, established and PCU operationalized -2006: PCU operational at both national and local level - To set it up by 2006
Capacity Building and Training	Capacity building training program for community development	- 2010: training
	Capacity building training program for key ICZM professionals Capacity Building of the Local Government Institutes (Union Parishads and Paurashavas) for Integrated Coastal Resource Management	
Operationalization at district and local level of ICZM.	Selection of 2 districts for piloting ICZM; Fixation of an agency person as liaison person for coordination; involving AD (LG) as coordinating persons among the local government bodies. - Empowerment of Women Members /Commissioners of LGIs of the CZ - Establishment of IT supported model Unions in sea facing upazilas.	-2005: finalization of districts for piloting -2006: consider other pitots

3.2 Private Sector

Private sector investment decisions are made by entrepreneurs in response to government policies and incentives. However, the Government is expected to provide the incentive framework for increased participation of the private sector in the CZ. These include policy and regulatory framework and governance arrangements to ensure efficient and transparent working of the market. Equally important is the provision of infrastructure and social services that have significant implications for operation and productivity growth of private sector operation.

The National Strategy for Accelerated Poverty Reduction assigns a strategic role to the private sector as the engine of growth as the private sector investment has been picking up steadily in the past years (Table 3.10). To boost private sector investment, government has issued the '*Bangladesh Private Sector Infrastructure Guidelines 2004*'. Following the Guidelines, private sector participation in the CZ will be through:

- Manufacturing and processing.
- Investment in services, such as tourism related services and port related services
- Investment in infrastructures including power generation and distribution, alternative and renewable sources of energy, road transport, air transport, inland waterways, port development, land development including facilities for industrial activities (e.g. special economic zone, export processing zone), and telecommunications.
- Management services of government owned facilities and assets.
- Investment in infrastructure services while it will lease-in Government owned facilities and assets.
- Increased participation as contractor/sub-contractor of public sector development programs as well as of outsourced services of Government.

Table 3-10: Public and Private Investment, 1991-2004 (in current prices)

Year	Total Investment (as % of GDP)	Public Investment (as % of GDP)	Private Investment (as % of GDP)
1990/91	16.9	6.6	10.3
1991/92	17.3	7.0	10.3
1992/93	18.0	6.5	11.5
1993/94	18.4	6.6	11.8
1994/95	19.1	6.7	12.4
1995/96	20.0	6.4	13.6
1996/97	20.7	7.0	13.7
1997/98	21.6	6.4	15.3
1998/99	22.2	6.7	15.5
1999/00	23.0	7.4	15.6
2000/01	23.1	7.3	15.9
2001/02	23.2	6.4	16.8
2002/03	23.4	6.2	17.2
2003/04p	23.4	6.1	17.5

Note: Figures for 2003/2004 are provisional estimates. Source: BB S, National Accounts Statistics, July 2004.

The impressive growth of the Bangladesh economy in the order of 5% per annum in the past 12 years has been supported by government efforts in successfully maintaining a stable macroeconomic environment. Reform measures reinforced private sector investment and a reasonable growth in foreign direct investment in recent years. Such measures include reform of the financial sector, privatization and closure of some loss-making state owned enterprises, increased private sector friendly industrial policy including special incentives for exporters, and a number of support programs for private sector development (such as the Bangladesh Bank administered equity and entrepreneurship fund that provides for venture capital fund for information technology and agribusiness). Additionally, foreign direct investment has been encouraged in gas exploration and downstream distribution, private sector investment participation in power generation, and public private partnership in other infrastructure development, maintenance and operation.

3.2.1 Private sector investment opportunities in the CZ

Four studies prepared by the PDO-ICZM offer an overview of investment opportunities in the CZ.⁸ These studies have also highlighted the major constraints faced by the private sector in exploiting the full potential of the business and investment opportunities in the CZ, the key issues that need to be addressed for sustainable economic activities and the support the government must provide for promoting private sector by ensuring an enabling environment through appropriate policy and regulatory measures.

Data on micro, small and medium enterprises (MSME) in the CZ do not exist. However, a recent survey of private enterprises⁹ at the national level suggests that there are more than six million of such enterprises employing about 31 million people or 40% of the population 15 years and older. One out of every 13 persons owns an enterprise in the MSME sector. More than 90% of the MSMEs employ ten or

⁸ (a) PDO-ICZMP (2004). *Role of the Private Sector – An assessment of the status in the coastal zone of Bangladesh (WP028)*, February 2004; (b) PDO-ICZMP (2004). *Where Land Meets the Seas – A Profile of the Coastal Zone of Bangladesh*; UPL publication, July 2004 (c) Integrated Coastal Zone Management Plan Project (2003). *Inventory of Projects and Initiatives in the Coastal Zone, December 2003*; (d) PDO-ICZMP (2005). *Investment and financing strategy for Coastal zone development in Bangladesh (WP 037)*, April 2005.

⁹ Daniels, Lisa (2003). *National Private Sector Survey of Enterprises in Bangladesh 2003*. October 2003.

fewer employees and about 60% of the enterprises have one or two workers. Thus micro and small enterprises are predominant in the MSME group.

About three-quarters of the MSMEs contribute more than 50% of the household income in the urban and rural areas, and about three quarters of all MSMEs are located in the rural areas. At the macro level, MSMEs contribute 20 to 25% of GDP, of which manufacturing contributes the most followed by agriculture and trade. Of this, small enterprises employing 2 to 5 workers contribute 50%, micro enterprises having one worker contribute 25%, enterprises employing 6 to 10 workers 10%. Enterprises operating in the range of medium scale, employing 21 to 100 workers contribute only 7% to the MSMEs value added in GDP. Thus, more than 85% of the total contribution to GDP comes from small enterprises with 2 to 5 workers only.

The industrial structure of the MSMEs sector consists of primarily wholesale and retail trade and repairs (40%), production and sale of agricultural goods (22%), services (15%) and manufacturing (14%). Trade and service activities are concentrated in urban areas and agricultural goods in the rural areas.

This information together with information from other sources and perception of entrepreneurs consulted provide an indication of the specific investment opportunities for the private sector. These are:

- On small scale operations, coastal communities and private sector enterprises have opportunities in agriculture and livestock development, agro-based industries, marine processed fish, fish preservation, crab and shell fish farming, fish oil processing, dehydrated fish processing, salt processing, trade and commerce.
- Opportunities in medium to large-scale industries include ship-breaking, exploitation of beach minerals, generating renewable energy, deep sea fishing, salt production and shrimp processing. The economic potentials of tourism and fishery sectors are well recognized. Economic activities undertaken mostly by the private sector are already reasonably established in these sectors. However, the potentials remain under-exploited. Adequate policies for and investments in the two sectors should result in significant economic gains benefiting both the region and nation.

Government policies and incentives now provide for considerable opportunity for private sector participation in deep seaport development, supporting port infrastructures, maintenance and operation of seaport, investment in land port, power generation and distribution, inland water transport, telecommunications and wind and solar energy applications.

NGOs play an important role in applying appropriate low-cost technologies and investment and capacity building support for micro and small-scale enterprises in the rural economy of Bangladesh. NGOs presently have an effective presence in the CZ, but they would need to be further encouraged to outreach their support activities in the remote coastal areas specially islands. In the area of infrastructure development, NGOs have comparative advantage in promoting and developing capacity for application of simple technologies, particularly for generation of wind and solar energy. Partnership between NGOs and the private sector should be explored further for more intensive application of these innovative energy related technologies.

Private sector participation can be optimized by way of greater partnership and cooperation between government and the private sector. Such partnership development will require supportive government policy-making and action programs that are responsive to private sector needs and perceptions. The chambers of commerce and trade associations at the national and regional levels conduct dialogue and consultations with the government on private sector issues. It would be useful to organize a separate **Private Sector Forum** aimed at creating a better understanding between the private sector and the government and to attract more investment in the CZ. The Forum would also offer opportunity for knowledge sharing and exchange of ideas on issues pertaining to policies, regulations, laws and public sector program support as well as articulation of investment opportunities in the CZ.

The following financial incentives may be considered to support enhanced growth of private sector in the CZ:

- provision of tax holiday for a certain period of time on primary products and service sector investment;
- provision of insurance facilities for risk bearing activities including deep sea fishing and marine resource exploitation;
- fixation of reasonable rate of interest on borrowed capital; and
- creation of special funds.

3.3 Financing Strategy

There are four sources of financing investments for CZ development: the public sector investments, assistance from multilateral institutions and donors, direct foreign investment and investments by the private sector entrepreneurs. Additionally, the NGOs make significant contribution to the financing needs for small-scale investment.

Government is already involved in regular investments in the CZ. Donor agencies are providing financial and technical assistance to a series of coastal development projects. There are many private sector investments in industries and service sector. ICZM will mainly rely on these flows of investments in future for implementation of the PIP. There is an increasing interest from the side of development partners in integrated development efforts for coastal communities. This interest has already been expressed during bilateral meetings. Public/private partnership for investments will be further promoted.

GOB will finance the staffing and operational costs of the PCU itself. Increasingly the funding will be shifted from the development budget to the revenue budget. This ensures the sustainability of the unit. Costs of outside technical assistance for the PCU is proposed to be covered by donor funds. A separate proposal for a five-year program has been prepared and is being discussed at various levels.

A large number of financing mode exist in the country for micro, small and medium enterprise development.

Micro finance would constitute a key source of financing for micro enterprises at the household and community level. A large number of micro finance organizations and NGOs are presently providing support to micro enterprise income generating activities in the coastal areas. These institutions should be encouraged and supported with additional development funds for expanding and further outreaching their financing and development activities.

Small and medium enterprises (SMEs) are now receiving greater attention of the government and donor agencies. GOB instituted Task Force on development of small and medium enterprises¹⁰ further reassured national strategy and support programs for SMEs. The recommendations of the Task Force have now guided Government agencies and international development partners to formulate specific programs for SME development. The Bangladesh Bank has established a dedicated fund for SME financing. This fund is available to the private and nationalized commercial banks for refinancing to SME projects.

In response to the government strategy, a number of development partners have earmarked funds for augmenting the SME financing capacity. In this regard, the World Bank and ADB have designed and approved a sizeable funding program for SMEs. Other donor agencies such as NORAD and CIDA have also approved funding on a smaller scale for enhancing SME access to funds. Additionally, the ADB has a pipeline program that will include a financing component for agribusiness development, of which a

¹⁰ MoI (2004). Small & Medium Enterprises Development in Bangladesh – A reasoned approach to letting SMEs count. Report of the National Task Force on Development of SMEs. September 2004.

large proportion should be expected to comprise SMEs in the agro-based industry. The NORAD has a long-term program of financing small enterprises through two nationalized commercial banks.

Besides the financing facility, a number of donor agencies have capacity building support programs for SME development.¹¹ These programs are built on strategies to develop national and local capacity for business development services which can be accessed by SMEs, training for upgrading trade skills and business management capability of enterprises, marketing development support, and technology transfer through technical and joint venture collaboration between Bangladeshi entrepreneurs and foreign investors. The main development partners having such support programs are: ADB, DANIDA, GTZ, SDC, SIDA, DFID and the World Bank including its private sector financing window the IFC.

Private commercial banks and non-banking financial institutions of Bangladesh are now beginning to respond to the opportunities for low cost refinancing facilities offered by the Bangladesh Bank and a number of international development agencies. A number of these banks have begun to build their operational capacity to outreach their financing activities to small towns including those in the CZ.

The existing banking mechanism/facilities provided by both public and private institutions is not enough and cannot reach the door step of a farmer living in coast or in remote `char` or `island`. In order to provide banking facilities for savings and investment and to promote economic growth in CZ; a `Coastal Development Bank may be created for the development of the coastal area. Proposals for special funding in the Coastal Zone are presented in **Annex G**.

¹¹ A list donor supported projects for private sector development is available in Asian Development Bank 's *Country Strategy and Program Update – Bangladesh, 2005-2006*, August 2004.

4 GOVERNANCE

The third of the three equally important routes for implementation is the governance. This chapter focuses on three aspects of governance, viz, a) institutional development, b) legal frameworks and c) assessments, based on an indicator framework. In the following sections, these aspects are elaborated further.

4.1 Institutional development

The CZPo and the CDS do not envisage the creation of a super body for the implementation and continuation of the ICZM program: the ICZM processes and programs would be planned centrally but executed through the concerned line Ministries and agencies within an integrated planning and management framework. Within that framework, the basic approach will be to identify and possibly replicate the 'models of good practices' existing in the country. Some of these practices have been identified and are grouped in three types corresponding to integrated planning, integrated management and partnership development at the grassroots level. Salient features of each type have been presented in **Annex H**.

In the following sections, institutional development is described both for the national and local levels.

4.1.1 National level structure

The national level structure is based on the assumption that line agencies are the best implementers within an agreed planning and implementation framework while coordination is to be ensured where it is indeed required. Such institutional set up of integrated management at project or program level will work more effectively if parties realise that working together in this manner is both beneficial for each of them for achieving common goals. Each of the parties should have a threshold of institutional capacity to enter in such an arrangement for integrated management. There must be commitment to the common goals, while the respective responsibilities are clearly and precisely spelled out.

The national level structure¹² relates to the National Water Resources Council (NWRC), Inter-Ministerial Steering Committee (SC), Inter-Ministerial Technical Committee (TC), Focal Points and a Program Co-ordination Unit (PCU).

Among the proposed structures, SC, TC, Focal Points and task forces were operational for different durations during 2000-2005. The PCU and the support structures are described below:

The PCU

The Program Co-ordination Unit (PCU) within WARPO for ICZM is a set-up proposed in the Coastal Zone Policy to discharge its function for institutionalisation of ICZM in Bangladesh. It is a multi-disciplinary set-up. The PCU is perceived to co-ordinate, monitor and harmonize operation of ICZM process and to serve as a service set-up for relevant government and non-government agencies, NGOs, LGIs, private sectors active in the coastal zone.

All activities of PCU will be focused on institutionalization of ICZM process. The PCU is responsible for implementation of the Coastal Zone Policy, Coastal Development Strategy.

The PCU will be actively pursuing the following activities:

1. The promotion of an enabling institutional environment;
2. Supporting continued efforts in the process of establishing ICZM in Bangladesh, as specified in the Coastal Zone Policy (CZPo) and Coastal Development Strategy (CDS);

¹² The proposal of a CZ Development Board was made during consultations with the Members of Parliament

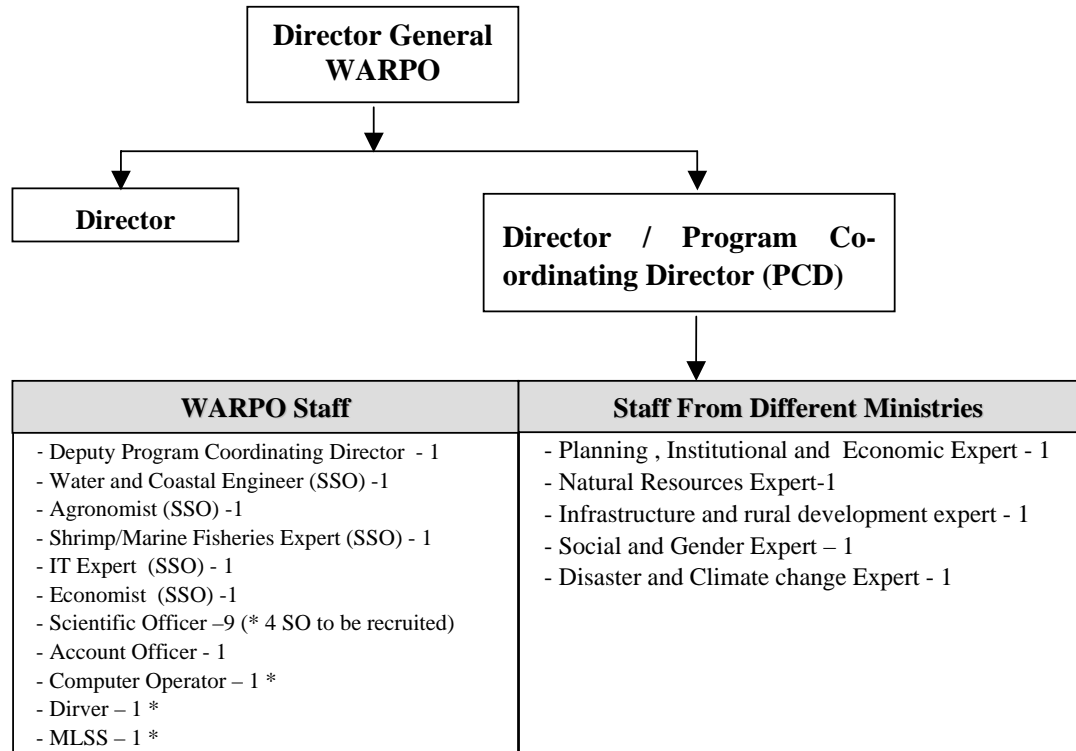
3. Co-ordinate the implementation of the Coastal Zone Policy, the Coastal Zone Strategy and the Priority Investment Program;
4. Monitoring and assess the Priority Investment Program;
5. Knowledge management and social communication;
6. Facilitating public, private sectors and development partners to undertake investments in the coastal zone including activities related to specific projects;
7. Formulation of rules, regulations, guidelines, manuals supporting the CDS;
8. Updating CDS, PIP, ICRD and CZPo;
9. Liaise with the service Ministries;
10. The PCU will take up all activities that facilitate and upheld the goal of ICZM in Bangladesh

The tasks and working procedures of the PCU are described in **Annex I**.

