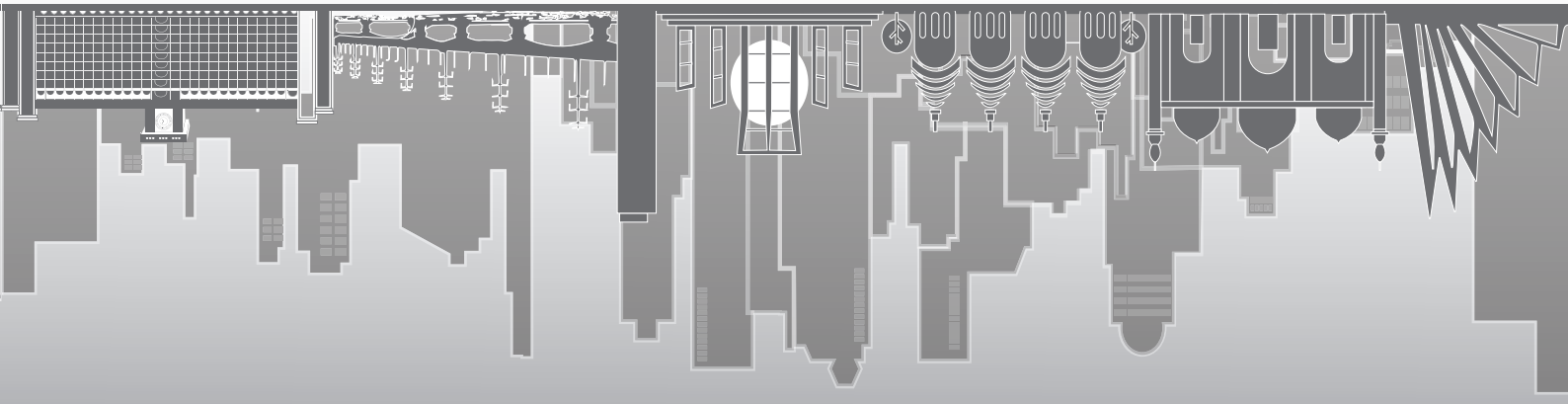
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

BANGLADESH
COUNTRY INVESTMENT PLAN
FOR
ENVIRONMENT, FORESTRY AND CLIMATE CHANGE
(2016 – 2021)



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The Bangladesh Country Investment Plan (CIP) for Environment, Forestry and Climate Change (EFCC) has been prepared by the Ministry of Environment and Forests through a process of review, joint effort and consultation that included multiple ministries, agencies, experts, non-governmental organizations and civil-society organizations as well as various stakeholders at the national, divisional, district and community levels.

Due to the dynamism of the policy, socio-economic and environmental context of Bangladesh, the EFCC CIP should be considered a living document. Evolving issues and emerging investment priorities may be accommodated, as needed.

Prepared under the USAID funded project *"Strengthening the Environment, Forestry & Climate Change Capacities of the Ministry of Environment and Forests & its Agencies (MoEF Support Project)"*, with technical assistance from the Food and Agriculture Organization (FAO) of the United Nations.
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بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِيْمِ

PRIME MINISTER
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

29 Agrahayan 1424
13 December 2017

Message

I am happy to know that the Bangladesh Country Investment Plan (CIP) for Environment, Forestry and Climate Change (EFCC), the first ever cross-agency and cross-sectoral strategic plan for environmental management in the world, is going to be launched formally on 13 December 2017. The plan, prepared by the Ministry of Environment and Forests, has recently been approved by the National Environment Committee and I look forward to its successful implementation.

The greatest Bangalee of all time, Father of the Nation Bangabandhu Sheikh Mujibur Rahman had put emphasis on environmental management and protection. Just after two years of independence, he promulgated the Water Pollution Ordinance, 1973. Our government has been working relentlessly to ensure a healthy environment for the countrymen. The CIP-EFCC will be one of the strategic tools for the relevant ministries and agencies in translating this overall goal into investment programs linked to measurable results. It has the potential to facilitate investment decisions based on appropriateness and adequacy and systematically monitor the results so that investment planning for the environment can benefit from continuous learning.

Bangladesh has been an important player in the international dialogue on environment and climate change issues. The development of the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), the establishment of the Bangladesh Climate Change Trust (BCCT) as well as commitments rendered through the National Determined Contributions to the UNFCCC stand as important evidence. The CIP-EFCC is another milestone in this endeavour. The development of the CIP is one more affirmation of Bangladesh's steadfast commitment and dedication in ensuring a healthy living for the people of Bangladesh.

I hope that the CIP will be helpful in attaining the environmental goals of the country. I urge all the relevant stakeholder ministries and agencies to utilize the CIP investment framework in their strategic decision to have a result oriented environmental management in the country.

I wish the Bangladesh Country Investment Plan all the success.

Joi Bangla, Joi Bangabandhu
May Bangladesh Live Forever.

Sheikh Hasina

AHM MUSTAFA KAMAL, FCA, MP
Minister
Ministry of Planning
Government of the
People's Republic of Bangladesh

MESSAGE

I am really happy to know that the Ministry of Environment and Forests has coordinated the preparation of a Country Investment Plan (CIP) for Environment, Forestry and Climate Change (EFCC).

Bangladesh has been appreciated worldwide for comprehensive development where environmental management issues are well synchronized with rapid economic growth. The 7th Five Year Plan of the government has included environmental and climate change issues, for a sustainable development. The Planning Commission has also been preparing sectoral action plans to facilitate implementation of the FYP objectives. I am confident that the CIP-EFCC will be able to play the role of action plan for the environment sector as a whole.

I am hopeful that the implementation of Country Investment Plan for Environment, Forestry and Climate Change would help for ensuring a better environment and healthy living for the people of Bangladesh.

(AHM MUSTAFA KAMAL, FCA, MP)

ANWAR HOSSAIN MANJU, MP
Minister
Ministry of Environment and Forests
Government of the
People's Republic of Bangladesh

MESSAGE

The government of Bangladesh is very proactive to ensure environmental sustainability of the country. Considering the present requirements, the mission of the Ministry of Environment and Forests (MoEF) is to ensure the sustainable management of the environment and of forests through the conservation of ecosystems and biodiversity; controlling environmental pollution; addressing climate change; research, floristic survey and development of forest resources. A number of policies and strategies have been developed for making this mission successful.

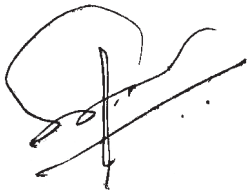
The Bangladesh Environment, Forestry and Climate Change (EFCC) Country Investment Plan (CIP) (2016 – 2021) remains as one of the key strategic documents which provide a good opportunity to investment requirements in EFCC, the activities of implementing agencies and the decision making processes of policy makers.

The CIP has been developed through a comprehensive and participatory process, which includes an extensive policy review, close consultations with government ministries and agencies, non-government agencies, investors and donors, consultations with country's key experts, consultations with local level stakeholders in the environmental vulnerable area.

I really do believe that, a successful implementation of the CIP can reduce economic costs related to environmental degradation, increase the productivity of natural resources and impact positively the rural economy.

My sincere thanks go to the people, experts and officials for their contributions in the CIP development process. Furthermore, my special thanks to the FAO and the USAID for their cooperation and assistance in successfully developing the CIP.

Joy Bangabandhu.
May Bangladesh Live Forever.



(ANWAR HOSSAIN MANJU, MP)

ABDULLAH AL ISLAM JAKOB, MP
Deputy Minister
Ministry of Environment and Forests
Government of the
People's Republic of Bangladesh

MESSAGE

I am happy to learn that the first ever Country Investment Plan (CIP) – a strategic investment document for the Environment, Forestry and Climate Change has been approved by the National Environment Committee (NEC) chaired by the Hon'ble Prime Minister, Government of the People's Republic of Bangladesh. It has been an enthralling experience to be associated with the preparation process of this milestone document.

The main essence of the CIP has been the coordination, openness and visibility in its formulation as well as implementation process. A good number of government ministries and agencies have been adopting programs and projects on various environmental issues and it had been a long due for the country to have a cross-sectoral investment framework, where the relevant ministries/agencies can clearly see what investment areas they need to address within a stipulated time frame, in order to achieve the policy objectives effectively and efficiently. It, thus, eliminates the chances of duplication in its investment and also helps to ensure that no required area of investment is left behind.