Structure and Staffing

The structure of the PCU and linkage are presented in **Figures 4.1** and **4.2**. PCU will be established in WARPO mainly through re-arrangement of its existing staff .PCU will have strength of 22 professional and 3 supporting staff. Thirteen (13) professional of WARPO will work in PCU through internal arrangement . Five (5) Professional will be deputed from different Ministries and modest 7(4 professional and 3 supporting staff) will be recruited. The PCU is headed by a Director of WARPO who will also act as a Program Co-ordinating Director (PCD).

Figure 4-1: Staffing and Structure of the PCU



Total No=25 (WARPO Professional 17 and Deputed professional 5 and supporting staff 3)

List of New Recruitment* :

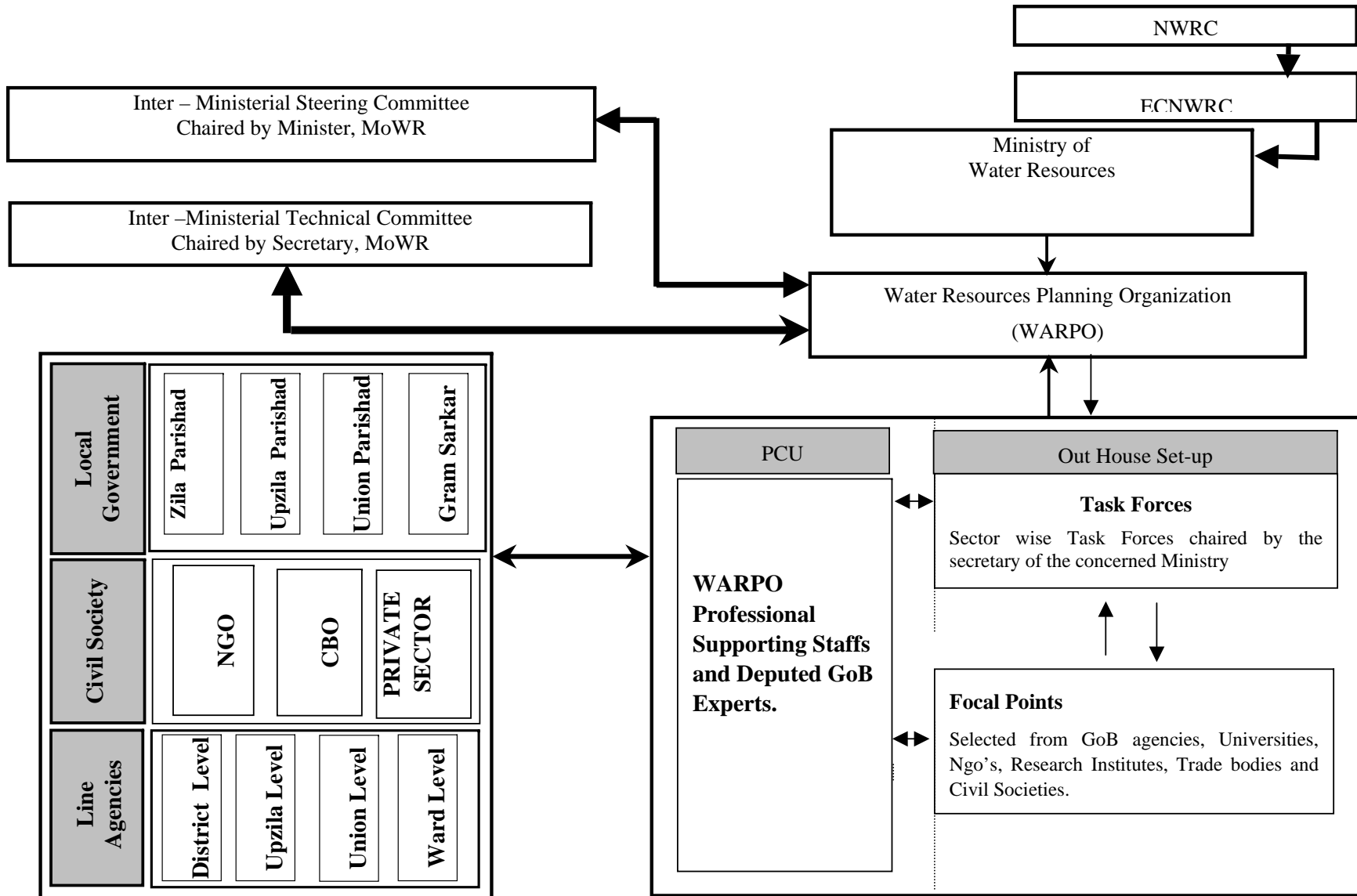
SO (WRE) – 1 SO (Aquaculture) – 1 SO (Sociology) – 1 SO (Environment) – 1 Computer Operator – 1 Driver – 1 MLSS - 1

Total =7 (4 professional and 3 Supporting staff)

Note: List of Deputed Professionals from different ministries:

1. Planning, Institution and Economics Expert- Planning Commission/Ministry of estb.
2. Natural Resources Expert- Department of Agriculture Extension (DAE)/ Department of Forest (DoF)/Department of Environment (DoE)/ Department of Livestock (DLS)/Soil Research and Development Institute (SRDI) /Bangladesh Agriculture Research Council (BARC).
3. Infrastructures & Rural Development Expert-Local Government Engineering Department (LGED)/Bangladesh Water Development Board (BWDB)/Department of Public Health Engineering (DPHE)/Bangladesh Rural development Board (BRDB)/Bangladesh Parjatan Corporation (BPC).
4. Social and Gender Expert- Department of Women Affairs (DWA)/Department Social Welfare (DSW)
5. Disaster and Climate Change Expert-Bangladesh Meteorological Department (BMD)/Department of Environment (DoE)/Bangladesh Space Research and Remote Sensing Organizatio (SPARRSO).

Figure 4-2: Institutional set-up for the Institutionalization and operationalization of Integrated Coastal Zone Management Approaches



The distribution of staff according to Ministries and Agencies is shown at Table 4.1.

Table 4-1: Staff positions and their distribution according to Ministries and Agencies

Position in PCU	Existing Position in WARPO	Remarks
Program Co-ordinating Director (PCD)	Director	Existing one director of WARPO will act as PCD in PCU
Deputy Program Co-ordinating Director (DPCD)	PSO (Engineering)	Existing PSO (Engineering) will act as DPCD in PCU
Marine and Coastal Engineer (M&CE)	SSO (Navigation)	Existing SSO (Navigation) will act as M& CE in PCU
Agronomist	SSO (Agriculture)	Existing SSO (Agriculture) will act as Agronomist in PCU
Economist	SSO (Economics)	Existing SSO (Economics) will act as Economist in PCU
Shrimp/Marine Fisheries Expert (M&FE)	SSO (Fisheries)	Existing SSO (Fisheries) will act as M& FE in PCU
IT Expert	SSO (IT)	Existing SSO (IT) will act as IT expert in PCU
Scientific Officer (Public Health)	SO (Public health)	Existing SO (Public health) will act as SO (Public health) in PCU
Scientific Officer (Navigation)	SO (Navigation)	Existing SO (Navigation) will act as SO (Navigation) in PCU
Scientific Officer (Agriculture)	SO (Agriculture)	Existing SO (Agriculture) will act as SO (Agriculture) in PCU
Scientific Officer (IT)	SO (IT)	Existing SO (IT) will act as SO (IT) in PCU
Scientific Officer (Soil)	SO (Soil)	Existing SO (soil) will act as SO (soil) in PCU
Scientific Officer (Water Resources)	SO (WR)	To be recruited for PCU
Scientific Officer (Aquaculture)	SO (Aqua.)	To be recruited for PCU
Scientific Officer (Sociology)	SO (sociologist)	To be recruited for PCU
Scientific Officer (Environment)	SO (Environment)	To be recruited for PCU
Accounts Officer	Accounts Officer	Existing Accounts Officer will act as Accounts Officers in PCU
Computer Operator	Computer Operator	To be recruited for PCU / WARPO
Driver	Driver	To be recruited for PCU
MLSS	MLSS	To be recruited for PCU / WARPO
Deputed professionals from Different Ministries		
Position in PCU (No)	Relevant Ministries/Agency	
Planning, Institution and Economic Expert(1)	Planning Commission/Ministry of establishment	
Natural Resources Expert(1)	DAE, DoF, FD, DoE, DLS, BARC, SRDI or concern ministries.	
Infrastructure and Rural Development Expert(1)	LGED, BWDB, DPHE, BRDB and BPC	
Social and Gender Expert(1)	DWA, DSW	
Disaster Preparedness and Climate change Expert (1)	DMB, DoE, BMD, SPARRSO	

PCU Steering and Support Structures

The PCU support structures are:

- The *National Council*,
- *Inter-Ministerial Steering Committee (SC)*,
- *Inter-Ministerial Technical Committees (TC)*,
- *Focal Points and*
- *Several Task Forces*

The composition of these structures is presented in **Annex J**.

The ***National Council*** of the lead Ministry (MoWR) will act as higher level co-ordinating and decision-making body for ICZM programs and activities, especially implementation of the Coastal Development Strategy and to support overall ICZM process. The National Water Resources Council (NWRC) with its support structure ECNWRC are proposed to act as the national council. This may need two things: a clear-cut delineation of the position and responsibilities of the SC and NWRC/ECNWRC and revision of the mandates of the NWRC.

An ***Inter-Ministerial Steering Committee (SC)*** will be set up to provide policy guidelines on issues related to the coastal zone. This high level committee will be chaired by the Minister of the lead Ministry and will include representatives (at the Secretary level) of concerned Ministries and agencies. The lead Ministry will act as the Secretariat for this Committee. The SC will preferably meet at least half yearly. Activities of the SC will include:

- ◇ provide policy and strategic guidelines on issues related to the coastal zone;
- ◇ mainstream coastal issues into national policies, plans and strategies;
- ◇ facilitate overall implementation of the Coastal Zone Policy and the Coastal Development Strategy;
- ◇ guide the Coastal Zone Policy and the Coastal Development strategy revision; endorsement of the revised CZPo and approval of the revised CDS ; and
- ◇ any other strategic activities the committee decides to undertake

An ***Inter-Ministerial Technical Committee (TC)*** will be set up, headed by the Secretary, MoWR and participated by the representatives of all the concerned agencies, for removing planning and implementation bottlenecks and resolving inter-organizational conflicts. The TC also comprises of representatives from universities, NGOs, private sector and the civil society. The lead agency will act as the Secretariat for this Committee. The Technical Committee will convene at least once every quarter. Activities of the TC will include:

- ◇ provide technical decision on key coastal issues (for example, coastal zone regulations, prioritization of resources use, climate change adaptation measures, land zoning, EEZ resource utilization etc.)
- ◇ contribute to identify strategic prioritization of coastal issues, areas, problems and opportunities
- ◇ monitor performance and provide guidance to the Program Coordination Unit;
- ◇ approve and monitor the investment programme on a routine basis;
- ◇ monitor commitment of funds for the development of the coastal zone including the Coastal Development Fund;
- ◇ contribute to revisions of the Coastal Zone Policy and the Coastal Development Strategy at the request of the Steering Committee;
- ◇ resolve conflicts between projects and programs in the coastal zone and suggest ways for harmonization; and
- ◇ form Task Forces on specific coastal issues
- ◇ any other technical and operational activities, the committee decides to undertake

Focal Points will be established in all relevant agencies and will act as operational contact points in relation to ICZM activities and maintain contact with the lead agency;

Task Forces will be established on specific issues for an agreed time period. These Task Forces will consist of members of the Technical Committee, PCU, Focal Points and/or of topic experts.

In addition, a technical assistance team will provide full technical support to the PCU for a specified period. The TA team will mainly be composed of national experts.

4.1.2 Local level structure

Government has been stipulating setting up a local government system by instituting elected Zila, Upazila and Union Parishads. For some reasons, the elections to the Zila and Upazila Parishads could not be held for decades and these institutions are being run on an adhoc basis through the local level bureaucracies. It is only at the Union level where regular elections have been held and these are being run by elected representatives of the people. In the absence of elected Parishads at the Zila and Upazila levels, the CDS stipulates working with the existing local government structure for ensuring people's participation in planning and implementation of development activities in those areas. A brief description of this structure is presented below.

- ◆ District Council. The Council is chaired by the Deputy Commissioner. Members of the Council are the heads of the national line agencies represented at district level. There is a District Development Coordination Committee (DDCC) which sits on a regular basis for meeting the coordination needs at the district level.
- ◆ Upazila Parishad. The Upazila Nirbahie Officer (Executive Officer) heads the bureaucracy in the Upazila. Thirteen national line agencies have representatives at that level. There is an Upazila Development Coordination Committee (UDCC) for coordination at the Upazila levels. One of the Union Chairmen in the Upazila presides over the meetings on rotation basis. The Parishad further consists of other Chairmen, three nominated women UP members, the UNO (as Member Secretary) and the line agencies representatives.
- ◆ Union Parishad. The Union Parishad consists of 12 elected members and a directly elected Chairman. Of the 12 elected members, three women are elected against seats reserved for them.
- ◆ Gram Sarkar. Only recently, in 2003, this lowest level of local government has been formed. There is a Gram Sarkar (village government) in each of the nine Wards of every Union Parishad. The Union Parishad member of the concerned Ward is ex-officio head of the Gram Sarkar ; while 12 members are nominated on the basis of consensus of the voters of the concerned Ward.

An extensive stakeholder consultation were conducted mainly to a) facilitate a local level multi-stakeholder dialogue for consensus-building around key issues of coastal resources management and b) understand and analyze perceptions of stakeholder groups on institutional and partnership issues and arrangements at the local level. Recommendations from these consultations are presented in **Annex K**.

Field units of line agencies and Local Government Institutions

It is imperative to have coordination among the line agencies and local government bodies as those reinforce one another in pursuing the common causes of development. In order to carry forward a harmonic and coordinated effort at District- and Upazila level, the respective Development Coordination Committees (DDCC and UDCC) already exist. Again, the UDCC is also the same platform where the Union Parishad Chairmen interface with the line agencies. As there is no elected body at the district level, one designated member of the cabinet participates in the DDCC meetings regularly. This helps to get local issues elevated at the national level.

There are recent experiences of a Union Chairmen Forum and Upazila Women Forum at Upazila level. These are informal coordination modalities and provide platforms to meet and discuss all institutional and non-institutional difficulties they face at the local level.

Community based organizations and their linkages

There are a wide range of community-based organizations, from genuinely indigenous institutions such as samaj, mosque and market committees to project based village development- and water management groups. Capacity building of such organisations is of crucial importance for successful implementation of a people and livelihood oriented ICZM approach. Furthermore, there may be active local level initiatives which will be vertically and horizontally integrated with the local government bodies along with line agencies to participate both in planning and implementation activities. Thus, an all out effort will be made to integrate all the functional and potential local level agencies. Experiences of IPSWAM project will be valuable, specially in relation to establishing administrative & legal procedures, capacity building and participatory monitoring mechanism.

NGOs

These days NGOs are widely regarded as capable of reaching to hard-to-reach groups and the excluded. NGOs are prevalent in the whole of the CZ but their density is lower than in other areas. They have been increasingly incorporated into mainstream national development endeavours. The membership of NGO representatives in the Technical Committee of ICZM is recognition of this fact. In the implementation of the CDS, NGOs will be involved in a variety of ways. NGOs will participate on a partnership basis with government agencies. There are examples of projects where line agencies and NGOs are working together in a particular area, based on a common plan, each with their own clearly defined responsibilities.

Main elements of local level involvement can be summarized as follows:

- ◆ At the district and upazila levels, DDCC and UDCC are the platforms to accelerate the process of local level development and efficient resource management. The emphasis will be on integrated planning along with implementation.
- ◆ The first move is involvement of DDCC or its nominated members in the formulation of the district development plan. This planning exercise is being piloted at two districts, Bhola and Cox's Bazar.
- ◆ Establishment of 'Liaison Point', in each of the 19 districts. Deputy Director (LG) is proposed to be the 'Liaison Point'. S/he is already actively involved with the monitoring of the local government activities at the grassroots level. He will be the contact person at the district to maintain upward liaison with PCU and downward liaison with all other local government bodies.
- ◆ Forum of UP Chairmen at both district and upazila levels will be formed, if it does not exist already. These forums are expected to enhance the capacity of the Chairmen to effectively deal with local development issues.
- ◆ At UZ level, Women Forum will also be created to enable the women UP- and ex-UP members to realize the gender equality and equity at the local level.
- ◆ Create a Civil Society Forum to ensure accountability of the local level government at the UP level adopting open budget session and development reviews
- ◆ Support will be given for the establishment of proposed Union Development Coordination Committee (UNDCC) and Ward Development Coordination Committee (WDCC).

Linkage between the PCU and the local government structure

Supporting the Government's existing policy, the PCU will have mechanisms of linkage to local government institutions (Figure 4.2). The PCU will coordinate with the local level bodies adopting dual lines of communication, where common issues will be communicated to the chairperson of the DDCC and specific issues will be communicated to the focal point of the respective agencies. Proposed 'Liaison Point' will be the key person for maintaining regular and constant liaison with the PCU and DDCC/UDCC and LGIs. Thus, a working linkage between the PCU and the line agencies working at the district level will be established.

4.2 Legal framework

Implementation of the CZPo will be carried out within the existing legal framework in the country. As the CZPo rightly states: 'Setting the appropriate legislative framework is fundamental to effective implementation of the CZPo. 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. All the laws of Bangladesh are applicable to CZ.'

The CZPo adds that the enforcement of laws is a key issue in sustainable coastal management. Efforts would be made to strengthen this legal framework, through revision and modification of existing laws, rules and regulations and, if required, by making new laws for facilitating implementation of specific provisions of the CZPo.

In Bangladesh, at least 90 different laws are particularly relevant for CZ management. A few of them have been compiled, following a CZPo directive, in a "Compendium on the Laws Relating to and/or having bearing on Coastal Areas". The purpose of such a compilation is to: (i) identify areas of conflict and contradiction among and within the laws; (ii) prepare a list of laws/rules which are in conflict with existing policies and suggest necessary amendments to harmonize them; and (iii) review the necessity of an umbrella legislation for the CZ.

In order to formulate a strategic directive, an attempt has been made to document existing legislations relating to CZs at international and regional levels. In Sri Lanka, the various coastal legislations include Coast Conservation Division (CCD), 1978; Coast Conservation Act, 1981; Coast Permit System, 1988; CZ Management Plan, 1980; Marine Pollution Prevention Authority, 1990; Special Area Management Plan, 1996 and Revised Coastal Zone Management Plan, 2004. The setback line on the landward side has been fixed there at 300 meters based on such criteria as coastal erosion rate, exposure to cyclones, geomorphological characteristics, vulnerability to coastal habitats and proximity to cultural sites. The seaward reference line is mean sea level. The CZ Management Plans are prepared for each of the identified sites and enforced by the local bodies. The CCD used the permit system as the principal tool to manage activities in the CZ. The purpose of issuing permits was to direct activities in a manner that minimizes harmful impacts. It is obligatory for all persons in the private and public sector intending to undertake development activity in the CZ to obtain a permit from the Director/CCD. Sri Lankan initiatives have been relatively effective.

In India, the Coastal Regulation Zone Notification, issued in 1991, was the first major legislation that was aimed at regulating various coastal activities and protecting the coastal environment. For regulating CZ activities, coastal stretches within 500 meters of high tide line on the landward side are classified into four "Coastal Regulation Zone (CRZ)" categories. During 14 years of its implementation, a number of amendments were proposed and adopted. Recently in February 2005, the Expert Committee chaired by Prof. MS Swaminathan has made an overall review of the regulations and recommended adoption of a management zone than a rigid regulatory zone.

USA is the first country in the world to promulgate a CZ Management Act in 1972. The Act lays down a framework for voluntary cooperation between Federal Government and coastal States. National

Oceanic and Atmospheric Administration (NOAA) of the Department of Commerce supervises CZ management.

In most of these acts and/or regulations, the essence is coastal land use management through zoning and/or regulatory mechanisms. In Bangladesh, zoning of lands, especially in the CZ, has been advocated since the eighties. Zoning is a policy intention of the government as expressed in such policy documents as the National Land Use Policy 2001, the National Fish Policy 1998 and the CZPo 2005. This is also an important element in the draft the National Shrimp Policy under formulation by the Government.

Recently, an indicative coastal land zoning has been completed. This will support, as outlined in the land use policy, preparation of detailed land zoning. Establishment of setback distances to prevent construction can be considered for certain areas including beaches. The Ministry of Land has made a specific decision to draft and implement 'Zoning Law'. Once implemented, this will be a major breakthrough in planned management of the CZ.

The strategic emphasis on legal framework, at this stage, will be primarily on

- enforcement of existing laws, specially on environmental laws, to the extent these are applicable in the CZ
- capacity building of law enforcing agencies including of the Coast Guard.
- facilitating the process of developing zoning law and its implementation.
- An umbrella CZ regulation will be pursued at a later stage.

4.3 Indicators Framework: assessing coastal developments

Important part of any strategy is the mechanism to assess, measure and evaluate the impacts of its implementation in terms of compliance with its goals and objectives. Findings could feed back in a reformulation of the program of actions or even the strategy itself.

To facilitate such an assessment, an indicator framework has been developed that consists of a set of quantifiable parameters, representing the process of coastal development and the management inputs into this process. The CZPo refers to the use of the indicator framework through the following statement.

“Such a strategy makes critical choices, for example in relation to targeted regions, disadvantaged groups and issues. Focus is on implementation, including a set of indicators and corresponding monitoring arrangements to assess performance”.

This framework of indicators consists of three types of indicators:

- ◇ input indicators, which represent different types of management inputs such as recurrent GoB expenditures, investments projects and legal and institutional frameworks;
- ◇ output indicators, which focus and characterize the state of the local resource base; and
- ◇ outcome indicators, representing the achievement of goals and objectives of ICZM.

Relations between these sets of indicators can be visualized through a schematic representation (Figure 4.3). The first is an “objective” input-output matrix, showing the relation between the management inputs and the condition or state of the local resource base (LRB). The second matrix is referred to as a performance matrix, reflecting the value of changes in the LRB in terms of policy or decision-making criteria. These are elaborated in subsequent paragraphs.

Input indicators

In addition to the mentioned GoB-expenditures and investments, inputs would also include contributions to good governance, for example in the fields of sustainable resource management, empowering of local communities and public-private sector relationships. Three categories of management inputs are distinguished.

- *Institutional arrangements.* These provide the “context or management infrastructure” within which management actions take place. These consist of the total organization with all its linkages, laws and regulations, and mechanisms for participation and democratic control.
- *Policies/strategies and plans* through which management agencies express -- at different levels of concretization -- their intentions and commitments and makes themselves accountable towards the public at large.
- *Direct interventions* in the form of, e.g., annual budgets for operation and maintenance, investment projects, the introduction of user charges, or training and awareness building.

Figure 4-3: Schematic representation of the indicator framework

INPUTS			OUTPUTS	OUTCOME		
Institutional arrangements	Policies/strategies and plans	Direct interventions		Economic growth	Improvement of livelihood and well-being	Sustainable natural environment
			Natural resources			
			Physical resources			
			Human resources			
			Social resources			
			Financial resources			
INPUT-OUTPUT MATRIX				PERFORMANCE MATRIX		

Output indicators

Output indicators would measure the results of the management inputs and/or scenario developments in terms of changes in the state and the characteristics of local resource base (LRB). An important aspect of the LRB is that – in addition to offering opportunities for development -- it poses risks to individual households and makes them vulnerable if they are not able to cope with the dynamics of these resources. Output indicators should thus reflect:

- ◇ availability (or absence) and quality of the resources;
- ◇ normal variability and trends; and
- ◇ extreme events (shocks), due to natural hazards.

Outcome indicators

Outcome indicators reflect management objectives. Their purpose is mainly to attach values to changes in the LRB in terms of main criteria used in preparing decisions on policies, strategies or interventions. In fact, the whole indicator framework should be “objective driven”, implying that the need for information in support of decision-making, should “control” the information generated on the LRB and limit the information on inputs to those that are relevant for changing the LRB. The following generic development goals have been considered.

- *Economic growth.* Under this heading indicators should reflect regional economic conditions and developments.
- *Improvement of livelihoods and well-being.* Indicators should account for the reduction of poverty and vulnerability and safety against natural disasters, social and cultural conditions, equitable distribution (across social strata and gender) and access to basic needs.
- *Sustained natural resources.* Indicators would focus on the integrity of ecosystems and wise use.

An overview of the selected indicators for an assessment of the coastal development processes in terms of compliance with the eight CZPo objectives is presented in **Annex L**.

5 IMPLEMENTATION OF THE COASTAL DEVELOPMENT STRATEGY

The adoption of CZPo and the CDS are milestones in the ICZM process in Bangladesh. These are the starting strategic documents. The key to coastal development lies with the implementation of policy statements and strategic priorities.

Investments, both public and private, in the CZ are seen as key requirements along with support from development partners. The philosophy of ICZM is to gain positive, beneficial and incremental impacts even with current and sustained investments. This is possible through adoption of integrated approach.

The PIP, a program of mainly public sector investment projects, has resulted from an integrated planning approach. It is a modest program of 20-25 projects to be implemented over a period of 5 years. Importantly, people of all 19 coastal districts have participated in their identification and prioritisation. Moreover, each of the investment projects has been formulated through participation and intensive dialogue between two or more government agencies of different ministries.

Implementation of investment projects is the responsibility of the relevant Ministries, Departments and line agencies. Lead ministry/agency prepares necessary PPPs/DPPs and project documents.

The PCU has only a co-ordination role and is not involved in administrative and/or financial monitoring.

5.1 Types of activities

In the preceding chapters, CDS implementation has been described along the three strategic routes. In summary, these activities are recapitulated as under:

Mainstreaming ICZM (Chapter 2)

- Harmonisation of the national development planning processes
- Addressing cross-cutting issues, particularly involving women and children and urban coastal areas
- Implementation of multi-sectoral regional studies/plans
- Partnership building and pro-active interactions

Investments: public and private sector (Chapter 3)

- Implementation of the multi-sectoral public sector investment program
- Implementation of District Development Plans for Bhola and Cox's Bazar
- Continuation of preparation of specific projects as Concept Notes and other means
- Preparation of development plans for selected areas
- Development of manuals and procedures
- Establishing a government/private sector platform for the CZ

Governance (Chapter 4)

- Establishment of PCU and support structure at the national level
- Establishment of local level governance at two districts through implementation of district development plans
- Establishment of Liaison Points in each of the 19 coastal districts
- Capacity building of selected local government institutions, NGOs and community based organisations
- Pilot activities on improved coordination of implementation and planning at Union level
- Contractual agreements between community based organisations, local government institutions and field units of national line agencies on specific service delivery issues

Taking the above activities into consideration, a specific proposal for a five-year ICZM program has been prepared in a separate PPP document. The main highlights are described briefly in the following section.

5.2 ICZM Program (2006-2010)

This program is conceived towards implementation of the Coastal Zone Policy 2005, approved by the Government on January 17, 2005 and also towards fulfilment of the policy agenda 05-07 of the PRSP document, adopted by the Government. A joint GoB/GoN/DfID mid-term review mission (Oct-Nov. 2003) rated achievements of the project, during preparatory phase, as successful and recommended:

'a follow-on phase be planned within the current Project to avoid "gaps" that will result in a loss of momentum, loss of memory and incur reinvestment costs. The nature of phase two should include two components. Firstly, to operationalise the ICZM process and the other to pilot its implementation in a defined geographic area with a strong monitoring and evaluation focus to demonstrate the gains from adopting this approach'.

A PPP titled "Institutionalization and Operationalization of Integrated Coastal Zone Management Approaches" has already been prepared.

Objectives

The objectives of the follow-on phase are as follows:

- Institutionalization and operationalization of ICZM approaches in Bangladesh
- Supporting continued efforts in the process of establishing ICZM in Bangladesh, as specified in the Coastal Development Strategy and Coastal Zone Policy.

Duration

January 2006 to December 2010

Components

The proposed project has six components, which are as follows:

1. Regional/framework studies
2. Preparation of Integrated District Development Plan for remaining 17 Coastal districts
3. Knowledge management and dissemination
4. Supporting initiatives by LGIs, NGOs and media in coastal management
5. Capacity Building and Training
6. Establishment of Program Co-ordination Unit (PCU) within WARPO

Duration of the project is five years (January 2006 - December 2010). The project envisage a three years technical assistance (TA) support from July 2006 to June 2009. Total Estimated cost of the project is Taka 481.20 million (8.02 million US\$). PIPs will be prepared as portfolio of Integrated District Development Plan. The PIPs will be implemented by line agencies.

5.3 Operationalization of the PCU and ICZM support structure

Implementation of the CDS starts with the operationalization of the PCU. As the PDO phases out on December 31, 2005, the PCU becomes operational on January 01, 2006. A separate document elaborating the PCU and its support structure is yet to be prepared. For operationalization of the PCU, the following activities are to be completed prior to the start date:

- An administrative order authorizing the setting up of the PCU, in response to the CZPo
- Deputation of GoB professionals to the PCU.
- Provision for the PCU in the ADP of 2005-2006.

- Preparation of PPP to seek financial assistance
- Approaching development partners for technical assistance and grant support.
- Preparation and processing of TPP and subsequently AA and CA, after development partners for necessary financial support are identifies

A vital step in the operationalization of the CDS is to put in place the four elements of the ICZM support structure as reflected in chapter 4. The reconstituted SC and the TC will be functional in the early part of 2006. The Focal Points are already appointed and functional.

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ANNEX A. INTRODUCING THE COASTAL ZONE (CZ)

1. Features

The CZ covers 19 districts¹³ facing or having proximity to the Bay of Bengal and the exclusive economic zone (EEZ). In 11 of these districts, 48 upazilas/thanas face a combination of cyclone risk, salinity and tidal water movement above critical levels. This comprises the 'exposed coast', including all *chars* and more than 70 islands, while the "interior coast" is mainly constituted by old and stable lands.

The CZ of Bangladesh is mainly perceived as a zone of multiple vulnerabilities. The Government has already identified the zone as 'agro-ecologically disadvantaged region' (GED, 2004) and as one of the three 'neglected regions' (MoP, 1998). It is prone to severe natural disasters, such as cyclones, storm surges, and floods. In combination with other natural and man-made hazards, such as erosion, the high arsenic content in ground water, scarcity of drinking water, water logging, water and soil salinity and various forms of pollution, these disasters have made coastal dwellers very vulnerable and slowed down social and economic developments. On top of these, the zone is vulnerable to risks from earthquake, tsunami and above all climate change.

The CZ contains several ecosystems that have important conservation values: mangrove, marine, estuary, islands, coral, sandy beaches, sand dunes. The world's largest uninterrupted stretch of mangrove ecosystem, the Sundarban, has been declared a World Heritage Site in 1997, whereas coral ecosystems are found around St Martin's Island. These ecosystems are not only biodiversity hot spots, but also provide the ecological foundation for an important common access resource: the fisheries in the Bay of Bengal.

However, the opportunities and potentialities of the zone have not received much attention to date. By harnessing and exploiting its opportunities, the CZ can make a substantial contribution to achieving the national goals of poverty reduction and economic growth (PDO-ICZMP 2004).

It is this combination of natural disasters and man-made hazards with realized and untapped development potentials that sets the unique stage where the coastal people pursue their livelihoods. Analysis of socio-economic conditions in the CZ reveals a significant regional differentiation in development in the exposed CZ which is, in many aspects, "underdeveloped". The CZ needs special attention and requires distinctive approaches because of the vulnerabilities and potentials. In other words, in order to meet national socio-economic development objectives, special approaches and measures have to be developed and implemented for the CZ. This is the basis of Integrated CZ Management (ICZM): not that the coast is just different, rather the complex conditions need integrated approaches to meet its distinctive challenges. According to the CZPo, 'the increasing population, competition for limited resources, natural and man-

Salient Features

- Poverty is high; 52 percent are poor and 24 percent extreme poor. Fourteen of 19 coastal districts have higher extreme poverty than the country average.
- Per capita GDP is low. Fifteen districts have lower GDP per capita than the country average.
- 54 percent of rural households in the coastal zone is functionally landless.
- In addition to natural disasters like cyclone, storm surges, drainage congestion, erosion, salinity intrusion, coastal zone is also vulnerable to tsunami and climate change.
- Access to basic services including health and sanitation is limited.
- Chars and offshore islands are remote that impedes investments
- Coastal zone has diverse eco-systems: mangrove, marine, estuary, islands, coral, sandy beaches, sand dunes and has both 'world heritage sites' and 'ecologically critical areas'
- Relatively higher literacy rate for both men and women is strength for progress on social development.
- Eleven districts have 'low gender disparity'.
- Coastal zone offers immense potential in renewable and non-renewable energy, marine resources, beach minerals and tourism.

¹³ The districts are Bagerhat, Barguna, Barisal, Bhola, Chandpur, Chittagong, Cox's Bazar, Feni, Gopalganj, Jessore, Jhalkati, Khulna, Lakshmipur, Narail, Noakhali, Patuakhali, Pirojpur, Satkhira and Shariatpur (PDO-ICZMP, 2003a). Together these districts account for 32 percent of the area and 28 percent of the population of Bangladesh.

made hazards, economic opportunities, important ecological hotspots, etc, call for distinctive coastal management’.

2. Achievements – silent and unnoticed

Over the decades, CZ has seen enormous achievements but often unnoticed and unrecognized. The CDS builds on these achievements. Many institutions are involved in either resource management and/or are dealing with vulnerabilities in coastal areas within their respective domains.

One of the earliest interventions, since 1968, was the Coastal Embankment Project (CEP). The BWDB constructed a series of polders. CEP was instrumental in enhancing productive potential of coastal land by protecting it from saline intrusion. After the catastrophic cyclone of November 1970, the Coastal Area Rehabilitation and Cyclone Protection Project (CPP-1) was implemented. CPP-2 was initiated following the cyclone of 1985. A follow-on Coastal Embankment Rehabilitation Project (CERP) was launched after the cyclone of April 1991. CERP fostered the concept of polder management involving other stakeholders including the local community. Polders are now a natural feature of the coastal hydro-morphological setting. Sea dykes are considered as first line of defense against the impacts of sea-level rise.

- **123 coastal polders have >5000km of embankments**
- **Coastal Green Belt including mangrove afforestation**
- **>2000 cyclone shelters**
- **Cyclone warning and preparedness system – a world model**
- **>50,000ha of land reclaimed**

More than 50,000 ha of new lands were reclaimed along the Noakhali coast through Meghna cross dams. Subsequently, these newly accreted lands were used for new settlements and socio-economic development of the people.

The Forest Department started coastal afforestation in 1966. Vast areas in newly accreted chars and islands were put under mangrove plantation. Forest belt along the coast, Coastal Green Belt, has been instrumental in protecting life and property in coastal areas from cyclone and storm surges.

The Bangladesh Red Crescent Society (BDRCS) initiated Cyclone Preparedness Program (CPP) in the early 1970s that eventually developed into a world model of physical and institutional infrastructure for disaster management in cyclone prone areas. More than 2000 multi-purpose cyclone shelters were built so far to provide security to the people in the vulnerable areas. An extensive network of radio communication contributes in cyclone preparedness of coastal communities.