This CIP will be a judicious intervention to coordinate the public sector investment in the coming days. However, private sector institutions, particularly the industries, are also important stakeholders of the overall environmental sectors and efforts might be taken to gradually include them as well into the investment framework.

I express my heartfelt gratitude to the Hon'ble Prime Minister as well as the Hon'ble Minister for Environment and Forests for taking the issues of environmental management as a top priority for the country. I believe that successful implementation of the CIP will serve to substantially fulfill their dreams of a healthy environment in the country.

Joy Bangla, Joy Bangabandhu.
May Bangladesh Live Forever

(ABDULLAH AL ISLAM JAKOB)

Dr. Shamsul Alam
Member (Senior Secretary)
General Economics Division
Bangladesh Planning Commission
Government of the
People's Republic of Bangladesh

MESSAGE

It is with pleasure that I see the Country Investment Plan (CIP) for Environment, Forestry and Climate Change (EFCC) being launched after a very comprehensive preparation and endorsement process carried out for the last two years. I believe it will serve as a new strategic tool in Bangladesh that can be helpful for stakeholder agencies in making effective investment decisions in conformity with the five year plan of Bangladesh.

The country since independence has been preparing the Five-Year Plans as the main planning documents for the country. These plans are now prepared in an inclusive and participatory way, and provide direction and long and mid-term objectives for various sectors. However, it has been challenging to clearly link the sectoral targets in the FYP to the annual development planning processes of the individual ministries, who contribute to various sectors through their programs and projects. Moreover, the increasing volume of requirements of the country and necessities to meet many international obligations and targets like SDGs required for a more meticulous, result linked and trackable action plans for translating policy objectives into actions. It is for these reasons that the GED encourages the preparation of Sector Action Plans: to more clearly link the FYP to the annual development planning process. For environmental issues, the CIP provides such a link.

The CIP combines most of these features into its various frameworks and thus, can be seen as a workable model of a sectoral strategic action plan that can help attain goals and objectives of the 7th FYP. As such, it complements the recent initiative of the Planning Commission to prepare a number of sectoral plans for the government. I am very pleased to know that several SDG indicators have been included in the results framework and will be monitored as part of the CIP monitoring exercise. We are eager to follow and track the implementation performance of the CIP in order to prepare more feasible sectoral plans for the government.

I thank the Ministry of Environment and Forests for taking this timely initiative in preparing the CIP for Environment, Forestry and Climate Change. I would like to recognize the assistance of the Food and Agriculture Organization (FAO) of the UN as well as the USAID in preparing this plan. Finally, I wish for a successful implementation of the Country Investment Plan for Environment, Forestry and Climate Change.

(DR. SHAMSUL ALAM)

ISTIAQUE AHMAD
Secretary
Ministry of Environment and Forests
Government of the
People's Republic of Bangladesh

MESSAGE

Bangladesh is one of the fastest growing economies in the world with 7.24% GDP growth in the last fiscal year 2016-2017 and an average growth of more than 6% over the last decade. We need a well-managed environment to keep this economic growth continued. The Government, under the leadership of the Hon'ble Prime Minister Sheikh Hasina, has been working incessantly to strengthen environmental management in the country.

In keeping the environment safer and healthier, Bangladesh has been facing a number of challenges. In many cases, our development gain has been eaten by the negative impact of environment degradation and climate change. Bangladesh is an insignificant emitter of greenhouse gases. However, the country is among the most threatened ones by climate change for the cause where Bangladesh is not responsible. Due to sea level rise, around 30 million people in the coastal belt are at serious risk of inundation and displacement. A number of ministries and agencies of the government of Bangladesh are implementing programs and projects to minimize these threats. In the recent years, the country is focusing more on the issue of strong coordination among the actors to address the challenges in a coherent manner.

The Country Investment Plan (CIP) for Environment, Forestry and Climate Change (EFCC) has been prepared utilizing an extensive and comprehensive consultation process in national, local and community levels. Through its programmatic, financial, institutional and monitoring frameworks the CIP will assist to: (a) prioritize investment areas in environmental management; (b) earmark the investment areas to the most relevant ministries and agencies for implementation; (c) quantify the financial requirements or investment gaps to implement appropriate and adequate programs and projects in those areas; and (d) assess annual performance (with identified challenges and recommendations) in order to improve the next cycle of annual development planning. We are hopeful that the CIP will also facilitate achieving NDC and SDG targets, particularly the SDG 13 and 15. We believe that this plan will be considered as an important strategic milestone in the environmental management of the country.

The CIP has a strong potential to efficiently translate policies into programs and we all will be benefited if we can use this plan accordingly. Moreover, the CIP will act as an evidence based tool to acquire more finances from the Development Partners and GoB as well. I encourage all the relevant stakeholder ministries and agencies to review and consult this CIP in their annual development planning process in order to contribute effectively in achieving environmental policy objectives of the government.

We are grateful to the Hon'ble Prime Minister and all the members of the National Environment Committee (NEC) for approving this plan. The Ministry of Environment and Forests thankfully acknowledges contributions of all the government officials in the relevant ministries and their departments, particularly General Economics Division of the Planning Commission for their support. I personally thank the Food and Agriculture Organization (FAO) of the UN for providing necessary technical assistance. The USAID also deserves thanks for financially assisting the efforts.

(ISTIAQUE AHMAD)

JANINA JARUZELSKI
Mission Director
USAID, Bangladesh

MESSAGE

The United States Agency for International Development (USAID) has supported the development of Bangladesh since the country gained independence in 1971. Over this time, Bangladesh has made impressive strides in many sectors, including forestry, natural resource management, agriculture, education, and health. These improvements have increased the nation's prosperity, food security, and resilience to climate change. USAID is proud of its partnership with the government and people of Bangladesh and we are encouraged by the positive results emerging from investments in development projects.

The Country Investment Plan (CIP) for Environment, Forestry, and Climate Change is an investment tool linked to Bangladesh's vision of becoming a prosperous country by 2021. It translates over 200 of Bangladesh's laws and policies into investment programs focused to achieve measurable results. The plan will inform investment decisions to meet the targets submitted by the Government of Bangladesh to the United Nations Framework Convention on Climate Change and will help Bangladesh meet its Sustainable Development Goals.

The CIP identifies a $7 billion financing gap that must be met if Bangladesh is to achieve all of its environment, forestry, and climate change goals. According to the CIP, programs in the areas of ecosystem management, sustainable infrastructure, and mitigation are already well-funded by the Government of Bangladesh and its development partners. However, efforts aimed at pollution control, environmental governance, and gender equity remain dramatically underfunded.

With the establishment of the Policy Support and Investment Monitoring Unit, the Government of Bangladesh will have the coordination and monitoring tools needed to institutionalize the CIP. Furthermore, the endorsement of the CIP by the Honorable Prime Minister of Bangladesh Sheikh Hasina at the National Environment Committee meeting in August 2017 empowers more than 100 stakeholder ministries and agencies to implement the recommendations outlined in the CIP and unlock new sources of financing to close the financing gap.

At USAID, we place great importance on the ability to measure, evaluate, and learn from the impact of our investments to ensure projects are achieving desired results, and that time, energy, and resources are well spent. It is our hope that the CIP will become a benchmark to monitor and assess progress toward environment, forestry, and climate change goals, and will help ensure that future investments achieve their intended results.

USAID continues to support Bangladesh's efforts to sustainably manage the country's forest and environmental resources and looks forward to seeing the CIP enhance these efforts.

(JANINA JARUZELSKI)
Mission Director
USAID, Bangladesh

Food and Agriculture Organization of the United Nations

DR SUE LAUTZE
FAO Representative in Bangladesh

MESSAGE

I would like to take this opportunity to congratulate the Government of Bangladesh on their vision in granting such high-level approval at the level of the National Environmental Council for the Country Investment Plan (CIP) for Environment, Forestry and Climate Change (EFCC). This clearly indicates the Government's regard for and commitment to the environment. FAO is extremely proud to have contributed to this great endeavour.

FAO is the preeminent UN organization in the fields of agriculture and food security and, wants to make sure that people have access to enough high quality food to lead active and healthy lives. The environment and the sustainable management of natural resources is a key factor in the sustainable performance of all the food producing sectors. Therefore, it is with this ideal that FAO-Bangladesh assisted the Ministry of Environment and Forests in preparing this whole-of-government and cross sectoral environmental management plan.