Indigenous knowledge of ‘tidal river management’ and ‘floating agriculture’ are widely regarded as accepted solutions to water logging and drainage problems in the southwest. ‘Floating agriculture’, a traditional mode of agriculture, is also being advocated as adaptation mechanism to climate change.

Institutionalization of integrated coastal management has been attempted in recent years through a number of initiatives. The Char Development & Settlement Project (CDSP), on-going since 1994, may be mentioned in this respect. As many as six GoB agencies are partners of CDSP. Together they have been able to demonstrate a culture of working together coordinated by a lead Ministry/agency (MoWR/BWDB). At the field (district) level, the coordination is done through regular PMC meetings. This works well and provides a good example of inter-agency interaction and cooperation. A national NGO (BRAC) is involved to design and implement community development activities through a conglomerate of five local NGOs. Within the framework of the project, seemingly independent components have been combined as a package for enhancement of livelihoods. Among these components are: facilitation of increasing access to natural capital (land allocation); physical capital (embankment, regulator, drainage *khal*, cyclone shelter, road, bridge and culvert, tube well, water-sealed latrine, space for market, etc.); social capital (WMOs, NGO coverage, linking UP, etc), human capital (education through NGOs, training) and financial capital (savings and credit through NGOs). All these together help in developing a holistic approach to targeted development for the poor.

Another example is ECFC project of the DoF in Cox's Bazar that has been evolving a community based approach for sustainable use and management of marine fish resources. Local level institutions in the project area are growing at the village level. Upazila networks and district federation have been formed. The vibrancy observed in the fishers' community about the institutions shows how disadvantaged people could be motivated with little opportunity and recognition. The ECFC interventions provide the people material support (e.g., seed fish, matching grant, building of schools for community children, etc); technical assistance (e.g., training on income generation activities, awareness raising, information sharing, etc.) and more conducive local environment (e.g., creating more access to the government officials, facilitating access to the formal credit sector, etc.) for their development.

3. Potentials of the coast

The CZ of Bangladesh offers distinctive development opportunities that can be instrumental in reducing vulnerability and poverty of coastal communities. This CDS is an attempt to unlock the potentials of the CZ along with strategies to mitigate natural and man-made hazards and to preserve and enhance coastal ecosystems.

Resilient coastal communities in fighting poverty are inventing and investing on new opportunities every day. Some of these are untapped, while others have significant expansion potentials.

Shrimp is the second largest export item of the country. Shrimp farming is a key economic activities in Cox's Bazar, Khulna, Bagerhat and Satkhira and is expanding in other districts too. The sector contributes US\$ 301 million annually in the GDP. Recently, Bangladesh Frozen Foods Exporters association has unveiled an achievable vision to generate an income of US\$ 1.5 billion by 2008 even accommodating certification in all stages, food safety, traceability and environmental protection and management. It is also argued that Bangladesh can take competitive advantage by growing shrimp in certain areas and by labeling its product as 'organic'. Possibilities exist for export of 'live shrimps' that fetches higher price.

Marine fish. In recent years, marine catch increased by about 65 percent, though *ilish* (hilsa) catch decreased by 25 percent. The present catch is basically from shallow to medium shallow sea, while the deep sea remains largely untapped. With necessary infrastructure and capital support, fishers can move to the deep sea using plastic fiber boats, as used in Sri Lanka. Efforts are simultaneously needed for development of domestic and export market for marine fish and fish products.

Other aquatic resources and products. Shutki (dry fish) is also an exportable commodity and has expansion potential. Fish drying is mainly concentrated in Cox's Bazar, Chittagong and Khulna. About 600 small enterprises are engaged in this process. Total production of dehydrated/salted fish is about 700 metric tons. Recently, few enterprises have started fish drying using hygienic methods, which has large potential for marketing at home and abroad. Other related opportunities exist in shell collection, crab tanning, natural and artificial pearl culture, turtle culture, crocodile farming, production of fish feed, sea weeds and artemia production. Currently more than 1000 metric tons of crab worth about Taka 350 million is being exported. Processed and canned hilsa has export potential. Expansion opportunities also exist in rice-fish culture and fish-duck culture. Rice -prawn culture has considerable potential in the greater Noakhali area. It is estimated that 40,000 ha of seasonally flooded land can be adapted with a 10,000 tons/yr. production target.

Gas and oil. It is estimated that about 20 trillion cubic feet of gas can be extracted from the Bay of Bengal. A \$700 million Western Region Integrated Project (WRIP) has been proposed to develop Shahbazpur gas field in Bhola, as well as installation of a 93-mile pipeline to Khulna, and construction of gas-based power plants at Gopalganj, Bhola, Barisal and Khulna to serve southwestern Bangladesh. Gas-based electricity will open opportunities for people of these districts.

Mineral resources. A number of radiometric survey and subsequent lab analysis have revealed existence of deposits of 17 economically viable minerals including monazite, limenite, rutile, zircon and cesium

with an estimated reserve of 1.76 million tons in beach areas of Cox's Bazar, Maheshkhali, Badarmokam, Teknaf, Subrang, Inani, Kutubdia, Nijhum Dwip and Kuakata. In addition, there are peat reserves in Gopalganj and Khulna (158 million tons), limestone in Cox's Bazar (2.8 million tons) and hard rock/engineering stone in Chittagong (1.0 million m³).

Renewable energy. There exists opportunities to tap wind and tidal energy in remote coastal areas. Pilot demonstrations have revealed their potential use and application at Sandwip and other places. LGED has made a model of electrification of St. Martin's island using renewable energy.

Ports and surrounding industrial belt (EPZs and ship breaking). Bulk of the external trade is carried through two seaports: Chittagong and Mongla. Trade forecast for the Chittagong port is 43.1 million tons in 2016 from 19.0 million tons in 2000 (CPA 2002). This potential will be manifold if agreement is reached for cargo handling for landlocked countries like Nepal and Bhutan. Setting up a deep seaport is being actively considered. Bangladesh and Myanmar have agreed to launch shipping service, which would connect Chittagong, Cox's Bazar and Teknaf with Yangon, Akiyab and Maungdaw. Surrounding these ports, opportunities exist for further industrial development. Exports from Chittagong Export Processing Zone was over 641 million US\$ in 2002/03. Around 250,000 people are directly or indirectly involved in ship breaking industry for their livelihood. A new EPZ, targeting Myanmar market, can be considered in Cox's Bazar district.

Service sectors. Transport, health, power generation and supply etc. always respond to expanding economy. More and more private entrepreneurs are expected to bring in services like ferry between islands and mainland, mobile hospitals and power generation plants. Potential exists for industrialization along the Asian Highway linking Myanmar/Thailand going through Chittagong and Cox's Bazar.

Tourism. Infrastructure has been developed to some extent at Cox's Bazar, Kuakata and Sundarban. Potential exists for development of eco-tourism in Sundarban and other special environmental areas, including St. Martin's Island and Sonadia Island (Cox's Bazar), Nijhum Dwip (Noakhali) and Char Kukri Mukri (Bhola). A regional tourism infrastructure, in cooperation with Myanmar, can be built at Teknaf offering day trips to St. Martin's Island, cruising over Naaf river, visiting Myanmar and Bangladesh coasts, etc. In view of the growing domestic demand, response incoming from the private sector. Malaysia has expressed interest to invest. Direct flights between Chittagong, Cox's Bazar and Jessore, can contribute to tourism by offering package to important destinations that are in vicinity of these airports, such as, Chittagong Hill Tracts, Cox's Bazar and Sundarban.

Agriculture. It remain a dominant activity of most households living in the coast. Scope for extensive agriculture has been exhausted in the backdrop of declining availability of cultivable land, increased salinity and waterlogged and low productivity. Potential exists for cultivating salt-tolerant modern varieties, expanded coconut cultivation, floating or soil-less agriculture and bio-saline agriculture. Floating and/or bio-saline agriculture have already been proven as adaptive measures to cope with the sea-level rise scenario. Continued food security is important for development and growth in other sectors. 'Coastal agriculture' needs a distinctive recognition to facilitate its development.

Others. Forest, salt and livestock development are other coast specific opportunities. Forest provides traditional products like timber, fuel wood, pulpwood, wax, honey, golpata, etc. Sundarban is the largest productive mangrove forest in the world. Mangrove extraction, particularly in Sundarban, is a major source of living for about 20,000 bawalis (wood fellers) and 7,000 mawalis (honey and wax collectors) of adjoining areas. Besides there are about 3,000 boats with badakars (grass cutters) operate in Sundarban. Salt production areas are mainly confined in Cox's Bazar district and Bashkhali upazila of Chittagong district. The production of salt in 2003 was about 0.9 million metric tons. The current demand is 1.2 million metric tons. There are potentials for enterprises on dairy products. This necessitates improvement in healthcare services including vaccination.

4. Development trends and concerns

Development of the CZ is *delayed* compared to Bangladesh as a whole. Poverty indicators show a slightly higher percentage of the population living below the absolute poverty line (52% vs 49%), while the GDP per capita and the annual GDP growth rates in the CZ are more or less the same as that of the country.

There is, however, a substantial regional differentiation. The exposed coast is less developed. In 15 out of the 19 coastal districts, the GDP per capita is below national or CZ averages. In eight of them GDP per capita is 20% lower than national average. Vulnerabilities in terms of insecurity of food, income, water, health and property, prevail in the exposed districts, particularly in Bhola, Noakhali, Satkhira and Bagerhat.

The CZ will undergo significant changes with increasing population and other accompanying developments. According to projections, CZ population will increase from the current (2001) number of 36.8 million to 60.8 million in 2050.

From the present urban population of only 8.5 million, it will be 12.8 million in 2015 and 30.2 million in 2050. This is 23 percent of the total population in 2001, 29 percent in 2015 and 50 percent in 2050. In 2050, 30% of the urban population will live in two major urban centers, Chittagong and Khulna. Growing urbanization has its own demand for service provisions including increased demand for housing, energy, waste management, drinking water etc. About 0.26 million new jobs will be needed annually of which 0.20 million alone in urban areas.

Increasing demand for land for urban and other infrastructure needs will drastically reduce availability of land for agriculture. Per capita availability of NCA will decline to less than half, from 0.53 ha (2001) to 0.24 ha (2050). This will have tremendous pressure on land use, economic and social infrastructures and food security.

The deterioration of land resources for agricultural production in the CZ as a whole¹⁴ is illustrated by the facts that: the NCA in the CZ reduces at rates that are almost double the country's average; only 30% of the NCA is irrigated in the CZ against 50% in the country; and crop yields are lower than the country's averages (paddy about 10% lower in the CZ and 20% lower in the exposed districts). An important reason is the poor and deteriorating conditions of the coastal water systems, mainly due to salinity and drainage congestion. Reduced inflow from upstream, sea level rise and over-extraction of groundwater aquifers are destined to develop a crisis situation. This will not only affect the agricultural activities, but – even more seriously – the domestic water supply and industrial development.

Levels of service provision, particularly water and sanitation and public administration are lower in the exposed districts than in the CZ as a whole. In the exposed districts, administrative units cover 10% and 25% bigger area than in the CZ. Each year, 317 additional primary schools will be needed, while 422 additional hospital beds to be installed. To comply with the national target of cent percent sanitation coverage by 2010, each year 0.60 million units of sanitary latrines are to be installed and thereafter 0.16 million each year.

Another relevant and related development is the slowly advancing process of decentralization. A modern society, characterized by increasing diversity and complexity, requires local resources to be managed at the lowest possible level through a functional system of participatory decision making and accounting. This development is absolutely essential for ICZM that views the empowerment of communities as an important mechanism in reducing poverty.

The gender perspective of poverty needs full attention. In the CZ, the “face of poverty” looks more and more feminine. However, positive and negative differences were found between the CZ and the country

¹⁴ The area of newly formed lands forms an exception to the described land deterioration but represents only a minor part of the defined coastal zone.

as a whole that would justify an adaptive approach. Special attention in the CZ is needed on reproductive health for women and severe malnutrition among girl children.

The real vulnerability seems even more grim as vulnerability factors are affected by worldwide economic developments and climatic changes, which are beyond their control and often also beyond their comprehension. The CZ of Bangladesh is worldwide recognized as an extremely vulnerable area. Livelihoods are affected by salinity intrusion, flooding, drainage congestion, cyclones and heavy storms (8 million people at risk) and erosion. These are expected to be by the impacts of climate change and sea level rise (detailed in section 5). Risks from tsunami are a recent addition to this list of vulnerabilities. An estimated 4.7 million people now live in high tsunami-risk area.

It merits mention that both the literacy rate and the density of primary schools in the CZ is higher than in the country as a whole (literacy of its male and female population are 54 and 47% against 50 and 41% in the country). This trend is expected to continue and puts CZ in a favorable position in terms of human resources.

Government agencies in addressing these issues face two additional critical constraints: the *lack of adequate institutional arrangements and the lack of (access to) knowledge* of socio-economic and physical processes in the CZ. Proposed Program Co-ordination Unit (PCU) for ICZM and other related institutional structures, detailed in chapter 4, would be a positive move in this regard.

5. Climate change

Coastal Bangladesh is at great risk from global climate change because of its very low elevation and exposure to various water related hazards. The IPCC has been routinely providing scenarios on climate changes. The latest in the series is the 3rd IPCC projections on global climate change scenarios on parameters like sea level rise, change in temperatures and precipitations. The 4th report is due in 2007. Nationally, efforts have also been made to quantify climatic changes in Bangladesh by SMRC¹⁵. The Government has established the 'Climate Change Cell' within the Department of Environment.

Following the global initiative and as a signatory the UNFCCC, Bangladesh has instituted the preparation of the National Adaptation Program of Action (NAPA) for climate change in Bangladesh. In order to identify adaptation measures, Bangladesh has assumed the following climate change scenarios:

Climate change scenarios for Bangladesh

Year	Sea level rise (cm)	Temperature increase (°C)		Precipitation fluctuation compared to 1990 (%)
		Seasonal	Annual	
2030	14	+0.8 in monsoon; +1.1 in winter	1.0	-2 in winter; +6 in monsoon
2050	32	+1.1 in monsoon; +1.6 in winter	1.4	-5 in winter; +8 in monsoon
2100	88	+1.9 in monsoon; +2.7 in winter	2.4	-10 in winter; +12 in monsoon

CZ resources are especially endangered by the projected climate change and consequent SLR. Potential impacts (summarized in WB, 2000, Agarwala *et.al.* 2003) would include¹⁶:

- ◇ changes in water levels and induced inundations and water logging;
- ◇ increased salinity in ground and surface water, and corresponding impacts on soil salinity;
- ◇ increased coastal morphological dynamics (erosion and accretion); and
- ◇ increased incidence of natural hazards

¹⁵ SMRC, 2000a. The Vulnerability Assessment of the SAARC Coastal Region due to Sea Level Rise: Bangladesh Case (SMRC Publication No. 3). SAARC Meteorological Research Centre. Dhaka, July 2000; SMRC, 2000b. Recent Climatic Changes in Bangladesh (SMRC Publication No. 4). SAARC Meteorological Research Centre. Dhaka, September 2000.

¹⁶ World Bank, 2000. Bangladesh, Climate Change and Sustainable Development. Report No 21104-BD. December 2000; Agarwala, S., T. Ota, A.U. Ahmed, J. Smith and M. van Aalst, 2003. Development and climate change in Bangladesh: Focus on the Coastal Flooding and the Sundarbans. Organization for Economic Cooperation and Development (OECD). Paris, 2003.

The above-described impacts on coastal resources will add to the reduction of the economic potential and employment opportunities in the coastal areas, already under stress by occurrence of cyclones and storm surges. For example, increased high intensity storm surges might jeopardize the expansion of gas and oil exploration and exploitation activities in the coastal areas and supporting industries, especially in the offshore areas. A number of industries in Khulna have been facing shortage of fresh water during the dry season. Increased salinity levels will reduce fresh water availability for irrigation, while growing drainage congestion problems will result in longer periods of flood inundation. This will reduce the areas suitable for rice production. In addition, increased coastal morphological dynamics will contribute to the existing problem of loss of valuable agricultural land due to erosion.

The Integrated CZ Management (PDO-ICZMP) has commissioned a hydrodynamic model study to quantify the impacts of the projected sea level rise on the CZ of Bangladesh. In this study, impact of sea level rise as the key variable of climate change has been considered and its impact on the inundation depth and salinity intrusion are analyzed.

Inundated area has been calculated as the area under water at any depth at maximum water level. The scenarios are for the average monsoon flood from the upstream rivers and sea level rise. It is found that most of the increases in the flooded area are in the shallowly land. The base line situation i.e. 0 rise in the SLR the inundated area in the projected 16 coastal districts out of 19 is 1572085 ha at any depth. The percentage of increase in inundation area for different sea level rise are; by 2030, 14 cm sea level rise would 8%, By 2050, 32 cm would 10% and by 2100 rise of 88 cm sea level rise would inundate 6,000 sq.km, which is about 16% of the total land area. Patuakhali, Khulna and Barisal regions are most at risk from sea level rise.

On average, the sea (mean tide level) would raise by 40 cm in Shahabazpur channel at Daulatkhan due to 88 cm rise in sea level rise. High tide is found to increase by 30 cm and 80 cm for 32 cm and 88 cm sea level rise respectively.

Sea level rise impact on salinity has also been assessed simulating the Bay of Bengal Model. Base condition is the dry season of 1997 upon which impact of 14 cm, 32 cm and 88 cm sea level rise has been assessed. the intrusion of 5 ppt salinity level under base condition and under sea level rise scenarios shows that sea level rise shall force to increase the salinity level in the Tentulia river, only fresh water pocket in the estuary. Also isohaline of 5 ppt has intruded more in the Lower Meghna river and it will travel beyond Chandpur for 88 cm sea level rise, whereas in base condition (0 SLR) 5ppt isohaline intrudes up to Shahabazpur channel.

The performance of coastal polders mainly depends on the tidal characteristics of the rivers surrounding the polders and degree of siltation in these rivers. Present study mainly focussed the change in the tidal characteristics of the surrounding rivers due to sea level rise and its impact on inundation area of the polder. It is evident from the model results that high water level at the surrounding rivers of polders increases in the range of 30 to 80 cm for sea level rise of 32cm and 88cm respectively. This rise will eventually hamper the proper functioning of a number of polders.

The Sundarban area experiences increased inundation with sea level rise. It has been seen that 84% of the Sundarban area become inundated with 32 cm SLR in 2050 and almost whole area of the Sundarban gets inundated with the SLR of 88 cm.

A simulation for 1991 cyclone has been carried out including 32 cm sea level rise. It is observed that surge height will be increased by 5 to 20 percent in the bay area.

NAPA for Climate Change and the climate cell are expected to create better adaptation mechanisms for coastal dwellers. Increased community understanding of climate change and adaptation mechanisms are being attempted through the 'Reducing Vulnerability to Climate Change (RVCC) project. Specific recommendations for adaptation are proposed (WB, 2000) in relation to most of the climate change impacts. However, coastal defense against sea level rise by physical interventions will be expensive. It

has been estimated that the cost of defending against a one-meter sea level rise would be US\$1 billion. This does not include the associated costs of impacts of hard coastal defenses, such as sea walls, on e.g. tourism and biodiversity. To resettle of about 13 million of impacted coastal population, an estimate of 13 billion US\$ has been made. The GDP decrease in the range of 28-57% could result from a 1m sea level rise (Agarwala *et.al.* 2003). The protection cost for the CZ of Bangladesh has been estimated at US\$ 1.2 billion with per capita cost of US\$ 12 (SMRC 2000a).

6. Challenges

There are issues that create vulnerabilities and impede development. Also, there are opportunities that brighten prospects for growth. A prudent path in this regard essentially involves two-prong approaches.

- There should be concerted efforts to enhance coping capacity of the people and institutions to reduce and/or withstand vulnerabilities.
- There should be resolute attempts to build on the opportunities offered by available resources and untapped potentials.

In the backdrop of above scenarios, the challenges for integrated CZ management as a package to reduce poverty, to enhance livelihoods and to improve governance are:

Improved disaster preparedness. The CZ is prone to natural disasters. These obviously threaten productive capacities, disrupt livelihoods and discourage investments. In future, the extent and frequency of these disasters are expected to increase due to predicted impacts of climate change and reduced flow of fresh water. The challenge is to be better prepared by evolving a long-term comprehensive disaster management program that facilitates risk management and enhances coping capability of coastal communities. Better preparedness has paid dividends in reducing deaths in recent cyclones.

Adaptation to declining natural resources: wise use. The natural resource base is shrinking fast. The domain of natural resource-based activities has already gone beyond a point of saturation. The challenge is to sustain the natural resource base for the future by reducing dependency on natural resources, specially through:

Shifting focus: It is necessary to shift the focus from natural resource based activities to human resource and skill-based activities for livelihoods. This will not happen automatically - alternative has to be provided. The challenge is to adapt to declining natural resources through creation of alternatives, wise use of resources, restoration/regeneration of declining resources and to apply a control mechanism through zoning and sub-zoning.

Emphasis on value addition of products from natural resources: Exploitation of natural resources will continue in foreseeable future in the CZ. Value addition processes of these natural resources should be gradually emphasized. This will bring higher return from same or less quantities of natural resources.

Ensuring basic needs for increasing population Despite all efforts of the Government, basic needs in terms of health care, safe drinking water, primary education, affordable housing and energy needs are yet to be met. Remote coastal islands and other places are yet to receive basic services. Private sector and NGOs provide some of these services. Two approaches can be taken, by increasing service provision and by increasing purchasing power of coastal communities. However, policy and capital support from public sector will be needed, specifically on following issues:

Maintaining food security: Bangladesh has recently achieved food autarky at the national level. Unless continued efforts are made, food needs cannot be maintained nationally. With increasing population and declining availability of productive land for agriculture, the state of food security is likely to be threatened. Import of food will again take away resources from national development budget. The CZ has high potential in crop, fish and livestock production. In order to maintain food security, the challenges are adopting appropriate technological means and intensive farming and alternative management options for stock enhancement for fisheries. Investments to support

coastal agriculture, marine fisheries and livestock development will maintain food availability in the CZ. At the same time, food support to hardcore poor has to be maintained.

Maintaining water security: Water is the lifeblood of economic activities in coastal Bangladesh. This is facing grave threat due to reduced flow of fresh water, saline water intrusion and absence of wise use of water. Proposed river link project in India further threatens water security of Bangladesh. The challenge is, while negotiations continue for just share of water, to build up water security nationally by adopting integrated water resources management, wise use of coastal groundwater, harvesting of rainwater, conservation and maximum use of available water. National Water Management Plan provides the framework.

Harnessing untapped and/or less explored resources. The CZ is richly endowed with resources. Some of these are untapped and some are not optimally utilized. For example, harbors operate far below their capacity. Tourism potential beyond few enclaves has hardly been explored. Natural gas reserve of the country is yet to be estimated. Renewable energy sources like wind and tide have not yet been tapped. The challenge is to develop knowledge base and infrastructures that would harness these resources. All these add up to huge potential for much needed non-farm employment. These can rejuvenate supporting and linked opportunities. New initiatives like deep seaport at Moheshkhali, gas based industries in Bhola and island tourism offer huge potential. Introduction of wind and tidal energy can boost small and medium enterprises (SMEs) in remote places.

Continued economic growth: increased non-farm employment generation. Continued economic growth in the CZ is required for poverty reduction. While utilization of distinctive development opportunities in natural resources should continue, a shift has to be made in investment and creating employment in both rural and urban non-farm sectors. There labor force will be 22.1 million in 2015 and 37.1 million in 2050. Agro-based value addition industries, tourism, service sector, transport, shipbuilding are some of the non-farm sectors that should receive attention for further investment. Emphasis should be placed on pro-poor and pro-women economic growth, sustainable development and enhanced efficiency.

Pro-poor economic growth: Although development interventions are taking place, benefits do not necessarily trickle down to the disadvantaged groups. The challenge is to work out a strategy that ensures pro-poor economic growth, specially investing in labor-intensive activities, diversifying investment in remote areas, etc .

Sustainable development: Economic growth is often in conflict with sustainable development. While there is a need to encourage more investments, to create more jobs and to generate more income, these are to be achieved in harmony with nature, without disturbing the critical ecosystems that support life and habitat. For example, ship-breaking industry immensely contributes to the economy in terms of employment and supply of raw materials for construction and manufacturing. It also ruins the habitat of marine aquatic resources. Urbanization accelerates the pace of industrialization. It also replaces low value (cash) ecological production systems. The challenge is to ensure rapid economic growth in a sustainable manner adhering to conservation laws and regulations.

Enhancing efficiency and remaining competitive: Certain activities have developed over the years in response to global consumer demand for particular products. Among these are export infrastructure (port, freight insurance), shrimp culture, etc. These are highly susceptible to fluctuations in the global market. Any erratic behavior in the international economic environment would adversely affect these activities and, in turn, would disrupt livelihoods of many people. The challenge is to attain competence and efficiency to respond to fluctuating global market conditions and to evolve necessary coping capacity.

Private sector involvement in service delivery. The private sector is already playing a important role in the development process for enhancement of coastal livelihoods. At least 70 percent of all investments come from the private sector. Areas of private sector involvement with high poverty reduction impact, such as development of small and medium-scale enterprises (SMEs) and business development to generate employment, income and production should be identified and prioritized. The focus of the

private sector can be geared towards economically viable and financially rewarding projects that have significant potential to impact livelihoods of the coastal people, such as power generation and transmission, transportation, telecommunication, fisheries, tourism, etc. Private sector can also develop basic health care infrastructures, particularly those benefiting women and children.

Attention to growing coastal urbanization. An inevitable consequence of urbanization is the growth in demand for space for residential needs, and expansion of infrastructure and other associated urban attributes. There is a need for allocating space for a growing population of various income levels, including the needs for services in the direct environment, such as fresh food production, water supply and sanitation, employment, health and education facilities.

Investment in human development, especially women. Investment in human development has higher rate of return. This will be more rewarding in investing for coastal communities, as that will create resilience to withstand vulnerabilities and enhance capacity to exploit opportunities. Women are engaged in productive activities (in cash earning and to a greater extent in cost saving) in no less proportion than men. Limited social mobility and occupational rigidity are deterring factors to larger women involvement. The challenge is to create an enabling environment in terms of favorable social attitude and gender-friendly job opportunities.

Area wise integrated planning including zoning and sub-zoning. Along with usual sector wise planning, integrated planning has also been attempted. Benefits of sector wise planning are often not evident. People can correlate themselves easily with area wise planning. A gradual shift is needed from sector wise planning to area wise planning. Budgetary allocation can gradually be linked to area development plans. Upazila should be considered as the lowest unit of development. This will allow local level participation in planning, prioritization and implementation. An immediate need is land zoning and sub-zoning, which has been advocated since eighties. Because of competing and demanding land use, an indicative land zoning has already been done. This will be used to guide a more detailed land zoning in the CZ following the Land Use Policy 2001.

Decentralization: local government involvement. Decentralization of development efforts is a declared approach of the government. Different measures are being taken to promote local government involvement. But more concrete steps are needed. The need for local government involvement is urgent in the CZ because of its diverse vulnerabilities. There are examples of benefit of involving the local government. An understanding of resource availability and local resource mobilization will facilitate local government institutions in realistic planning and development. The challenge is to press for adequate allocation of resource in the national budget. This will strengthen local government and facilitate decentralization. Examples from a number of pilot exercises are available.

Institutionalization of coastal management. Institutionalization of coastal management has been attempted previously through a number of initiatives. The present ICZM initiative has been structured to formulate and operationalize the institutional process. A number of setups at different levels are being established and some are expected to continue for a longer time. An indicative institutional mechanism has been mentioned in the CZPo and elaborated is CDS in chapter 4. The challenge is to operationalize co-ordination at the national and local levels, resource mobilization and funding support, capacity building and supporting knowledge management activities.

ANNEX B. SECTORAL STRATEGIES & PLANS

This CDS builds on existing sector strategies and plans.

National Water Management Plan (NWMP), 2001. This plan, approved on March 31, 2004, provides a framework at national and regional level within which line agencies, local government and other stakeholders may plan and implement their own activities and projects in a coordinated manner, consistent with overall national and sectoral objectives. Prepared on the basis of technical assessments and through extensive consultations, the Plan is set in the context of a 50-year development perspective. It is a rolling 25-year plan in three phases. The short-term (2000-05) is considered a firm plan, the medium-term (2006-10) an indicative plan, and the long-term (2011-25) a perspective plan. Preparation of the NWMP-II for 2006-2010 has been initiated.

Bangladesh Tourism Vision 2020. This document forecasts 0.9 million international visitors in 2020 from 0.24 million in 2003 (BPC 2004). The vision recognizes the importance of domestic tourism and targets 4-5% contribution to GDP. The vision promotes specific products such as cultural heritages, ecotourism (Sundarbans & Teknaf Peninsula), riverine tourism, rural tourism, Kuakata and Cox's Bazar as Special Tourist Zones and Sonadia & St. Martin's as exclusive tourist zones. This vision document has indicated necessary marketing, advertising, public relation and promotional plans.

Forestry Master Plan & Integrated Forest Management Plan 1993-2012. The Forestry Master Plan (ADB, 1992) was prepared in 1993. Following this, the Integrated Forest Management Plan was prepared in 1999 for all the 39 divisions of the FD. This plan has a time horizon of 1999-2008. The MoEF has approved the plan in February 2000.

Sustainable Environmental Management Program (SEMP), 1998-2005. In 1997, as a follow-up to NEMAP, the government approved this US \$ 26 million UNDP funded program. This is the largest ever-environmental grant provided by UNDP globally. The programme unites the government and other development agencies in Bangladesh including NGOs and the private sector dealing with major environmental issues under an umbrella national programme to address environment objectives. Activities under SEMP will be undertaken in five main areas for implementation in Bangladesh related to policy and institutions, participatory eco-system management at grass root-level, community based environmental sanitation, awareness and advocacy, and training and education. Most of the activities, being carried out under SEMP, has relevance to ICZMP but these four are of particular importance:

- coastal land zoning in south-west: CEGIS;
- sustainable resource management in brackish water areas : CARITAS;
- sustainable rural energy: LGED; and
- community based water supply and sanitation: DPHE.

Comprehensive Disaster Management Programme (CDMP). The long-term vision is to reduce the vulnerability of people, especially the poor to the effects of natural, environmental and human induced hazards to a manageable and acceptable humanitarian level. The Ministry of Food & Disaster Management has released 'Corporate Plan 2005-2009: A Framework of Action'. The mission is "to achieve a paradigm shift in national disaster management strategies from conventional response and recovery to a more comprehensive risk reduction culture, and to promote food security as an important factor in ensuring the resilience of communities to hazards". This will be achieved through interventions in six key result areas:

- Strengthening and professionalising the Disaster Risk Reduction System.
- Mainstreaming of disaster risk management programming through coordination, cooperation and advocacy (partnership development).

- Strengthening of community institutional mechanisms (community empowerment).
- Expanding Mitigation, Preparedness and Response Strategies across a Broader Range of Hazards.
- Strengthening Emergency Response and Recovery (Relief and Rehabilitation) Systems (Operationalising Response and Recovery).
- Maintaining and strengthening the National Food Security System.

A Climate Change Cell has been established at the Ministry of Environment & Forests. Most of the activities, to be carried out under the CDMP, have relevance to ICZMP, as the CZ is the most disaster prone area of the country.

National Action Plan for Adaptation (NAPA) to Climate Change. Being formulated at the Ministry of Environment & Forests with financial support from Global Environment Facility (GEF) through United Nations Development Programme (UNDP). It covers six thematic area/sectors i.e. a) agriculture, fisheries and livestock, b) forestry, biodiversity and land-use, c) water, coastal area, natural disasters and health, d) livelihood, gender, local governance and food security, e) industry and infrastructure, and f) institutional and policy issues. The Action Plan has been finalized and submitted to UNFCCC.

Bangladesh National Conservation Strategy 2005. This document is a revised and update of the Bangladesh National Conservation Strategy prepared in 1992. These strategies are designed to ensure conservation of resources to ensure sustainable development and actions are designed to guide implementation of the strategies. Land zoning, coastal land use, afforestation, newly accreted lands feature prominently in this strategy.

Fisheries Sector Strategies. A series of 8 sub-sector strategy documents are being prepared. These are:

- * Aquaculture Strategy
- * Aquaculture Extension Strategy
- * Shrimp Strategy
- * Marine Fisheries Strategy
- * Inland Capture Fisheries Strategy
- * Planning, Monitoring & Evaluation Strategy
- * Human Resources Development Strategy
- * Quality Control Strategy

Finalization of these sub-sector strategies is awaiting approval at the Ministry of Fisheries & Livestock.

ANNEX C. PRSP AND THE COASTAL ZONE (CZ)

The approved document titled National Strategy for Accelerated Poverty Reduction (PRSP)¹⁷ contains an elaborated synthesis of the perspectives and strategic thrusts. CZ, in its entirety or partly, has surfaced in the document directly or indirectly in a number of ways, such as, CZ, saline zone, areas vulnerable to cyclones and natural disasters, river erosion prone areas, remote islands and chars, southwest region, Sundarban, and so forth. It acknowledges the CZ as a special focus area that is distinct in many respects and indeed suggests for special attention. The document very well acknowledges the fact that “there is considerable interface between the persistence of chronic poverty and unfavorable agricultural environments, (e.g. salinity-prone, flood-prone, river-erosion prone, drought-prone areas)” (page xvi).

The document also deals at length about the adverse impact of natural disasters on the process of poverty reduction and growth. “Bangladesh being one of the world’s most disaster-prone countries, it can ill-afford to ignore the adverse impact of natural disasters on the process of poverty reduction and growth. The disaster risk management must be integrated with development activities” (2.32, page 21). “Natural disasters in Bangladesh have their roots in the nature of its terrain, the physical geographic features, its long coastline and the tropical climate” (2.33, page 21). The estimates of the economic impact of disasters like cyclones, tornadoes, droughts and arsenic contamination of water are either hardly made or are not available publicly (2.35, page 21).

Consultations

Consultations have highlighted the special problems and constraints of some areas e.g. islands, char, coastal and *haor* areas. These areas have more resource constraints, problem of accessibility and more vulnerability to natural disasters. These problems warrant special attention and endeavours for the development of these areas, especially concerning poverty reduction. (3.40, page 33)

Critical sectors for pro-poor economic growth

The PRSP document mentions the following.

Agriculture and rural development “Agro-ecologically disadvantaged regions such as deeply flooded areas, char land, flash-prone areas, coastal tidal surge and salinity prone areas, and hilly areas together constitute about 41 percent of the country. A large number of poor people live in these areas. These regions show lower yield and productivity, compared to the national average.....” (5.115, page 89).

Fisheries “The strategic plan for the implementation of the national Fisheries Policy will be finalized.... The plan of action will address development of inland and coastal fishery management....” (5.124, page 92).