In developing this plan, FAO benefitted from the experience of preparing similar investment plans in agriculture and food security sector in around 25 countries around the world. Indeed, Bangladesh was one of the innovative countries to adopt such a CIP in agriculture, food security and nutrition in 2011. The successful experience of the food security CIP encouraged and inspired us to liaise with the USAID and the MoEF to develop the first ever CIP on Environment, Forestry and Climate Change in the world.

The CIP is a strategic tool to help the government agencies make better investment decisions as well as mobilize finance for coherent and result-inspired investment programs. Annual monitoring is an important feature of the CIP which will enable the country to monitor progress on economic, social and environmental indicators. Similarly, it will be a useful tool for development partners as they seek to support investment areas in critical need and while building coordination linkages.

The CIP is just the beginning of a long and significant journey. It is vital that it is effectively so that relevant national policy objectives are met within reasonable time frames. FAO is ready to work further in strengthening the CIP implementation. In fact, one of the three Pillars in the new Country Programming Framework of the FAO-BD focuses on Resilient and Sustainable Ecosystems. We hope that necessary projects and activities under this pillar will be able to develop stronger networks and partnerships, which in turn lead to better investments and decision making for the environment sector of the country.

I wish to thank the USAID for financing this project. We have a long mutually beneficial collaborative relationship with USAID in this and other projects, which I believe can continue to deliver tangible results for both organisations and more importantly for the people of Bangladesh. I express my thanks to all the people and agencies who took part in the consultation process while preparing this plan. A very well deserved appreciation is also due for the Ministry of Environment and Forests for their excellent ownership and commitment towards the environmental well-being of the country.

It is my fervent hope that the relevant stakeholders of the government will make full use of this strategic tool to assist them achieve their policy objectives for the country.

(SUE LAUTZE)

ABDULLAH AL MOHSIN CHOWDHURY
Additional Secretary
Ministry of Environment and Forests
and
National Project Director
MoEF Support Project

Acknowledgement

The Bangladesh Country Investment Plan in the Environment, Forestry and Climate Change (EFCC), the first of its kind in the world, is the major outcome of the project "Strengthening the Environment Forestry and Climate Change Capacities of the Ministry of Environment and Forests and its agencies".

I am grateful to the Hon'ble Minister, the Hon'ble Deputy Minister and the respected Secretary, Ministry of Environment and Forests for the commitment, wisdom, and visionary leadership they provided and shared in the development of the Country Investment Plan. Their guidance has also been duly complemented with the contributions of the stakeholder Ministries/Divisions/Agencies, particularly General Economics Division of the Planning Commission for providing necessary inputs in the development of CIP. Thanks go to the officials of different administrative Divisions, Districts and Upazillas, who participated in various consultations/workshops/meetings and contributed in identifying priority investment portfolios on environmental issues.

I wish to express my sincere gratitude to more than 2000 stakeholders at the national, divisional, district and community levels, who have shared their valuable insights with the CIP development team. My enormous gratitude goes to the diverse group of experts from government, non-governmental organizations, academia, research communities and civil society, who came forward to share their expertise, knowledge, and wisdom and to provide substantive intellectual contributions in support of this national effort.

This work has been possible with the technical support of the Food and Agriculture Organization of the United Nations (FAO) and its team. My special thanks go to many other international, national FAO consultants and the project team for their dedication, and team work in preparing this strategic document.

I would like to express my special appreciation to the USAID for its financial assistance and continuous support in the process of CIP development.

Finally, I express my deepest and sincere gratitude to the Hon'ble Prime Minister Sheikh Hasina and all the respected members of the National Environment Committee for kindly approving this CIP.

(ABDULLAH AL MOHSIN CHOWDHURY)

The Bangladesh Country Investment Plan (CIP) for Environment, Forestry and Climate Change (EFCC) has been prepared by the Ministry of Environment and Forests through a process of review, joint effort and consultation that included multiple ministries, agencies, experts, non-governmental organizations and civil-society organizations as well as various stakeholders at the divisional, district and community levels.

Due to the dynamism of the policy, socio-economic and environmental context in Bangladesh, the EFCC CIP should be considered a living document. Evolving issues and emerging investment priorities may be accommodated, as needed.

EXECUTIVE SUMMARY

The goal of the Bangladesh Country Investment Plan (CIP) for Environment, Forestry and Climate Change (EFCC) for 2016-2021 is to increase the contribution of the EFCC sectors to national sustainable development through the enhanced provision of ecosystem services, thereby helping to reduce poverty, improve environmental and human health benefits, and increase resilience to climate change.

The EFCC CIP is a strategic tool for the Government of Bangladesh (GoB) that translates policies into investment programmes linked to measurable results. It is anchored to and aligned with Bangladesh's vision of becoming a middle-income country by 2021 as laid out in Vision 2021 as well as the Roadmap to Vision 2021, the Seventh Five Year Plan, and policies related to EFCC such as the Bangladesh Climate Change Strategy and Action Plan (2009). The EFCC CIP also reflects the measures and targets submitted by the GoB to the United Nations Framework Convention on Climate Change (UNFCCC) as well as 10 of the UN's 17 Sustainable Development Goals. It places special emphasis on narrowing gender gaps and maximizing the contributions of women as well as men in the EFCC sectors at all levels through a Gender Action Plan.

The CIP formulation process included an extensive review of over 200 policies, plans, strategies and laws, and scientific literature, and consultation with a broad range stakeholders. The latter group included government ministries and agencies as well as the private sector, civil society, non-governmental organizations, academics, local communities and development partners. Over 2000 people participated in the consultation process, which took place in Dhaka and other parts of the country in 2015 and 2016.

The EFCC CIP identifies 14 coherent and coordinated investment programmes under four pillars, (i.e. thematic investment areas) as shown in the figure below.

Goal and pillars of the EFCC CIP

GOAL

To increase the contribution of the EFCC sectors to the sustainable development of the country through the enhanced provision of ecosystem services

Pillar 1
Sustainable Development and Management of Natural Resources

Pillar 2
Environmental Pollution Reduction and Control

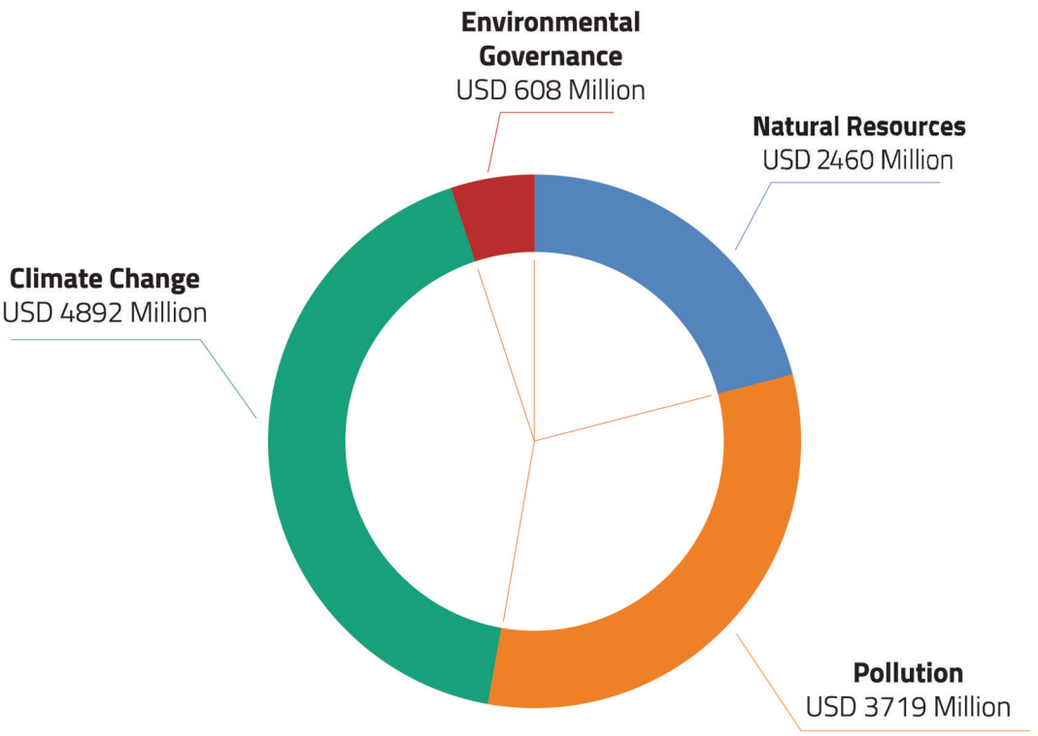
Pillar 3
Adaptation and Resilience to, and Mitigation of, Climate Change

Pillar 4
Environmental Governance, Gender, and Human & Institutional Capacity Development

There is a total of 43 sub-programmes under these programmes. The CIP includes a results framework that can be used to monitor progress at the goal, pillar, programme and sub-programme levels. The CIP also includes a monitoring framework with institutional arrangements to track investments in the EFCC sectors as well as the impact of those investments.