Forestry “The programme for the integrated biodiversity conservation in the Sundarbans reserve forest, the coastal green belt and intensive afforestation will get priority” (5.132, page 95).

Crosscutting issues (land related issues) “Some of the other practical options for improvement of land use include: (i) protection and recovery of public land from illegal occupation, (ii) distribution of available *khas* land to the poor for housing, (iii) modernization of land records, updating and implementation of land use policies, (iv) ensuring access of the poor owners to their new accretion in char land (v) facilitating credit supports to landless and tenant farmers, (vi) prevention of alarming loss of agricultural land, and (vii) prevention of wasteful use of acquired land”, (5.140, page 97).

Water resources development and management “The water resources management thus identifies the major issues of concern as floods, drainage congestion, droughts, cross-boundary flows, river erosion and accretion, cyclones, water quality and rights, surface water salinity, groundwater quality, climate change and environmental management” ((5.157, page 102). “Key areas of intervention and critical location are identified below as part of the pro-poor growth strategy (5.166 – 5.171, pages 105-105).

“Flood: Floods affect the poor most as they live in the agro-ecologically disadvantaged areas. The critical areas include char lands, coastal areas, haors and other deeply flooded areas.

¹⁷ The PRSP document has been approved at the Cabinet meeting on October 15, 2005

“Salinity: A high salinity limits the utilization of surface water. The southwest region is the critical area. A Ganges barrage, revival of rivers and salinity protection measures are suggested as interventions.

“Erosion: Coastal islands, the southeast region, the Brahmaputra-Jamuna river banks are the critical areas. These areas need interventions in the form of riverbank protection, cross-dams, and land reclamation for rehabilitation of the poor.

“Drainage Congestion: Khulna, Noakhali and similar other congested pockets need intervention. The suggested measures include dredging and tidal basin management.

“Sundarbans and Wetlands: The Sunderbans, haor basins, Khulna-Gopalganj beel areas are the critically affected areas. The suggested interventions include ensuring adequate water flow, and legal and institutional measures for sustainable abstraction of wetland resources by the poor .

Gas sector “The policies will be directed towards expanding the national gas grid to cover western, north-western and south-western zones to promote industrialization and accelerate balanced regional development” (5.197, page 110).

Renewable energy including solar energy “The Government’s vision of electrifying the whole county by 2020 through grid expansion may not be viable due to inaccessibility and low consumer density in certain areas. It is an established fact that renewable energy is an environmentally sustainable and socially acceptable option in the off-grid locations. To fulfill the GOB’s vision of universal electrification, renewable energy sources will have to play a vital role for off-grid electrification. REB has taken another renewable energy project for providing 6000 homes with power from a solar photo voltaic system for the isolated and remote areas of the coastal belt. To encourage such efforts, it is necessary to establish a Renewable Energy Trust Fund to finance renewable energy projects and Research and Development (R&D) activities.” (5.206, page 112).

Port “Measures to set up free economic-zones at deep seaports at Moheshkhali and Kutubdia and constructing coastal highway link roads will get priority” (5.221, page 115).

Safety nets and targeted programs

“Separate safety net programs are needed to alleviate poverty arising from area specific problems like river erosion, salinity and arsenic pollution. Geographic targeting taking these characteristics into account is still lacking” (5.277, page 126).

Human Development

Access (to primary education) is also low for ethnic and linguistic minorities and people living in *char*-land, lowland *haor* and coastal areas where there is a disproportionate concentration of the extremely poor (5.294, page 130).

Also improve gender equity in access to (health) services in hard-to-reach areas (like coastal, hilly, haor or char areas) through satellite clinics and outreach centers (5.342, page 141).

Caring for the environment and sustainable development

The PRSP document mentions the following.

Conservation of nature “The linkage between poverty and conservation of natural resources is a mutually reinforcing process. Communities living in urban slums, people living in areas prone to severe floods, drought, salinity and bank erosion; and river/estuarine islands, tribal communities living in hills and forests, communities of landless and migrant workers, depend on natural resources for livelihood” (5.483, page 177).

“In discussing conservation of natural resources attention is given mainly to five issues. These are (i) agricultural land degradation and salinity; (ii) biodiversity; (iii) public commons; (iv) afforestation and tree plantation; and (v) urbanization-related environmental issues” (5.484, page 177).

Agricultural Land Degradation and Salinity: “Increase in salinity of topsoil also has a large impact on agricultural production. Since the Farakka barrage started its operation, the environment in the southwest region of Bangladesh has been adversely affected due to an increase in salinity. The northward movement of the salinity frontier has already threatened the mangrove forests, part of the World Heritage site, reduced

agricultural productivity, and affected millions of people living in the southwestern region of the country. The Indian River Linking Plan of diverting water from the Brahmaputra, in Assam, to the Ganges basin in West Bengal, without releasing sufficient water for Bangladesh will be disastrous for the economy and for the ecology of Bangladesh” (5.486, page 178).

Biodiversity: “There are 16 protected areas (PAs) in the country. In addition, the Government has declared the Sundarbans, Cox’s Bazar, Teknaf Sea Beach, St. Martin’s Island, Sonadia Island, Hakaluki Haor, Tanguar Haor, Marjat Baor, Gulshan, Banani and Baridhara Lake as ecologically critical areas (ECAs) in Bangladesh. In terms of poverty, people living on the resources in these areas are generally poor. Consequently, reduction of opportunities to access resources from these ECAs and sanctuaries will result in conflicts and social unrest. Policies need to be adopted for community-based participatory management to reduce and/or rationalize their dependence on such resources to ensure their sustainable management and poverty reduction” 5.490, page 179).

Pollution: “In Chittagong, the main polluters are the pulp and paper, fertilizer and petroleum/refineries industries. Most of the industries are located on the banks of the Karnafuli River and the Kaptai Lake. Similarly, the ship building industry contributes significantly to marine oil pollution. The other source of oil pollution is the ships and mechanized boats all over the country especially those- using the port and the outer anchorage area of Chittagong. Ballast and bilge water from oil tankers and ships anchored in the port should only be emptied at installations where the oil can be separated and recycled. This is mandatory in many countries, but in Chittagong ships directly discharge their waste oil-water mixtures into the Bay of Bengal” (5.508, page 183).

“In combating surface water pollution the Government needs to introduce land zoning of industries, strengthen water quality monitoring; enforce the Environment Conservation Act & Rules; introduce waste reception and treatment facilities in ports, and clean-up and rehabilitate hot spot areas in Dhaka, Chittagong and Khulna (5.509, page 183).

In the Appendix, the PRSP document contains sector-wise policy matrix. Policy matrix on water resources development & management includes specific propositions on integrated CZ management (ICZM).

Policy matrix 10: Water resources development & management

Strategic Goal	Key targets	Actions Taken/ Underway	PRSP Policy agenda (FY'05-FY'07)
3. Protect flood, improve drainage and reduce vulnerability.	Protection of lives and properties. Rehabilitation of 123 polders for protection of 1.28 million ha land from tidal flood and salinity intrusion.	Implementation of Priority Investment Programme (PIPs) to be developed under Integrated CZ Management Plan Project (ICZMPP)	Fixed-agency-wise responsibilities
5. Augment surface water utilization (retention) in rivers, creeks and khals	Re-excavation of rivers, canals, derelict ponds and rainwater harvest		Replicate Tidal River Management (TRM) Programme in the (South West region) coastal zone
6. Protect wetland/ Sundarban, saline water intrusion and promote accretion of land from the sea.	Environmental protection, habitation for the poor people on the raised platforms and in the char areas		Undertake co-coordinated efforts to make the accreted land habitable and suitable for crop production. Implement Integrated CZ Management Plan (ICZMP).
7. Make Institutional Development of water sector agencies.	Development of knowledge and capability for design of future water resources management plans & monitoring	Integrated CZ Management (ICZM) plan, Coastal Zone Policy (CZP)	

Source: PRSP document, October 2005

ANNEX D. PARTICIPATORY FORMULATION OF THE CDS

The CDS formulation process is embedded in several steps – preparation and consultation, using available resources and linking to the existing networks.

An outline of the CDS was prepared after consulting existing sector policy/strategy documents and taking into account the CZPO. This outline was presented in a *National Dialogue* held on 04 October 2004. A total of 57 representatives from WARPO, focal points of line agencies, representatives of Chittagong Port Authority, NGOs, the World Bank, the Netherlands Embassy, Dhaka University, IWM and CEGIS attended this dialogue. The Secretary of Ministry of Water Resources was the Chief Guest. The recommendations of this dialogue were useful in CDS drafting.

Regional level consultation meetings on CDS were organized in Barisal, Chittagong, Khulna and Noakhali in October 2004. Outline of the CDS was presented in these meetings with a notion of initiating discussions towards obtaining suggestion and recommendations. A total of 195 representatives from division and district level government agencies, local government representatives, and representatives of NGOs, chamber of commerce and industries, business, educational institutions, women's organizations, professional groups and other civil society groups participated in these meetings. Participants' contributions, grounded in the regional contexts, were used in drafting the CDS.

District & local level consultations were organized during the month of March-April 2005 to share and discuss the draft CDS. These consultation meetings were organized in all the 19 coastal district headquarters, and in three selected Upazila headquarters (Patharghata, Shyamnagar and Teknaf), three selected Unions (Char Kajal, Magnama and Rayenda Union Parishad), and in three selected Islands/chars (Kutubdia, Dhal Char and Nijhum Dwip).

A total of 1064 persons of which 199 were women participated in these consultation meetings. Participants were from the government agencies, local governments- City Corporation/Pauroshova/ Union Parishad, NGOs, chamber of commerce and industries, educational institutions, people's organizations, media, professional groups – lawyers associations, cultural organizations, and other civil society groups. Head of respective district and Upazila administrations and the Union Parishad convened these consultation meetings.

Hopes:

I have participated in the previous (regional level) workshop on CDS; to me, this process of local level consultations is a very good initiative; as many consultations in local levels take places, problems are clearly identified and options for solutions are explored. General trend is that the higher levels often ignore the local people's opinion and their representatives' opinion; but the liabilities, caused by the failure of projects, are left with the local people.

- Md. Mahmudul Haque Fayez, Journalist, Noakhali

Thanks PDO-ICZMP of WARPO for creating scope of participation for the stakeholders in district and also in more local levels in coastal policy formulation process and now the CDS, which will contribute designing a better strategy for coastal development, I believe if this CDS gets implemented the coastal people, especially the poor shall be benefited most.

- Ms. Monowara Begum, Protyasha, Chittagong

We are very happy to have a national CZPO in Bangladesh; we all are also very happy to see that the Coastal development Strategy is getting formulated in consultation with the stakeholders in coastal zone. Knowing the focuses of CZPO and the proposed actions for CDS one can easily say, 'new days are coming for the coastal people'.

- S. M. Parvez, BTV and Jugantar Correspondent, Pirojpur

Concerns:

I myself attended so many seminar/workshops, resulted no benefit. Projects should be realistic, e.g., if the Tk.21 crore had invested for socio-economic projects, instead of the 'Marine Park' in Saint Martins, then the benefits would go to the local people directly.

- Shaikh Matiur Rahman, Forest Ranger, Teknaf

Bangladesh is known as a country of seminar/symposiums; attending workshop/seminars feelings born like everything will happen tomorrow. However, I wish CDS would be materialized.

- Muhammad Nurul Anowar Chaudhury, PO, ECFC, Kutubdia

The culture of 'integration' has not been in practices in Bangladesh; so, first, we need to think whether 'integrated approach' would work, e.g., ECFC project was more or less 'integrated' one, but, in practice, other agencies are not involved actively in this process.

-Md. Jamal Uddin Ahmed, UNO, Kutubdia

This is the first time that the people from remote chars and islands got opportunity to participate in the processes of formulation of such a significant national policy document.

The participants of all these consultation meetings, based on the contexts of the respective area, identified the 'priority actions' including the 'top five priority actions'. Comments, suggestions and recommendations from participants in all the above discussions, were documented in a proceedings (WP 039, 2005).

Public contributions were solicited through announcements in four national newspapers (February 9, 2005) and extensive responses were received, indicating solutions of problems, in some cases specific. For example:

- O & M of sluice gates for effective field water management
- Dredging of silted canals
- Processing & value additions of agricultural products
- Electricity supply from national grid
- River/coastal marine police in patrol boats on main routes
- All boats must have wireless contact
- Subsidized BWTV and/or transistor radio for all boats
- River/coastal marine police in patrol boats on main routes
- Prevent gradual loss of cultivated crop lands
- Identification of new tourist spots
- Larger & better multipurpose cyclone shelters
- Land reform; new char lands for landless
- Encourage fresh water fish farming and discourage bagda shrimp cultivation
- Permit new bank branches in underdeveloped and remote coastal areas to facilitate institutional lending
- Construction of Sandwip cross dam
- Rehabilitation of erosion victims

- Efficient O & M of sluice gates must be ensured for effective water management for agriculture fields.
- Dredging of silted canals is very important for removing water logging as well as ensuring water availability in dry season.
- Improved technology and factories are essentials for processing & value additions of agricultural products.
- Electricity supply should be ensured for promotion of business, communications, and livelihoods opportunities.
- *Md. Shamsuddin Khan, Executive Director, Barguna*
- Information on sedimentation and continental shelf is essential to envisage the future trend.
- Creating greenbelt through the participation of the local people/beneficiaries to establish its sustainability.
- Land use planning connected to marketing facilities is very important.
- *JU Shoaib, SRDI, Ministry of Agriculture*
- River/coastal marine police in patrol boats on main routes and their boats must be equipped having wireless, radio/BWTV, etc.
- *Cdr (Rtd) AMM A'abad, Consultant*
- Prevent gradual loss of cultivable crop lands
- Identification of new tourist spots
- Building larger & better multipurpose cyclone shelters.
- *Md. Jafar Sadek, Pailanpur, Pabna*
- Land reform must ensure the landless have access to new char lands.
- Steps for bringing the bank branches in underdeveloped and remote coastal areas to facilitate institutional lending.
- *Nurul Amin Majumder, Trunk Road, Feni*
- Construction of cross dam to protect the islands (e.g., Sandwip)
- Projects should be taken up for rehabilitation of erosion victims.
- *Sandwip Association, Chattagram*

The NGOs like Uttaran, CDP and CODEC and many other individuals have sent elaborate and specific proposals, which were valuable contribution in the process of improving the CDS draft.

Peer review of the CDS was done by a group of national experts (11 renowned experts) on 7 June 2005. Among the participants were former Secretary of the Ministry of Water Resources Dr. ATM Shamsul Huda and Azad Ruhul Amin, Legal Counsel of Ministry of Foreign Affairs Barrister AKH Morshed, Prof. HKS Arefin of Dhaka University, Prof. Dara Shamsuddin of Jahangirnagar University, Prof. Feroz Ahmed of Bangladesh University of Engineering & Technology, Former DG of WARPO MH Siddiqui Bir uttam, former DG of BWDB Mukhlesuzzaman, former Chief Engineer of BWDB Sayeedur Rahman, Senior Research Fellow of BISS Dr. Abul Kalam Azad, Ahsan Uddin Ahmad of BUP and Syed Tamzidur Rahman. The experts made valuable comments on the draft CDS, which were taken into account in finalization process of the CDS.

Consultation with the Parliament Members on draft CDS was organized in Dhaka on 9 July 2005. The draft CDS was presented in this meeting in which MPs of Coastal area participated. The Deputy Speaker of the Parliament Mr. Akhter Hamid Siddiqui chaired this meeting and Mr. Hafizuddin Ahmed Bir Bikram was the Chief Guest. The MPs recommended for better CZ Management, prioritization of investment programs, involvement of people's representatives in planning and monitoring, ensuring transparency and accountability, formation of Coastal Development Board and increased budgetary allocation for the CZ. Contributions of MPs in this consultation meeting would enrich the finalization of CDS.

Draft CDS presented at the 8th inter-Ministerial Technical Committee meeting on July 11, 2005.

Final Draft CDS was endorsed at the 9th inter-Ministerial Technical Committee meeting on October 16, 2005.

ANNEX E. APPROACH FOR GENDER MAINSTREAMING

Context

Although the Gender Development Indicators in Bangladesh in recent years have shown encouraging upward trends in development, the majority of women in the CZ, as elsewhere, are still outside the development fold. While both poor men and women in the coast have a common legacy of poverty and insecurity, the poor woman is 'poorer than the poorest man'. And with the ever-increasing number of this hardcore poor, the 'face of poverty' begins to look more and more 'feminine'.

On the basis of three major variables, namely total population, literacy rate and proportion of economically active population, CPD-UNFPA has developed a Gender Related Development Index for 64 Districts of Bangladesh and has ranked the districts according to gender disparity. According CPD-UNFPA (2002), as many as 11 out of the 19 coastal districts fall under 'low gender disparity' category (Barisal, Bhola, Patuakhali, Jhalokati, Pirojpur, Barguna, Jessore, Narail, Bagerhat, Chittagong, and Noakhali), only 6 fall under 'medium disparity' (Khulna, Cox's Bazar, Chandpur, Gopalganj, Feni and Lakshimpur) and 2 fall under high disparity (Satkhira and Shariatpur).

Linking coastal priorities to national strategy

The goals and strategic elements of the national strategy have to be taken advantage of in developing a gender strategy within the framework of a Coastal Development Strategy. The major priority areas of the PRSP fall into a pattern that comfortably fits the needs of the CZ. Simultaneously, many government and non-government initiatives are trying to address the problem of gender and working for the advancement of women in Bangladesh.

Thrust areas

For women's empowerment, the development interventions must have active participation of women from beginning to end. They should be organized for continuous development actions.