For some sub-programmes, the financing gap approaches 100 percent, with very few projects and resources specifically dedicated to priorities such as reducing pollution in agriculture (98 percent underfinanced), enhancing the sustainable management of, and socioeconomic benefits from, forests (94 percent underfinanced), and improving stakeholder participation and gender equity in the EFCC sectors (99 percent underfinanced).

Total estimated cost of the EFCC CIP (USD million)



The total cost of the CIP is estimated at about USD 11.7 billion, of which 40 percent (i.e. about USD 4.7 billion) is already financed through the GoB's own budget allocations and by contributions from development partners. Hence, the financing gap is estimated at about USD 7 billion, or 60 percent of total CIP costs. In absolute terms, the pillars with the largest financing gaps are those requiring investments to control pollution (USD 2.6 billion) and address climate change (USD 2 billion). The pillar addressing the natural resource development priorities also has a substantial financing gap (USD 1.8 billion). In percentage terms, the most underfinanced pillars are environmental governance (93 percent underfinanced) and natural resource development (74 percent underfinanced).

For the CIP to be useful as a planning, resource mobilization, coordination and monitoring tool, strong political commitment from the GoB is needed, as well as effective coordination among the implementing agencies, and active resource mobilization by the GoB and development partners.

Treating the CIP as a living document is crucial for accommodating issues and investment priorities emerging from Bangladesh's dynamic policy, economic, social and environmental situation. Regular consultations and dialogues with the main stakeholders, effective monitoring and evaluation, the strong engagement of the Ministry of Finance, The General Economics Division, the Planning Commission, and active development partners will help keep the EFCC CIP alive and maximize its impact.

Estimated financing required to achieve the objectives of the EFCC CIP, existing financing, and the financing gap (USD million)

No	Programme title	Financing (USD million)			
		CIP total	Existing	Gap	Gap (%)
Pillar 1: Sustainable development and management of natural resources					
1.1	Enhanced sustainable management of, and socioeconomic benefits from, forests	885.0	54.2	830.8	94
1.2	Biodiversity conservation	538.5	44.9	493.6	92
1.3	Sustainable management of wetlands, rivers and marine ecosystems	693.1	490.5	202.6	29
1.4	Soil and groundwater management	343.5	52.8	290.7	85
	Total (Pillar 1)	**2460.1**	**642.3**	**1817.8**	**74**
Pillar 2: Environmental pollution reduction and control					
2.1	Reduced industrial pollution	651.6	65.0	586.6	90
2.2	Reduced municipal and household pollution	2869.2	1040.5	1828.7	64
2.3	Reduced pollution from agriculture and others	198.6	3.3	195.3	98
	Total (Pillar 2)	**3,719.4**	**1,108.8**	**2,610.6**	**70**
Pillar 3: Adaption and resilience to, and mitigation of, climate change					
3.1	Disaster risk reduction	1,654.7	724.1	930.6	56
3.2	Sustainable infrastructure development	2,202.4	1,705.5	496.9	23
3.3	Mitigation and low-carbon development	783.3	455.6	327.7	42
3.4	Increased resilience at community level	251.6	36.2	215.4	86
	Total (Pillar 3)	**4,892.0**	**2,921.4**	**1,970.6**	**40**
Pillar 4: Environmental governance, gender, and human and institutional capacity development					
4.1	Improved legislative, regulatory and policy framework	82.5	6.5	76.0	92
4.2	Improved stakeholder participation and gender equity in the EFCC sectors	416.5	4.3	412.2	99
4.3	Improved organizationnal capacity and processes for evidence-based decision making	109.0	29.6	79.4	73
	Total (Pillar 4)	**608.0**	**40.4**	**567.6**	**93**
	Total cost of CIP	**11,679.5**	**4,713.0**	**6,966.5**	**60**

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ACRONYMS AND ABBREVIATIONS

7FYP	Seventh Five-Year Plan
ADP	Annual Development Plan
BAU	Business as Usual
BBS	Bangladesh Bureau of Statistics
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BCCTF	Bangladesh Climate Change Trust Fund
BFIDC	Bangladesh Forest Industries Development Corporation
BFRI	Bangladesh Forest Research Institute
BIWTA	Bangladesh Internal Water Transport Authority
BMD	Bangladesh Meteorological Department
BNH	Bangladesh National Herbarium
BWDB	Bangladesh Water Development Board
CBD	Convention on Biological Diversity
CBO	Community-Based Organization
CIP	Country Investment Plan
CSO	Civil-Society Organization
DAE	Department of Agricultural Extension
DoE	Department of Environment
DDT	Dichlorodiphenyltrichloroethane
DPHE	Department of Public Health Engineering
EFCC	Environment, Forestry and Climate Change
FAO	Food and Agriculture Organization of the United Nations
FPMU	Food Planning and Monitoring Unit
GDP	Gross Domestic Product
GED	General Economics Division
GHG	Greenhouse Gas
GoB	Government of Bangladesh
IWRM	Integrated Water Resource Management
INDC	Intended Nationally Determined Contribution
IUCN	International Union for Conservation of Nature
LGED	Local Government Engineering Department
MEA	Multilateral Environmental Agreement
MoEF	Ministry of Environment and Forests
MtCO2eq	Megatonnes of Carbon Dioxide Equivalent
NAPA	National Adaptation Programme of Action
NGO	Non-Governmental Organization

ACRONYMS AND ABBREVIATIONS

NWFP	Non-Wood Forest Product
PCB	Polychlorinated Biphenyl
PM	Particulate Matter
PSIMU	Policy Support and Investment Monitoring Unit
REDD+	Reducing emissions from deforestation and forest degradation, plus conservation, sustainable management of forests and enhancement of forest stocks in developing countries
SDG	Sustainable Development Goal
SMART	Specific, Measurable, Achievable, Relevant and Time-Bound
SRDI	Soil Resource Development Institute
UNCCD	United Nations Convention to Combat Desertification
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States dollar(s)
WASA	Water Supply and Sewerage Authority
WDF	Washing, Dyeing and Finishing

1. Introduction

1.1 BACKGROUND

Bangladesh is on track to becoming a middle-income country by 2021, a key stated national policy objective. The economy is transforming from one based primarily on agriculture[1] to a mix of light industry (such as ready-made garments), services and, in some cases, heavy industry. Remittances are also a source of foreign exchange. The growth in gross domestic product (GDP) has remained over 6 percent per year for the past few years. However, this rapid economic development has come with costs, which notably includes rural depopulation and internal migration, particularly towards urban areas, the degradation of natural resources, and air and water pollution. In addition, Bangladesh is one of the most vulnerable countries to the adverse impacts of climate change.

Bangladesh has more than 200 laws, bylaws, strategies and policies for tackling environmental and climate-change-related challenges. The Government of Bangladesh (GoB) recognizes that good public policy must be matched by investments to ensure effective implementation. Key investments have been made by the government, both on its own and with the support of development partners. Nevertheless, investments to improve the management of the environment, forestry and climate-change (EFCC) sectors have suffered from a lack of coherence and uncertain overall impacts. This contrasts with the food-security sector, which is generally held up as a good example. Efforts have been made to ensure coherence in investments in support of the National Food Policy Plan of Action (2008-2015) through a country investment plan on agriculture, food security and nutrition.[2] Bangladesh lacks a formal framework linking EFCC policies to the investments needed to achieve desired results within a given time. For this reason, it was decided to develop a country investment plan (CIP) for these three interrelated sectors of environment, forestry and climate change, referred to in this document as the EFCC CIP.

The EFCC CIP provides a five-year (2016 – 2021) strategic framework for national and international investments to address EFCC issues in Bangladesh and to coordinate implementation among all stakeholders. The EFCC CIP identifies priority areas for investment in the EFCC sectors and estimates the financing to be provided by the GoB and its development partners. The EFCC CIP reflects the measures and targets submitted by the GoB to the United Nations Framework Convention on Climate Change (UNFCCC).[3]The CIP is anchored to and aligned with the national vision of becoming a middle-income country by 2021 (i.e. Vision 2021), the Seventh Five-Year Plan (7FYP), and a number of key legal and policy documents, including the following.