With a little on-job training they, as a collective force, can successfully implement minor earthwork for embankment, tree plantation, embankment maintenance and like other labor-based schemes through signing contract agreement as small contractor. They can also collectively or in small groups can run integrated agricultural farms (fish, vegetables, plant nursery, poultry, cattle) on self- help basis by taking micro-credit.

The process for women's mobilization necessitates women's participation in training on social awareness, planning and resource management. Courses should be designed in such a way that the participants find those very closely related to their needs and concerns. Extension staff should assist them in all respects.

The contents of training courses may include, among others:

family laws, human rights, women rights, child rights, etc., as guaranteed in the Constitution and other laws;

health and family planning, nutrition, sanitation, etc.; and

assessing feasible income generating activities (IGAs) for women.

Leading issues

A leading issue in formulating a gender approach, given the ground realities in the CZ of Bangladesh, is to achieve women's empowerment and to adopt gender sensitive programs that help in such empowerment. Empowerment of women is sought as women are discriminated and deprived as a weaker sex in accessing resources and in participating in decision-making. In the development objectives of the national strategy of the government (PRSP), as well as in the CZPo, 'gender' issue has been addressed in two ways. First, it is considered a crosscutting issue that needs to be attended and mainstreamed in all

spheres. Secondly, there should be specially designed programs that would contribute to reduction of gender gaps. In order to enable the disadvantaged women to assert their role in respective communities and in the public domain, concerted efforts are needed to enhance their capacity. This boils down to following propositions.

Plans and programs must follow parallel tracks for **capacity building** along with consciousness-raising. This includes carefully selected training programs.

Programs should take a definite stand in the form of **affirmative actions** in the field of development. This includes special projects directly contributing to reduction of gender gaps and enhancement of women's situation.

Programs should affect **all spheres of life**. This includes an institutional mechanism to see the effective utilization of gender mainstreaming approaches towards achieving the objectives of empowerment of women and the disadvantaged in the coast.

Affirmative actions

Leading issues in ICZM concept in Bangladesh is poverty reduction and empowerment of coastal communities. Women as a category should be the natural targets for interventions to achieve the desired results.

An approach to mainstreaming gender in all spheres of life would essentially include incorporating gender concerns in a coastal development strategy. This means, the feasibility of each intervention should be appraised in terms of how it affects the state of gender equality/inequality. Selection criteria for priority investment programs (PIP) should adhere to this strategic thrust.

However, there is no alternative to selected affirmative actions exclusively designed for women as beneficiaries. For greater success of these actions, it is an imperative to enable women to participate in all stages of interventions, from planning through implementation, monitoring and evaluation. This may be initiated through some pilot exercises in vulnerable areas and in vulnerable communities.

It is true that most women are involved in natural resources-based activities, either on a self-employment basis or as waged workers. Accessing common access resources has been a gray area for women. Community management of natural resources by women in selected fields can be an entry point for affirmative actions.

Existing projects & Programs

Apart from NGO programs, some of the existing initiatives are:

- Policy Leadership and Advocacy for Gender Equality Project
- Self-employment project of the poor women

ANNEX F. CONCEPT NOTES: CRITERIA & PROCEDURES

Concept Notes (CNs) are proposals for concrete actions to implement the CDS. As the “operational arm” of the CDS, they reflect a procedure to identification, specification and selection of programs and projects that are ready for implementation by GoB, non-GoB and donor agencies. It is emphasized that CNs consider all projects and programs (such as investments in infrastructure and training programs) that either serve the development of the CZ as targeted in the CDS or serve the process of ICZM itself (for example through the establishment of a knowledge base). CNs also have a detailed description of the project in terms of objectives, expected outputs, approach, institutional arrangements. It often contains a work plan, and indication of the costs and the modalities for monitoring.

A stepwise approach has been developed that aims to make the process of selection and decision-making transparent. This is not only important in the context of an accountable ICZM process, but also aims to facilitate linking the CDS to the PRSP and corresponding national planning efforts. The following steps are included.

- *Identification of concepts and formulation of concept proposals.* Concepts have been developed in many ways; very often from implementing agencies that recognize the need for integration and coordination.
- *Selection of concept proposals.* The selection process assessed the contribution of the individual concept proposals to the development of the CZ and/or the ICZM process itself. The selection process also paid attention to the feasibility of the proposed action. Selected concept proposals are elaborated into Concept Notes.
- *Formulation of CNs* by a work group, guided by an assigned lead agency. A CN results from an elaborated reconnaissance and not from a detailed feasibility study. CNs specify the expected outputs of the projects, the methodology to be followed and how the project or program is to be implemented. A process approach has been followed in the formulation of each of the concept note. [example in box]

FORMULATION OF A CONCEPT NOTE- A process involving multi-sectoral Agencies

The CN on groundwater management has been prepared following the steps presented below:

- Identified as serious concern, e.g., through CDSP missions on groundwater and fresh water supply (Oct and Nov 02).
- Discussions (Dec 02) with DANIDA expert Peter Hersom (DPHE) and BUET professor Feroz Ahmed confirm the concern and the need for a comprehensive approach.
- A review of available studies has been made in January 2003.
- Technical expert meeting was held on 12-3-03 (presided by Prof. Feroz) (agency present: BUET/ITN; BWDB; DANIDA/DPHE; GSB) agreeing on preparation of a CN under leadership of DPHE/ DANIDA
- Concept note preparation (draft) was supported from further discussion with Prof. Feroze and Peter Hersom
- CN (preliminary draft) was made by DANIDA/DPHE
- Expert meeting on 26-7-03 (presided by Prof. Feroz) (agency present: BUET/ITN; BWDB; DANIDA and DPHE; WARPO)- IWM also included in the process
- Working group meeting was held at IWM on 17-9-03 (agency present: DPHE-DANIDA, IWM)
- Discussion with CEGIS (FP) to include in the process
- Draft CN has been made (4/11/03) - which needs further working group meeting and suggestion from the agencies involved to develop further. DPHE took leading role
- Meeting held on 7-1-04 (agency present: DPHE, BWDB, WARPO, DPHE-DANIDA, IWM, CEGIS, GSB)- working committee formed
- Meeting held on 7-3-04 (agency present: DPHE, BWDB, IWM, GSB, DPHE-DANIDA, CEGIS, WARPO)
- Meeting held on 26-1-04 (agency present: BWDB, GSB, IWM, CEGIS)
- Draft final submitted to the main committee on 25-5-04
- Finalization Meeting held on 9-6-04 (agency present: DPHE, DPHE-DANIDA, BWDB, IWM, CEGIS, WARPO).
- Draft Concept Note forwarded to RNE and through them to DfID, DANIDA for consideration.
- At the same time, DPHE submitted the CN (final version) to MoLGRD&C on 14-8-04 for necessary action.

Criteria for selection of Concept Proposals are the following:

- The most obvious criteria are those that reflect the expected contribution of the proposed interventions to the stated *ICZM objectives*, taking as main reference the objectives formulated in the CZPo (CZPo) and elaborated in the CDS.
- A second group of criteria relates to the *ICZM process* as such and would measure the relevance of the proposal for the further development and establishment of this process in Bangladesh. These criteria represent the key functions of ICZM: harmonization and coordination of all players in the CZ; participatory approaches for decision making and implementation; and institutionalization of knowledge and experience built up through project approaches.
- The third group of criteria relates to the *feasibility* of the proposed project or program, e.g., in terms of technical, economic/financial and institutional feasibilities.

The CNs are considered technical notes that facilitate formal GoB and donor actions processed as PPPs and other documents. They follow rather similar GoB and/or donor procedures but would facilitate further elaboration into these formats as soon as they are picked up for implementation.

ANNEX G. PROPOSALS FOR SPECIAL FUNDING

The CDS proposes the creation of two special funding facilities. The objectives of these funding mechanisms are two fold: (a) to tackle, on an emergency basis, the problems of natural hazards like erosions, cyclones, salinity, and climate change by undertaking some protective measures and (b) to obtain funds for carrying out activities for long term development of the area. Multilateral institutions and donors will be expected to provide the necessary funds for the creation and maintenance of these facilities. The long-term objectives of sustainable development of natural resources should be separated from meeting the needs of security of the CZ following natural disasters for purposes of planning and design of necessary interventions. Finances are needed to meet both sustainable development of the coasts as well as ensuring security from natural disasters. On this understanding, separate funding facilities are proposed to mobilize finances for these two types activities.

For long term development, the CDS has proposed the creation of what has been called a **Coastal Environment and Development Facility**. This could pave the way for strengthening efforts to combat coastal environmental problems and in ensuring sustainable development of natural resources. Government could embark on the creation of this facility, somewhat similar to several environmental and business development facilities, such as the ones established by multilateral institutions and donors. This facility would be managed and operated independently of the Government, but within a framework of a comprehensive program for coastal protection and environmental management adopted by the Government.

The vulnerability of the coastal communities from sudden natural disasters cannot be met through public finances and quick mobilization of donor support. A **Coastal Disaster Preparedness and Emergency Mitigation Fund (CDPEMF)** could be set up under pledge of support by donors to be tagged to a comprehensive plan. This fund is not similar to a relief effort, which becomes necessary during cyclones, floods and storm surges in order to provide short-term safety to victims of natural disasters. The objective of the disaster fund would be to establish (i) permanent shelters to victims, (ii) comprehensive rehabilitation programs for erosion victims, (iii) and construction of embankments and dykes.

ANNEX H. MODELS OF GOOD PRACTICES

Since the ICZM does not intend to create any new institution, it therefore, looks into the good practices that the country has. Among the good practices, which could be specifically identified are three types (PDO-ICZMP 2004d), such as integrated planning practices, integrated management and the partnership at the grassroots level. Salient features of each type have been presented below:

Practices for integrated planning:

- Policy context affecting all partner organizations is harmonized prior to undertaking integrated planning exercises.
- Government designates a lead Ministry and a lead Agency to enable them to start the process of partnership development.
- Successful partnerships are broad-based and include key stakeholders from the beginning.
- The lead Ministry/Agency engages in several rounds of discussions with the prospective partners on the goals and broad outlines of the proposed planning activity on the basis of available documents.
- Successful partnerships establish clear institutional arrangements that define partner's roles and responsibilities.
- All partners are involved actively in all stages of preparation of the Inception Report.
- The Project Steering Committee (PSC) ensures continuous involvement of the top-level management of the partner organizations, smooth operations of the project and the required coordination of project activities.
- Ministerial level Committees provide the needed political support, policy directions, higher-level coordination and resolution of matters referred to it by other Committees at the bureaucratic level.
- Independent Panel of Experts provides technical support to the project professionals in dealing with complex issues within the framework of integrated planning.
- Technical Committees and various Contact Groups bring the diversity of views and approaches to focus and help in the formulation of integrated plans.
- A well-planned and well-executed public consultation program in different administrative jurisdictions of the country helps project authorities to obtain the views of people on different issues under consideration.
- Final output of integrated planning is a blending of top-down and bottom-up approaches of planning.

Practices for of integrated management:

- Partner organizations possess a threshold level of institutional capacity for integrated management prior to taking part in this kind of exercise.
- Government designates a lead Ministry and a lead agency for processing and implementing a project/program.
- The lead Ministry/agency takes necessary steps to: (a) include all the stakeholders, (b) involve them intensely in all pre-project activities and (c) take them into confidence in setting up the institutional arrangements.
- Partner's roles, duties and responsibilities are clearly defined in the respective project proformas approved for each of the participating organizations.
- A project organization is set up keeping in view the needs of the project and sensitivities of the partners.
- A number of Committees at various levels ensure smooth implementation of the program/project and overall coordination of the activities of different partners in achieving program/project development objectives.

Practices for partnership at grassroots level:

- Group is the most viable unit of organization for community development.
- Participatory community problem assessment is the first step toward group formation.

- Clear prospect of getting some material benefits is the driving force behind the decision to join a group.
- Small size and homogeneity of members are the hallmarks of better performing groups.
- Appropriate measures are taken for capacity building of members immediately after the formation of the groups.
- Groups are given financial support at the initial stage of their operation for building their financial capacity.
- Groups attain a better chance of sustainability when the service delivery organizations create economic opportunities for them by contracting out services or leasing out properties of which the groups themselves are the beneficiaries.
- Once groups are stable and operational, they are encouraged to link together in inter-group associations.
- Successful grass-root organizations build up collaborative networks with formally existing public institutions at the local and higher institutional levels.
- Continued group membership is contingent upon continuation of benefits that had originally motivated the members to join in the first instance.

Lessons that have so far been learned from the good practices have been validated further through stakeholders' consultation at local and national level. (detailed in Annex J)

ANNEX I. TASKS & WORK PROCEDURES OF THE PROGRAM CO-ORDINATION UNIT (PCU)

Task of the PCU

The tasks of the PCU are:

- Establishing links and support to local level agencies, NGOs, CBOs and media to strengthen local initiatives for participating in ICZM. Support establishment of supporting networks among coastal NGOs, media, CBOs, UPs and establish linkages between networks.
- Organize half-yearly meetings of focal points, district liaison points, and non-agency groups separately.
- Facilitate inter-agency discussions for continuous development of concept notes and possible investments
- Structure and revise PIP to link with the government's existing 3-year rolling plan, ADP on the basis of PRSP and other national plans
- Organize 'Investors Forum' meeting of private sector investors and relevant government agencies to review investment climate of the coastal zone and recommend fiscal and policy actions
- Preparation of integrated district development plans for all coastal districts,
- Regularly prepare position/topic papers on status and outlook on individual sectors
- Supporting studies on social, economic and natural processes including regional studies and updating of available coastal zone hydrodynamic modeling tools. Proposal and agreement on regional/framework studies, contractual arrangements, establishment of supervisory group for each studies, monitoring & evaluation, workshops, report publication and dissemination
- Information dissemination for mainstreaming ICZM, awareness building campaign among general people about coastal development initiatives
- Organize training including identification of human development (capacity building) needs, training needs, centers for training for different group of stakeholders, specific training in country and overseas.
- Identification and development of investment projects and initiatives,
- Maintenance and updating of ICRD as the core of the knowledge base. Prepare guidelines for structuring project database- Linkage between national and project databases
- Establishing 'Resource Center' where coastal zone management related books, reports, and documents from Bangladesh and overseas countries would be maintained. This will become a reference center for all coastal managers. Support links with district information centers.
- Outreach and dissemination through website, mass media, news letter, library and awareness materials
- Disseminate positive stories of coastal development through means of social communication including radio and TV stations located in the coastal zone and specially promoting community radio networks
- Formulation of rules, regulations, guidelines, manuals supporting the CDS, including an umbrella Coastal Zone Regulation.

- Establishing participatory monitoring mechanism including preparation of technical and annual reports on assessment of coastal zone development based on assessment framework and/or continued investments and projects.
- Adoption of Models of good practice in ICZM
- Review and revise CDS and PIP at periodic intervals, at least once in five years, through a participatory formulation process
- As focal setup for co-ordination of ICZM in Bangladesh, represent in national, regional and global forums
- Carry out any other specific activities designed to facilitate development of the coastal zone of Bangladesh

Working Procedures

- The PCU remains under WARPO. Specific contact points from different agencies will be identified.
- The Program Co-ordinating Director (PCD) will have drawing and disbursement power that will facilitate speedy and active interactions.
- The PCU maintains operational contact with relevant ministries, agencies, projects, and development partners and with district administration.
- *Focal Points* will be established in all relevant agencies and will act as operational contact points in relation to ICZM activities and maintain contact with the lead agency.
- A 'Liaison Point' is established in each coastal district to facilitate activities of the PCU.
- Existing Local Government structure (district, upazila, union) will ensure people's participation in planning and implementation. Participatory and integrated planning process at the local level will be promoted with linkages to PCU and sector agencies at the national level.
- Annual Work plans and Reports are made by PCU and distributed to all relevant ministries, agencies and districts.
- The technical assistance team and Inter-Ministerial GOB Experts will support PCU during project period.
- The steering & support structures proposed for the PCU a project "Institutionalization and Operationalization of Integrated Coastal Zone Management" will co-ordinate and monitor the activities of PCU/ WARPO.

ANNEX J. COMPOSITIONS OF PCU STEERING & SUPPORT STRUCTURES

The Inter-ministerial Steering Committee (SC):

The Minister/ State Minister in charge of the Ministry of Water Resources	Chairperson
Secretary Ministry of Water Resources	Member Secretary
Secretary, Ministry of Fisheries & Livestock	Member
Secretary, Ministry of Land	Member
Secretary, Ministry of Agriculture	Member
Secretary, Ministry of Forest and Environment	Member
Secretary, Local Government Division, Ministry of Local Government, Rural Development & Co-operatives	Member
Secretary, Rural Development Division, Ministry of Local Government, Rural Development & Co-operatives	Member
Secretary, Ministry of Food & Disaster Management	Member
Secretary, Ministry of Energy & Mineral Resources	Member
Secretary, Ministry of Civil Aviation & Tourism	Member
Secretary, Ministry of Shipping	Member
Secretary, IMED	Member
Secretary, ERD	Member
Member, General Economic Division, Planning Commission	Member
DG, WARPO	Observer
PCD, PCU	Observer

Inter-Ministerial Technical Committee

Secretary, Ministry of Water Resources	Chairperson
Program Co-ordinating Director, Program Co-ordination Unit	Member Secretary
Director General, Water Resources Planning Organization	Member
Director General, Department of Fisheries	Member
Chief Conservator of Forests, Department of Forest	Member
Director General, Department of Environment	Member
Chairman, Bangladesh Parjatan Corporation	Member
Director General, Department of Agricultural Extension	Member
Director General, Bangladesh Rural Development Board	Member
Director General, Bangladesh Water Development Board	Member
Director General, Department of Women Affairs	Member
Director, Directorate of Naval Operations, Bangladesh Navy	Member
Director, Coast Guard	Member
Director General, Disaster Management Bureau	Member
Director General, Directorate of Land Records & Surveys	Member
Joint Secretary, Ministry of Water Resources	Member
Representative, Ministry of Land; Not below the rank of Joint Secretary	Member
Representative, Ministry of Energy & Mineral Resources; Not below the rank of Joint Secretary	Member
Representative, Ministry of Disaster Management. Not below the rank of Joint Secretary	Member
Representative, Ministry of Fisheries & Livestock. Not below the rank of Joint Secretary	Member

Representative, Ministry of Environment and forest. Not below the rank of Joint Secretary	Member
Representative, Ministry of Civil Aviation & Tourism Not below the rank of Joint Secretary	Member
Representative, IMED Not below the rank of Joint Secretary	Member
Representative, ERD Not below the rank of Joint Secretary	Member
Representative, RD Not below the rank of Joint Secretary	Member
Representative, LGD Not below the rank of Joint Secretary	Member
Representative, Planning Division Not below the rank of Joint Secretary	Member
Representative, Finance Division Not below the rank of Joint Secretary	Member
Representative, Chamber of Commerce, Chittagong, Khulna ,Barisal	Member
President, Bangladesh Shrimp Development Alliance	Member
Representative NGOs	Member
Representative University of Chittagong and Khulna	Member
Chair, Local Consultative Group (Water) of development partners	Observer
Chief Technical Advisor to the PCU	Observer

ANNEX K. STAKEHOLDERS' CONSULTATION ON INSTITUTIONAL ASPECTS

In view of the above-described model, attempt was made to gather views of the stakeholders at multi-stage local levels. Thus, stakeholders' consultations have been pursued at union, upazila and district levels. Consultations were carried out in 9 sea-facing districts, covering same number of upazilas and unions from those districts. In each union, two separate consultations were carried out - male and female. From March to August 2005, 40 stakeholder consultations were organized from union to national level to find an effective institutional and partnership mechanism for ICZM at the local level. Participants varied in number where at union level average participants were 55, at upazila 60 and at the district level they were 100. A total of 2,769 participants attended and 28% of them were women. Among them were CBO/NGO representatives (26%), government officials (22%), private sector representatives (14%), local government leaders (14%), civil society representatives (12%) and other professionals (12%). Number of participants was 951 at the union level, 606 at the upazila level, 808 at the district level, 295 at the divisional level and 109 at the national level. They discussed about the role of local stakeholders in planning and implementation of projects and methodology and institutionalization of their participation. All out attempt was made to record views of different participants in the separate group as well as in the plenary sessions.

There were at least 12 thematic sessions in each consultation including sessions on coordination, participations, partnership, relations between stakeholders group, capacity of the local government, transparency and accountability, coordination committee and problems with institutional services.

Recommendations emanated from the stakeholders' consultation

Stakeholders formulated many recommendations. Those pertinent to institutional aspects have been noted below:

District level

The District Development Coordination Committee (DDCC) is responsible for ensuring interagency coordination at present. Participants emphasized the importance of the DDCC but highlighted the need of participation of heads of agencies and municipal authorities and not their representatives; the need for written opinion of the Minister if it is not always possible for the Minister to attend DDCC meetings; chairing of the meeting by an elected representative; co-opting representatives from the media, development partners, chamber of commerce and industries, professional groups and development organizations; creating an environment free from influence; supervise implementation after sending decisions to concerned ministry; and ensuring accountability of departmental heads. It should be broadened incorporating two UP chairmen from each upazila. In the monthly meetings, participants should not only discuss progress report but also following month's work plan. Besides, The DDCC should have more power and financial resources including emergency fund.

Upazila level

Participating stakeholders expressed positive opinion on a few aspects of the present Upazila Development Coordination Committee (UDCC), but suggested a few things. These are: to ensure representation of official from land office, municipality and representatives from trade bodies, professional groups, NGOs, etc; to decentralize power and authority and empower UDCC to manage local resources and to resolve local problems, i.e., distribution of khas land, canal excavation, etc.; democratization of UDCC, i.e., among others, to ensure allocation in a democratic manner and initiate projects on the basis of priority and through discussion following government rules; accountability of government officials regarding implementation of decisions and attendance in meetings; accountability of NGOs regarding respective activities; to form supervision committee and monitoring sub-committee; to have an elected chair for UDCC; coordination with district administration; and to enhance capacity and efficiency of UDCC.

Union Level

Union Parishad. Participating stakeholders argued for strengthening institutional arrangement at the union level. Suggestions include: ensure attendance of government staff in monthly meeting of the UP; ensure accountability of government staff/departments to the UP; activate standing committees; UNO should attend monthly UP meetings by rotation; ensure presence of all government officials including BS and others working at the UP level in the UNDCC to discuss about their works; offices functioning in the union should shift to the UP complex; there should be 2 additional co-opted members from each ward in the UNDCC who can participate in the meeting and can take-part in decision-making; decisions taken in the Union Development Coordination Committee should be reported and submitted to the Upazila; CBOs and UP should have close interaction; attempts should be there to make the health officials accountable to the UP and Upazila level local government; there should have mechanism of dissemination of information in open place; and organize training to UP members about their roles and responsibilities.

Women UP-members. Widen activities of female UP Members; There should be arrangement to impart training to the women members through Upazila administration; and UNO should ensure effective role of women UP members.

Functionl institutions. Organize meetings of the SMC, guardians' committee and teachers under the supervision of the UP; ensure proper representation of the UP in the SMC; form water management committee (WMC), ensure presence of BWDB officials in the WMC meetings

NGO. NGOs should be accountable to the UP; NGOs' representative in the UP committee should be included, and ensure participation of NGOs in the UP meeting; NGO and UP can take collective decision through meeting.

Union Level Governance

The very connotation of governance is power authority and it is top-down as a colonial legacy. In contrast, the concept of "good governance" is being promoted with undertones of a bottom-up, decentralized and participatory arrangement. How the people feel, perceive and comprehend issues and act locally is to be taken into cognizance in understanding a local perspective on governance. Based on a stakeholder consultation in one union, some observations and lessons have been drawn.¹⁸ Among the participants were Chairman and Members of the Union Parishad (UP), members of CBOs, field level staff of government service agencies and members of different professional groups. They discussed issues in six thematic groups. Their deliberations are cited below in the first person as down to earth testimony.

Partnership, transparency and accountability

The UP Chairman has been vocal about reasonable share of the budget. "If you talk about partnership, you need to enhance budgetary allocation for UP". Presently annual tax of taka 30 is levied for a house with c.i. sheet roof. Many people do not pay tax.

Common people have different perceptions. One view is: "We do not have any knowledge of the UP budget. Whatever amount is allocated, the Chairman and the Members *bhag korey nei* (appropriate it among themselves)."

Family Welfare Assistant (FWA) is a para-professional of the Ministry of Health & Family Welfare based in the union. She is also not happy with the state of affairs. "There is no union level meeting with us. Sometimes Chairman discusses about my work. But when they have meeting, they ask me to leave. They discuss among themselves. *Keo tader bhalo payena* (nobody is happy with them)."

¹⁸ A series of stakeholder consultations were organized by BIDS to explore ideas on local level institutional arrangements for ICZM. Findings are based on one such consultation held in May 2005 at Dokkhin Bedkashi union of Koyra upazila in Khulna.

Enabling bureaucracy and capacity building of LG

A woman UP Member says, “There are 13 Standing Committees. We do not know in which committees we are. There is no delineation of tasks. I am the *Shabhapoti* (chairperson) of the committee for listing candidates for *bidhoba bhata* (allowance for widow) and *Shaha-shabhapoti* (co-chairperson) for that of the *boyoshkp bhata* (allowance for the old). But the lists were prepared and submitted without my knowledge. Then I informed the UNO and got the lists cancelled.

“We have a Mohila (women) Members Forum. We have monthly meetings. We meet on 18th of each month. TNO helps us. We also get support from NGOs.

One participant commented, “Upazila Fisheries Officer should sit at UP office at least once a week.”

There is a Krishi Bank. Loan cannot be obtained without bribe. Besides, the process of getting loan is a long one.

Police harassment is rampant Forest guards put up false cases of deer hunting and logging against innocent people. None should be arrested without the consent of UP.

Wapda's (BWDB) quality of work is low. They work in the wrong season (monsoon). This is waste of resource.

UP has some limitations. These are:

- ◇ lack of fund;
- ◇ UP members are not efficient; and
- ◇ women Members do not get resource.

Disaster management and linkage

CZ is a zone of recurrent disasters. So disaster management is a key issue for the coastal people. For disaster management, we consider the following institutions as important and relevant:

- ◇ BWDB
- ◇ NGO
- ◇ Union Parishad
- ◇ Masjid (Imam); and
- ◇ Gram Police (VDP).
- ◇ UP and service agencies (particularly BWDB) should meet regularly. They should have monthly meetings.

Farmer

Farmers, with recommendation from UP, should get credit from the bank.

Accountability of *Wapda* in respect of *beri bund* (embankment) maintenance should be ensured.

To discourage *bagda* culture, *bagda* farmers should be taxed. There is a need for *poribesh kar* (environmental tax).

Fisher

People hardly get credit from bank. There is no bank branch in the union. Local moneylenders charge high interest.

We have no knowledge of any Block Supervisor working in the union. he doesn't come to us. We don't know where is his office.

Participation and coordination

A union level planning and monitoring mechanism is undeniably an imperative. There should be a *todaroki* (supervision) committee to monitor activities of service agencies. The committee should be

constituted with the UP Chairman, UP Members and some members of the 'elite'. The elite is defined as 'knowledgeable persons', such as, teacher, social worker, member of cooperative society and member of *Gram Sarkar*. The committee is to meet once a month. Main tasks of the committee are:

- ◇ supervision of road maintenance and roadside plantation; and
- ◇ monitoring of the functioning of schools; many students and teachers are found absent and the "SMC (School Monitoring Committee) is not active".

There is lack of coordination. There are conflicts between different agencies. The conflicts are:

- ◇ DoF versus DAE;
- ◇ UP versus NGO; and
- ◇ Forest Department versus UP.

As a consequence, development is hampered; agriculture and fish production is low; salinity is increasing; land fertility is decreasing; and natural beauty is lost. Union Development Coordination Committee (UNDCC) should be activated. The committee shall have 30 members. Composition of the committee shall be:

- ◇ UP Chairman (1);
- ◇ UP (13);
- ◇ Education/Teacher (3);
- ◇ DAE (1);
- ◇ DoF (1);
- ◇ LGED (1);
- ◇ Gram Sarkar (1);
- ◇ Ansar/VDP (1);
- ◇ Health (1);
- ◇ NGO (2);
- ◇ Cooperative (2);
- ◇ Club (1); and
- ◇ Elite (2).

The empowerment of elected representatives is of vital importance.

ANNEX L. SELECTED INDICATORS

Input	Output	Outcome
Economic growth		
<ul style="list-style-type: none"> - No. of projects in CZ and Exp CZ - ADP allocation CZ and Exp CZ - ADP allocation and/or expenditures in Oil and gas sector - ADP allocation and/or expenditure in Industrial sector - Expenditure on cash incentives to exports of selected coastal trades (as % of total export) 	<ul style="list-style-type: none"> - Share of industrial sector in GDP - Share of agricultural sector in GDP - Growth of public investment - Growth of private investment - Growth of export earning (in selected coastal trades) 	<ul style="list-style-type: none"> - Per capita GDP - GDP growth rate - Sectoral GDP growth - Growth of employment (total and sectoral) - Rural household depending on non-farm activities
Sources of information		
Annual Development Plan; Concerned departments / agencies; MoF	BBS, MoF	BBS
Basic needs & opportunities for livelihood		
<ul style="list-style-type: none"> GoB expenditure on - rural development - health - general hospitals & clinics - primary education - Exp. on rural water supply and sanitation 	<ul style="list-style-type: none"> - Primary school density - Medical services (hospital beds per 1000 person) - Births attended by skilled staff - Utilization rate of First Level Care Facilities (UHC/THCs) - Tube-well density (No. of persons per running tube-wells) 	<ul style="list-style-type: none"> - Human Development Index (HDI) - City Infrastructure Development Index - Primary enrollment rate - Severe child malnutrition - Infant mortality rate (IMR) - Child Mortality Rate - % of population using sanitary latrine - Per capita consumption of food grains, vegetables, protein and other major items
Sources of information		
Ministry of Finance; MoLG, RD&C, MoWR	BBS, MoA, MoH&FW, DPHE, DPE	BBS, LGED, UNICEF, NIPORT, DPE
Reduction of vulnerabilities		
<ul style="list-style-type: none"> - GoB expenditure on arsenic mitigation - Food assisted program disbursement - Expenditure on poverty reducing sectors (as % of total expenditure & GDP) - Expenditure on rural roads and culverts - Expenditure on low cost housing - Expenditure on disaster management - Expenditure on rural electricity 	<ul style="list-style-type: none"> - No. of VGD cards per 1000 person - Number and capacity of cyclone shelter - Polder protected area - Road (RHD, FRD, rural roads) density 	<ul style="list-style-type: none"> - Extreme poverty - Head count ratio (HCR) of poverty - Absolute poverty - % of population with access to cyclone shelter - % of population with access to micro credit - % of households having access to radio - % of houses with durable walls and roofs (rural/urban) - % of households with access to electricity (rural/urban) - % of hhs with access to potable water (rural/urban)
Sources of information		
Ministry of Finance, WFP	NGOs, WFP, BBS, BWDB, R&HD, LGED, DMB	BBS, MoD, R & R, DMB, BRDB, NGOs
Sustainable management of natural resources		
<ul style="list-style-type: none"> - Share of water resource sector in ADP allocation - Expenditure on agriculture by sub-sectors 	<ul style="list-style-type: none"> - Net cultivated area and irrigated area - Soil salinity - Surface water salinity - Groundwater table - Extraction of groundwater - Groundwater salinity - Accretion rate (ha per year) - Erosion rate (ha per year) - Marine fish catch - Shrimp production 	<ul style="list-style-type: none"> - Cattle holding per rural household - Fish production - Rice production - No. of trees per household - Proportion of households dependent on biomass as source of fuel energy - Productivity of land
Sources of information		
MoF, MoA	SRDI, BWDB, DAE, BBS	BBS, DoF, DAE
Equitable distribution		
<ul style="list-style-type: none"> - # of thana CZ and exp CZ - # of union or wards CZ and exp CZ - Micro-credit disbursement - Disbursement of agricultural credit by 	<ul style="list-style-type: none"> - Micro-credit disbursement per borrower - No. of poor households receiving remittances 	<ul style="list-style-type: none"> - Proportion of small farmer household - Proportion of functional landless - Proportion of agriculture labor household - <i>Gini index of income</i>

Input	Output	Outcome
farm-size and purpose	<ul style="list-style-type: none"> - Employment generation (by sector/ sub-sector, male/female, rural/ urban) - Person / thana - Sq km / thana - Person / union or ward - Sq km / union or ward 	
Sources of information		
BBS, MoF, Krishi Bank	BBS, NGOs, BRDB	BBS
Empowerment of communities		
<ul style="list-style-type: none"> - Expenditure on local government - Secondary education exp - Exp. on general universities/ colleges/ institutes - Exp. on professional/ technical universities/ colleges/ institutes - Exp. on teacher & vocational training 	<ul style="list-style-type: none"> - Density and capacity of professional/ technical universities/ colleges/ institutes - Density of secondary schools 	<ul style="list-style-type: none"> - Adult literacy rate - Literacy rate (15-24 years) - Percentage of households with a television - Rate & growth of wages for agricultural / manufacturing workers (formal/informal; male/female) - % of technical institutes / universities graduates who find job within one year
Sources of information		
BBS, MoF, MoLG, RD & C	BBS, BANBEIS	BBS, BANBEIS
Women's development and gender equity		
<ul style="list-style-type: none"> - Mother & child exp - Exp. on direct women's poverty reduction projects in agriculture /manufacturing & others / service sector - Expenditure on Essential Service 	<ul style="list-style-type: none"> - Proportion of population covered by ESP - DPT3 immunization coverage of children - Women employed as hired workers in agriculture, manufacturing & services - Coverage of ante-natal care (at least one visit) 	<ul style="list-style-type: none"> - Gender Development Index (GDI) - Gender Empowerment Measure (GEM) - Maternal Mortality Rate (MMR) - Female child mortality (1-4 years) rate as % of male - Female enrolment as % of male at different level (primary, secondary) - Female Infant Mortality Rate as % of male - Female severe child malnutrition rate as % of male - Wage rate of female labor (agriculture / manufacturing) as % of male - Mean age at first marriage for girls - Female adult literacy as % of male
Sources of information		
BBS, MoF, MoA, MoH&FW, MoLG, RD & C	BBS, MoW&CA, NIPORT	BBS, UNICEF, MoW&CA, UNDP, NIPORT, DPE, BANBEIS
Conservation and enhancement of critical ecosystems		
<ul style="list-style-type: none"> -Expenditure on protected area management -Expenditure on improvement of environment -No. of legislation related to conservation of critical ecosystems and environment 	<ul style="list-style-type: none"> - Percentage of area covered by forest - Protected area as % of total area - Proportion of area under perennial water bodies 	<ul style="list-style-type: none"> - No. of wildlife species per 100 sq km of forest area - No. of common plant species per 100 sq km of forest area - No. of endangered species
Sources of information		
MoF, MoEF, BELA	MoEF, FD, SPARRO, BBS	MoEF, FD, IUCN-Bangladesh

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