- The Constitution of the People's Republic of Bangladesh and its Amendments
- National Environment Policy (1992), and draft Environment Policy (2015)
- National Forest Policy (1994) and final draft Forest Policy (2016)
- National Environment Management Action Plan (1995)

[1]Although about 50 percent of the population still derives its livelihood from primary production in agriculture, the sector now contributes less than 20 percent of gross domestic product.

[2]Referred to in this document as the FS CIP.

[3]www4.unfccc.int/submissions/INDC/Published%20Documents/Bangladesh/1/INDC_2015_of_Bangladesh.pdf

- New Agriculture Extension Policy (1996) and draft National Agriculture Extension Policy (2016)
- National Water Policy (1999)
- National Water Management Plan (2001)
- National Land Use Policy (2001)
- Bangladesh Climate Change Strategy and Action Plan (2009)
- National Biodiversity Strategy and Action Plan (2004, updated in 2016)
- Coastal Zone Policy (2005) and Coastal Development Strategy (2006)
- Integrated Resources Management Plans for the Sundarbans 2010–2020
- National Sustainable Development Strategy (2010–2021)
- Perspectives Plan of Bangladesh (2010–2021)
- Tourism Development: 7th Five Year Plan Background Paper (2010)
- National Health Policy (2011)
- Master Plan of Haor Areas (2012)
- Bangladesh Climate Change and Gender Action Plan (2013)
- Medium-Term Budgetary Framework (2013–2018)
- National Agriculture Policy (2013)
- National Aquaculture Development Strategy and Action Plan 2013–2020
- Water Act (2013)
- Energy Efficiency and Conservation Master Plan (2015)
- National Biodiversity Assessment and Programme of Action 2020

1.2 CIP AT A GLANCE –DEFINITION, STRUCTURE AND GOAL

What is a CIP?

A CIP is a five-year roadmap and strategic framework that translates environment-related policies into investment programmes linked to measurable results (Figure 1.1). The aim of the EFCC CIP is to help the GoB realize its policy objectives by guiding investment choices in its annual development programmes. It addresses the following policy-relevant questions:

- What are the investment priorities for EFCC?
- What level of investments is needed to achieve the policy objectives?
- What is the right mix of projects to achieve the policy objectives?
- How do project-level results collectively contribute towards policy objectives?

In addition, the EFCC CIP :

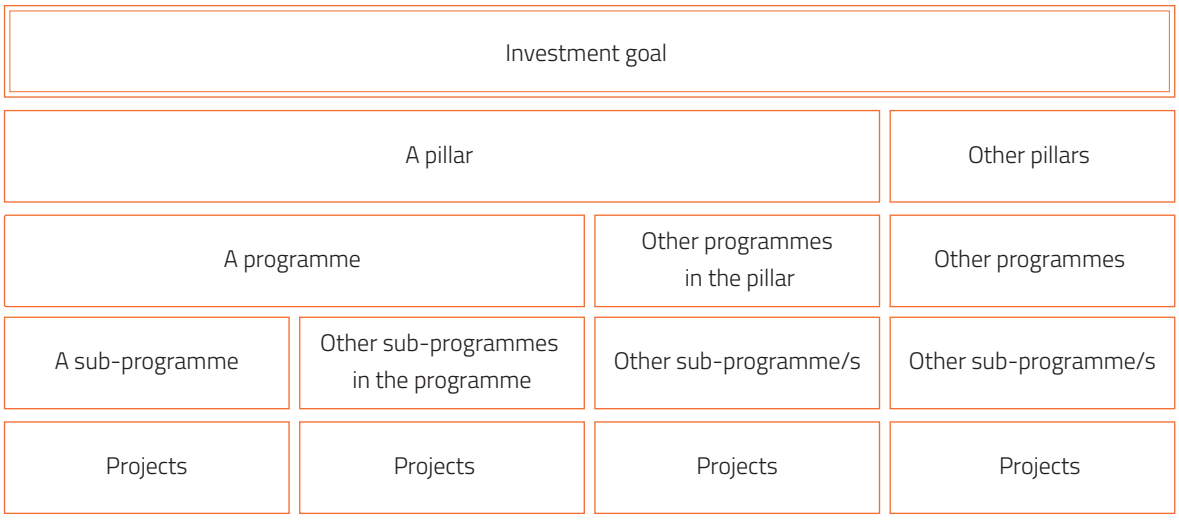
- Identifies priority areas for investment by different GoB ministries/agencies and puts them into a logical results chain
- Facilitates the coherence and coordination of projects that are cross-sectoral in nature but are implemented by individual agencies
- Estimates the financing needs to be provided by the GoB and its development partners
- Measures the overall impact of the investments through an annual monitoring process

General structure

The EFCC CIP defines investment goals to help achieve the corresponding national policy objectives. It then identifies the key investment areas, called here "pillars". Multiple programmes contribute to each pillar. In turn, each programme is contributed to by sub-programmes. Development projects with similar objectives can be grouped into sub-programmes and will contribute to realizing the sub-programme targets and aspirations. The basis of these groupings (i.e. sub-programmes, programmes and pillars) is a logical chain from project-level results up to the investment goal. Indicators at each level of the EFCC CIP are used to measure progress towards policy objectives in a structured way (see Annex 1).

The EFCC CIP is a whole-of-government initiative led by the Ministry of Environment and Forests (MoEF). It reflects the priorities of the GoB and a wide range of stakeholders active in the EFCC sectors.

Figure 1.1 General structure of a CIP



The goal of a given CIP can be achieved through four frameworks, as illustrated in Table 1.1.

Table 1.1 Frameworks for realizing the CIP goal

	Process for realizing the CIP goal
Framework Programming framework	It organizes projects to facilitate coherence and synergies among projects and minimize duplication
Results framework	It enables the monitoring of investments and impacts through the definition of indicators and targets that align with national policies, strategies and plans
Monitoring framework	It provides institutional arrangements to enable the monitoring and analysis of data from multiple sources
Financing framework	It estimates the financing needs over the next five years and, by comparing them with current investments, quantifies the financing gap and identifies neglected areas

Goal

The overall goal of the EFCC CIP is to increase the contribution of the EFCC sectors to national sustainable development through the enhanced provision of ecosystem services[4], thereby helping to reduce poverty, improve environmental and human health benefits, and increase resilience to climate change.

The goal was set by analysing EFCC-related priorities in Bangladesh's three national development policies: Vision 2021, Perspective Plan (2010-2021) and the 7FYP. Moreover, policies particularly designed for EFCC sectors were analysed, and extensive stakeholder consultations were carried out for this purpose. As the above discussion suggests, the CIP is designed to help the GoB realize its policy objectives on EFCC by guiding investment choices specified in the annual development plans (ADPs).

[4]The term "ecosystem services" is defined in the Millennium Ecosystem Assessment (2005) and discussed further below.

Through an extensive and inclusive process of stakeholder consultation, and policy review the following four investment pillars were identified for achieving the goal of the EFCC CIP:

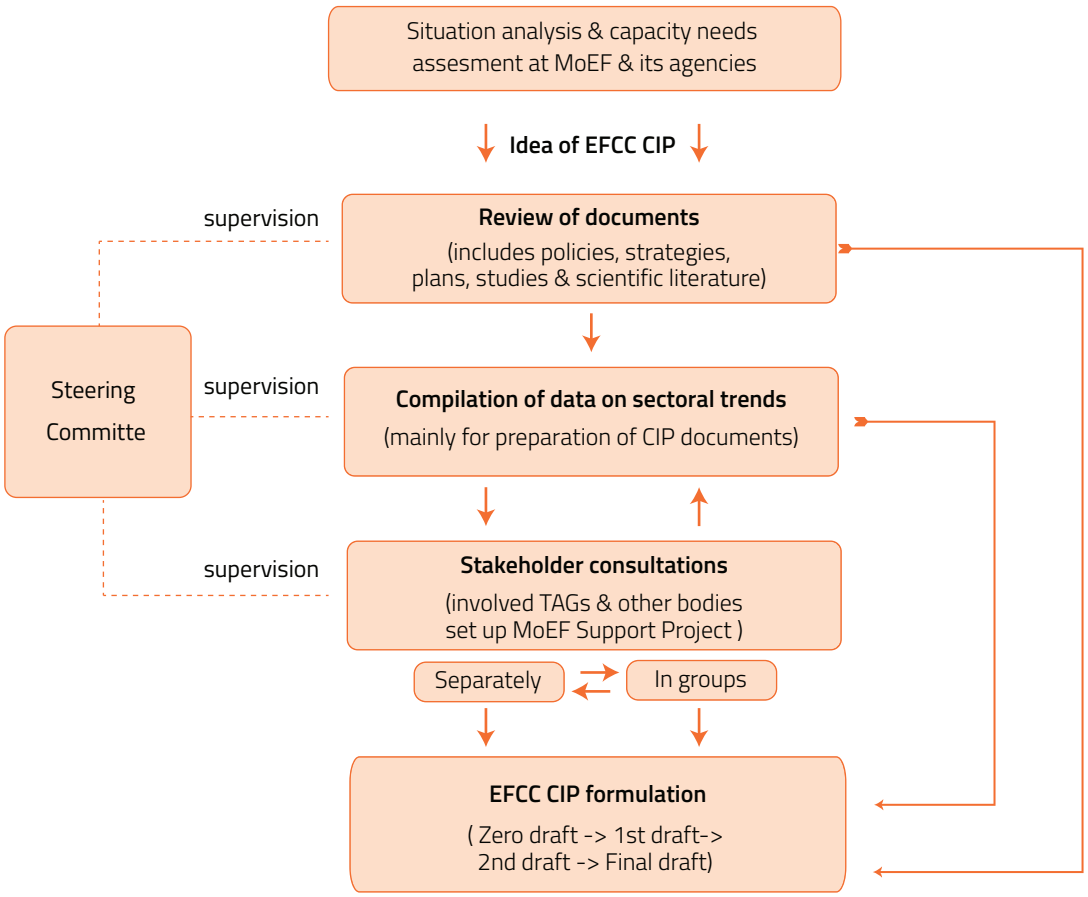
Pillar 1	Sustainable development and management of natural resources
Pillar 2	Environmental pollution reduction and control
Pillar 3	Adaptation and resilience to, and mitigation of, climate change
Pillar 4	Environmental governance, gender, and human and institutional capacity development

1.3 THE CIP FORMULATION PROCESS

The idea of formulating the EFCC CIP originated from a situation analysis and capacity assessment of the MoEF and its agencies (Shaheduzzaman, 2013), which identified significant capacity gaps and highlighted the importance of improving the way in which EFCC investments are coordinated, designed and implemented. In discussions with the GoB, it became apparent that a strategic investment framework was needed to inform investment coordination and design efforts.

The CIP formulation process was participative and interactive, as illustrated in Figure 1.2, and it involved consultation with a broad range of stakeholders over a two-year period. The process was overseen by a steering committee comprising key representatives of the EFCC sectors, and chaired by the Secretary of the MoEF.

Figure 1.2 EFCC CIP formulation process



The EFCC-CIP formulation process involved following activities:

Review of policies and legislation

An extensive review of key legal, policy, strategy and planning documents related to the EFCC sectors in Bangladesh was carried out under five major themes: (i) agriculture, (ii) forestry, (iii) environment and climate change, (iv) industry and economic development, and (v) gender. A team of experts reviewed more than 200 documents, including policies, plans, strategies, laws (see Annex 3), studies and scientific literature. The review helped identify existing trends, opportunities, challenges and potential investment portfolios in the EFCC sector.

Compilation of data on sectoral trends

In this step, data were collected to demonstrate trends in different EFCC sectors. This data compilation was needed for the development of the CIP document, particularly the results framework.

Stakeholder consultations

A broad cross-section of stakeholders was consulted. Consultations involved bodies set up by the MoEF Support Project, including technical advisory groups (TAGs), ministerial working groups, relevant national institutions (with individual or multiple agencies together), and experts. In other words, the stakeholders represented government, non-governmental organizations (NGOs) (including civil-society organizations – CSOs, and community-based organizations – CBOs), the private sector, and development partners in Bangladesh. Stakeholders were consulted individually, in multi-stakeholder settings, including workshops at the national, divisional and district levels, and in local community meetings. Three national workshops were held in February 2015, May 2015 and March 2016 to collect high-level feedback on CIP concepts and early drafts. A consultation on gender dimensions was held in Dhaka in March 2016 to gather elements for the CIP Gender Action Plan (see Chapter 13 and Annex 4).

1.4 CONCEPTUAL FRAMEWORK, DESIGN PRINCIPLES, AND SCOPE

CONCEPTUAL FRAMEWORK

The conceptual underpinnings of the CIP are contained in the Millennium Ecosystem Assessment (2005d), which popularized the term "ecosystem services" – that is, the multiple benefits humans obtain from the environment.[5] Ecosystem services can be grouped into four broad categories:

1.	Provisioning services, such as the production of food and water;
2.	Regulating services, such as the control of climate and diseases, or prevention of flooding;
3.	Supporting services, such as nutrient cycling and crop pollination; and
4.	Cultural services, such as spiritual and recreational benefits derived from the environment.

5 The justification for the choice of the underlying conceptual framework of the CIP was given in the zero draft of the EFCC CIP (consultant report, 7 September 2015).

Restoring and maintaining ecosystem services are important strategies for climate-change adaptation: the Convention on Biological Diversity (CBD) defines ecosystem-based adaptation as the use of biodiversity and ecosystem services to help people adapt to the adverse effects of climate change. Different ecosystems provide different services, underlining the need for natural diversity – as depicted in Figure 1.3.

Figure 1.3 Sources of ecosystem services

Source: Millennium Ecosystem Assessment

DESIGN PRINCIPLES

Design principles define how the GoB and stakeholders (e.g. producer organizations, NGOs, the private sector, academia and development partners) will work together to achieve the overall goal of the EFCC CIP by 2021. Seven principles – 1) participation, 2) increasing aid effectiveness, 3) alignment, 4) management for results, 5) mutual accountability, 6) gender and targeting considerations, and 7) continuous improvement – emerged from the consultation process and have informed the CIP design process. Each is described below.

Participation

Participation supports good governance, citizenship and accountability. The benefits are the social inclusion of disadvantaged groups, and equitable economic growth. The broad dialogue processes put in place during the EFCC CIP development phase can be continued during implementation to enable stakeholders to participate effectively in the design, implementation and monitoring of specific programmes and projects that will affect them.

Increasing aid effectiveness

Although aid from development partners makes a diminishing contribution to Bangladesh's GDP, it still accounts for a significant proportion of the annual development budget. The EFCC CIP would promote progress in internationally agreed aid-effectiveness principles. It would also help reduce the duplication of efforts and transaction costs in aid management.

Alignment

Alignment refers to how well development programmes follow national policies and use public finance systems. The EFCC CIP builds on goals and priorities set forth in policies and strategies already endorsed by the GoB.

Management for results

A major planning challenge is to determine how results from a collection of projects will contribute to policy objectives – routine project monitoring often does not capture this aspect well. The GoB has moved towards results-based planning, such as in its five-year plans, but improvements may be needed at the sectoral or thematic levels. The GoB acknowledges that existing monitoring and evaluation is fragmented and unfocused – the General Economics Division monitors impacts, and the Implementation Monitoring and Evaluation Division mainly monitors inputs and outputs (Ministry of Finance, 2011).

Mutual accountability

The GoB and development partners declared their willingness to create an effective development partnership based on mutual commitment, trust, respect and confidence through the implementation of the Harmonization Action Plan. The EFCC CIP would support this principle and provide a framework for implementation.

Gender and targeting considerations

Equity, including gender equity, is an important part of the EFCC CIP. The poor and vulnerable groups bear the costs of environmental and natural resource degradation disproportionately (World Bank, 2016). Investments can be designed to target poor marginalized minorities and other vulnerable rural households that depend heavily on natural resources. Women are especially vulnerable to the impacts of climate change because their access to and control over resources and decision-making are more constrained than they are for men. Gender is a specific programme in the EFCC CIP and is also mainstreamed in other programmes; the Gender Action Plan sets out the CIP's approach to this design principle.

Continuous improvement

The economic, social and environmental situation is very dynamic in Bangladesh. As existing policies and plans are updated and new ones developed, the EFCC CIP should be seen as a "living document" in which evolving issues and emerging investment priorities can be analysed and accommodated, as needed. The monitoring process (see Chapter 9) will enable continuous learning and improvement under the CIP.

SCOPE OF THE EFCC CIP

The consultation process included defining what will be included in, and excluded from, the EFCC CIP. The following criteria were identified for defining the scope of the CIP:

- Investment priorities should contribute to the overall goal of the EFCC CIP. In other words, the CIP includes programmes, sub-programmes and priority investment areas that enhance the provision of ecosystem services.
- The EFCC CIP should be implementable. Thus, it includes programmes and sub-programmes that are within the implementation and monitoring capacity of the GoB. Implementation considerations also imply that specific institutions are responsible for the implementation and monitoring of individual programmes, sub-programmes and projects.
- The EFCC CIP should include investment priorities highlighted during the consultation process.
- Investments will be funded with public resources. It is difficult to consistently monitor investments by the private sector, NGOs and CSOs, and such investments are therefore not included in the EFCC CIP.[6] Nevertheless, the CIP will include projects and programmes that catalyse private-sector investments and increase private-sector participation in the policy development process.
- The EFCC CIP will ensure complementarity with, and avoid duplicating, the FS CIP.

Although climate change is addressed in a dedicated pillar (see Chapter 6), all envisioned investments should be "climate smart".

[6] The same approach was taken in defining the scope of the Agriculture, Food Security and Nutrition CIP.

2. Country context

2.1 ECONOMIC, SOCIAL AND ENVIRONMENTAL CONTEXT

Bangladesh has maintained an average annual GDP growth rate of about 6 percent for more than a decade and is predicted to sustain this for the next five years. The fact that this growth has been achieved in the face of natural disasters (2007, 2009), the crisis in world food prices, and a global economic slowdown suggests that the economy is resilient, supported by good macroeconomic management and favourable external factors (e.g. remittances and continued market access for certain goods). Sustained growth has helped reduce the number of people living in poverty from 48.9 percent of the total population in 2000 to 31.5 percent in 2010 and 24.8 percent in 2015.[7] Growth has also been associated with an improvement in social indicators related to education, health and nutrition, and housing and sanitation.

According to the World Bank (2014), the country's sustained economic growth has been due to growth in agricultural production, the services sector, and industry, especially manufacturing. Economic growth, coupled with increasing population pressure, has, however, been associated with the degradation of certain ecosystems (rivers and wetlands, coastal areas, the high Barind, and the Chittagong Hill Tracts) and the urban environment; in some areas, groundwater has been irreversibly depleted, and deforestation and land degradation have also occurred. Environmental degradation affects the livelihoods and quality of life of many people and imposes social costs that will be felt increasingly over time; it may therefore hamper the sustainability of the growth achieved (World Bank, 2016).

Climate change poses another challenge to sustainability.

More frequent and severe weather events – such as cyclones, cyclonic storms, storm surges, flash floods and drought – are likely to threaten economic growth and the achievement of the targets set in Vision 2021.

The coastal region in the south and southwest of the country is already experiencing inundation and salinity intrusion, with impacts on livelihoods. This is not necessarily due entirely to climate change – it is a complex phenomenon arising from the interplay of tide seasonality, subsidence in the coastal zone, reduced upstream river flows (due to water extraction, mostly in India), and possibly also rising sea levels. Nevertheless, climate change will almost certainly exacerbate the problem.

Many highly valuable ecosystems in Bangladesh are under pressure from pollution, unregulated use and climate change – including the Sundarbans in the southwest (which includes one of the largest tiger reserves in South Asia) and the Chittagong Hill Tracts. The latter is experiencing high levels of soil erosion and deforestation due to human activity, which, in turn, increases the potential impacts of natural flash floods during the rainy season. Flash flooding is also prevalent in the northeast of the country. Bangladesh has numerous smaller natural areas that provide thousands of local people with their livelihoods.

Bangladesh has been recognized globally for its progress in meeting the Millennium Development Goals, particularly in the areas of achieving gender equality in education; combating HIV/AIDS, malaria and other diseases; and significantly reducing rates of infant and child mortality. However, rates of maternal and neonatal mortality remain relatively high, access to key productive resources such as land is not always equitable, and violence against women is a hidden scourge. A challenge is the limited participation of women in decision-making – in households, the broader community, and the government agencies. Although indicators of gender equity are trending upward, many women still face economic and social disadvantages that restrict their ability to improve their lives and those of their families, including through their roles as environmental stewards.

[7] Poverty headcount ratio at national poverty lines expressd in percent of population (World Development Indicators).

2.2 RELEVANT INSTITUTIONS

Responsibility for the environment, forests and climate change lies with several ministries, divisions and departments, and also involves CSOs, NGOs and the private sector. Such a range of stakeholders poses a significant challenge for coordination.

The MoEF (and its agencies) is the apex body of the GoB responsible for the policy, planning and administration of all forestry and environment-related issues and development programmes. It is mandated to ensure environmental protection and sustainable development through the development and implementation of appropriate laws and regulations. The MoEF will be the lead ministry for the implementation of the EFCC CIP. Key agencies in the MoEF are the Department of Environment; the Forest Department; the Bangladesh Forest Research Institute; the Bangladesh Forest Industries Development Corporation; the Bangladesh National Herbarium; and the Bangladesh Climate Change Trust.

Other key government institutions with a stake in the EFCC sectors include the following:

Ministries/Divisions

- Agriculture, Water Resources and Rural Institution Division of the Planning Commission
- Bank and Financial Institutions Divisions
- Cabinet Division
- Economic Relations Division
- Energy and Mineral Resources Division
- Finance Division
- General Economics Division
- Information and Communication Technology Division
- Law and Justice Division
- Legislative and Parliamentary Affairs Division
- Local Government Division
- Ministry of Agriculture
- Ministry of Chittagong Hill Tracts Affairs
- Ministry of Civil Aviation and Tourism
- Ministry of Commerce
- Ministry of Defence
- Ministry of Disaster Management and Relief
- Ministry of Education
- Ministry of Environment and Forests
- Ministry of Fisheries and Livestock
- Ministry of Food
- Ministry of Health and Family Welfare
- Ministry of Home Affairs
- Ministry of Housing and Public Works
- Ministry of Industries
- Ministry of Information
- Ministry of Land
- Ministry of Planning
- Ministry of Primary and Mass Education
- Ministry of Public Administration
- Ministry of Railways
- Ministry of Science and Technology
- Ministry of Shipping
- Ministry of Social Welfare
- Ministry of Textiles and Jute
- Ministry of Water Resources
- Ministry of Women and Children Affairs
- National Board of Revenue
- Parliament Secretariat
- Power Division
- Road Transport and Highways Division
- Rural Development and Co-operatives Division.

Departments/Agencies

- Agricultural Information Service
- Bangladesh Agricultural Development Corporation
- Bangladesh Agricultural Research Institute
- Bangladesh Agriculture Research Council
- Bangladesh Bank
- Bangladesh Bureau of Statistics
- Bangladesh Chemical Industries Corporation
- Bangladesh Climate Change Trust
- Bangladesh Coast Guard
- Bangladesh Council of Scientific and Industrial Research
- Bangladesh Fisheries Research Institute
- Bangladesh Forest Industries Development Corporation
- Bangladesh Forest Research Institute
- Bangladesh Internal Water Transport Authority
- Bangladesh Livestock Research Institute
- Bangladesh Meteorological Department
- Bangladesh National Herbarium
- Bangladesh Parjatan (Tourism) Corporation
- Bangladesh Road Transport Authority
- Bangladesh Rural Development Board
- Bangladesh Rural Electrification Board
- Bangladesh Small and Cottage Industries Corporation
- Bangladesh Space Research and Remote Sensing Organization
- Bangladesh Standards and Testing Institution
- Bangladesh Tourism Board
- Bangladesh Water Development Board
- Barind Multipurpose Development Authority
- Chittagong Hill Tracts Development Board
- Chittagong Port Authority
- City Corporations and Municipalities
- Climate Change and Health Promotion Unit-MOHFW
- Department of Agricultural Extension
- Department of Disaster Management
- Department of Environment
- Department of Fisheries
- Department of Land Records and Survey
- Department of Livestock Services
- Department of Patent Design and Trademark
- Department of Public Health Engineering
- Dhaka Transport Coordination Authority
- Dhaka Zoo
- Directorate General of Health Services
- Directorate of Bangladesh Haor and Wetland Development
- Forest Department
- Health Economics Unit-MoHFW
- Hill Districts Councils (Rangamati, Khagrachari and Bandarban)
- Law-enforcement agencies
- Local Government Engineering Department
  Mongla Port Authority
- National Agriculture Research System Institutions
- National Agriculture Training Academy
- National Curriculum and Textbook Board
- Payra Port Authority
- Public Private Partnership Authority
- Public Works Department
- River Research Institute
- Roads and Highways Department
- Soil Resource Development Institute
- Survey of Bangladesh
- Sustainable and Renewable Energy Development Authority
- Water Resources Planning Organization
- Water Supply and Sewerage Authority

NGOs, CSOs and others

Among the more prominent NGOs, CSOs and academic institutions with a stake in the EFCC sectors are the following:

- International Union for Conservation of Nature
- International Centre for Climate Change and Development
- Centre for Climate Change and Environmental Research
- BRAC University
- Centre for Policy Dialogue
- Bangladesh Centre for Advanced Studies
- Institute for Forestry and Environmental Sciences at Chittagong University
- Department of Forestry and Environmental Science at Shahjalal University of Science and Technology, Sylhet
- Forestry and Wood Technology Discipline, Khulna University
- Department of Agroforestry & Environment at Bangabandhu Sheikh Mujibur Rahman Agricultural University
- Department of Agroforestry and Environmental Science at Sher-e-Bangla Agriculture University, Dhaka
- Bangladesh Agricultural University, Mymensingh
- Bangladesh Institute for Development Studies
- Water Aid
- Grameen Shakti
- Arannayk Foundation
- Palli Karma Sahayak Foundation
- Action Aid Bangladesh
- Waste Concern
- Oxfam GB
- Technical Assistance for Rural Development
- Christian Commission for Development in Bangladesh
- Centre for Natural Resources Studies; Infrastructure Development Company Limited
- Bangladesh School Health Foundation; Health Communication Network
- National Institute of Preventive and Social Medicine
- International centre for Diarrhoeal Diseases Research, Bangladesh
- Centre for Advanced Research in Natural Resources and Management
- Society for Environment and Human Development

Several important private-sector activities have negative impacts on the environment, including brickmaking; ship-breaking; chemicals and pharmaceuticals; textiles and garments; tanneries; and coal-based power plants. Food and other processing plants emit effluent or solid waste, while urban areas also generate large quantities of solid and liquid waste.

The current involvement of the private sector in the sustainable management of natural resources is limited, as are its positive contributions to the EFCC sectors. Nevertheless, a handful of success stories illustrate the potential of private-sector involvement – such as the development of rural solar home systems by Infrastructure Development Company Limited, supported by the public sector, as well as a joint venture involving Grameen Shakti (an NGO) and Rahimafrooz (a company) in the private sector; and the Clean Development Mechanism project implemented by Waste Concern. The International Finance Corporation prepared a strategy to further engage the private sector in climate-change adaptation in Bangladesh in 2010. Meanwhile, tourism and related activities derive benefits from the environment.

3. Government policies and key issues

3.1 OVERALL DEVELOPMENT POLICY

The GoB prepared the Perspective Plan of Bangladesh (2010–2021) (Roadmap to Vision 2021) and the 7FYP (2016–2021). The latter is the vehicle for implementing the former.[8] The Bangladesh EFCC CIP draws heavily from these two national milestone planning instruments for its various components and frameworks (see Annex 5). The Perspective Plan envisages that, by 2021, the "war against poverty" will largely have been won, the country will have crossed the middle-income threshold, the basic needs of the people will be ensured, and their basic rights will be respected. According to the plan, these ambitions will be realized on a sustainable basis without damaging the environment.

The EFCC CIP is aligned with the main international and national policies and strategies, and it seeks to coordinate the investments and implementation arrangements of existing strategies.

The main policy frameworks that inform the EFCC CIP include the Sustainable Development Goals (SDGs), many of which address natural resource management, climate change and sustainable development. Bangladesh also adheres to the principles of three Rio Conventions, namely the CBD, the UN Framework Convention on Climate Change (UNFCCC) and the UN Convention to Combat Desertification (UNCCD). The EFCC CIP is in line with the Foreign Aid Policy; that policy is informed by the 2005 Paris Declaration on Aid Effectiveness, which emphasizes harmonization, the division of labour, and a sector-wide planning approach.

The following sections highlight key policies and issues associated with the four pillars introduced in Chapter 1. The pillars are referred to here as:

1) natural resource management;
2) environmental pollution;
3) climate change; and
4) environmental governance.

3.2 POLICIES AND KEY ISSUES: NATURAL RESOURCE MANAGEMENT

National policies stress the benefits that nature provides in terms of ecological balance, ecosystem services, economic growth, anti-poverty measures (such as social protection) and disaster protection. An extensive policy framework has not prevented deforestation and forest degradation, however. Bangladesh's commitment to protect biodiversity and habitats is at odds with reality in a population-dense developing country, where competition is intensifying for land and natural resources.

Forests, biodiversity and wetlands are receiving increasing attention in government policies and strategy documents. For example, the Perspective Plan (2010-2021) sets targets to achieve tree coverage of 2.84 million hectares featuring diverse tree species aimed at sustaining the ecological balance; increase forestry employment (particularly for women) in expanded social forestry and agroforestry activities; create a "coastal green belt" for sea protection; and increase accountability and transparency in public forest management (Perspective Plan, p. 31).

The GoB intends to manage Bangladesh's vast wetlands more efficiently; it views these lands as underused and necessary for meeting increasing demand for fish (Perspective Plan, p. 29). The delta, comprising the Ganges, Brahmaputra and Meghna floodplains, is the world's largest flooded wetland, and it contains more than 800 aquatic species.

[8] Vision 2021 is the GoB's articulation of the country's envisaged development status in 2021. It is to be delivered through the Sixth and Seventh Five-Year Plans. The Medium-Term Budgetary Framework indicates how these plans are being operationalized.

The Perspective Plan states Bangladesh's commitment to conserving and enhancing biodiversity while recognizing its depletion and the importance of the National Biodiversity Assessment and Programme of Action 2020 (Perspective Plan, p. 96). Bangladesh is in the process of submitting its next National Report to the CBD, incorporating national targets and compliance with the Aichi Biodiversity Targets (which were set at the tenth Conference of the Parties to the CBD in 2010).

Bangladesh has submitted its first and second National Communications on climate change to the UNFCCC, and is expecting to its submit its third by March 2017 with the necessary information on adaptation, mitigation, GHG inventory and other cross-cutting issues. On combating desertification and land degradation, the National Action Programme (NAP) has been updated.

FORESTRY

Forests are important in Bangladesh for development, the maintenance of environmental balance, and biodiversity conservation. Forests and related services are also important economically, contributing 1.7 percent of GDP and their value growing annually by about 5 percent.[9]

As Figure 3.1 illustrates, Bangladesh hosts different types of forests, each with unique functions and issues. The stabilization of accreted lands and protection from storm surges are especially important in coastal areas. Watershed management and protection from soil erosion are especially important in hilly areas. The potential of forests for livelihood enhancement and enterprise development is especially important in protected areas.

Summary of key issues

- Pressure on forest reserves is reducing tree cover (especially in the Chittagong Hill Tracts and the Sundarbans[10]) and leading to forest encroachment; illegal logging and unsustainable exploitation; the permanent loss of biodiversity; a growing list of threatened species of flora and fauna; and the dependency of poor farmers on forests for their livelihoods.
- Current levels of exploitation of state forests (mostly illegal) are beyond the forests' natural productive capacity, leading to rapid degradation.[11]
- There is an imbalance in the supply of, and demand for, forest products.
- A lack of community consultation and participation is undermining development efforts in the forest sector.

[9] Sector share of GDP at constant prices in 2014-2015. BBS: http://www.bbs.gov.bd/WebTestApplication/userfiles/Image/GDP/GDP_2014-15_Final.pdf

[10] According to Global Forest Watch, 60 000 ha were lost (>30 percent tree cover) between 2001 and 2013 and 7 000 hectares were gained.

[11] Approximately 46 percent of the country's total forests are under formal management plans and nearly 50 percent are under traditional management plans (BFD, 2010, cited in Sarker et al., 2011).

- Tenure issues (e.g. encroachment, the existence of multiple claims over khas land, and insecure land ownership) hinder investments in forests and provide disincentives for the sustainable management of trees and land.

- Low institutional capacities, poor governance and weak law enforcement are leading to encroachment and illegal logging (Sarker et al., 2011).

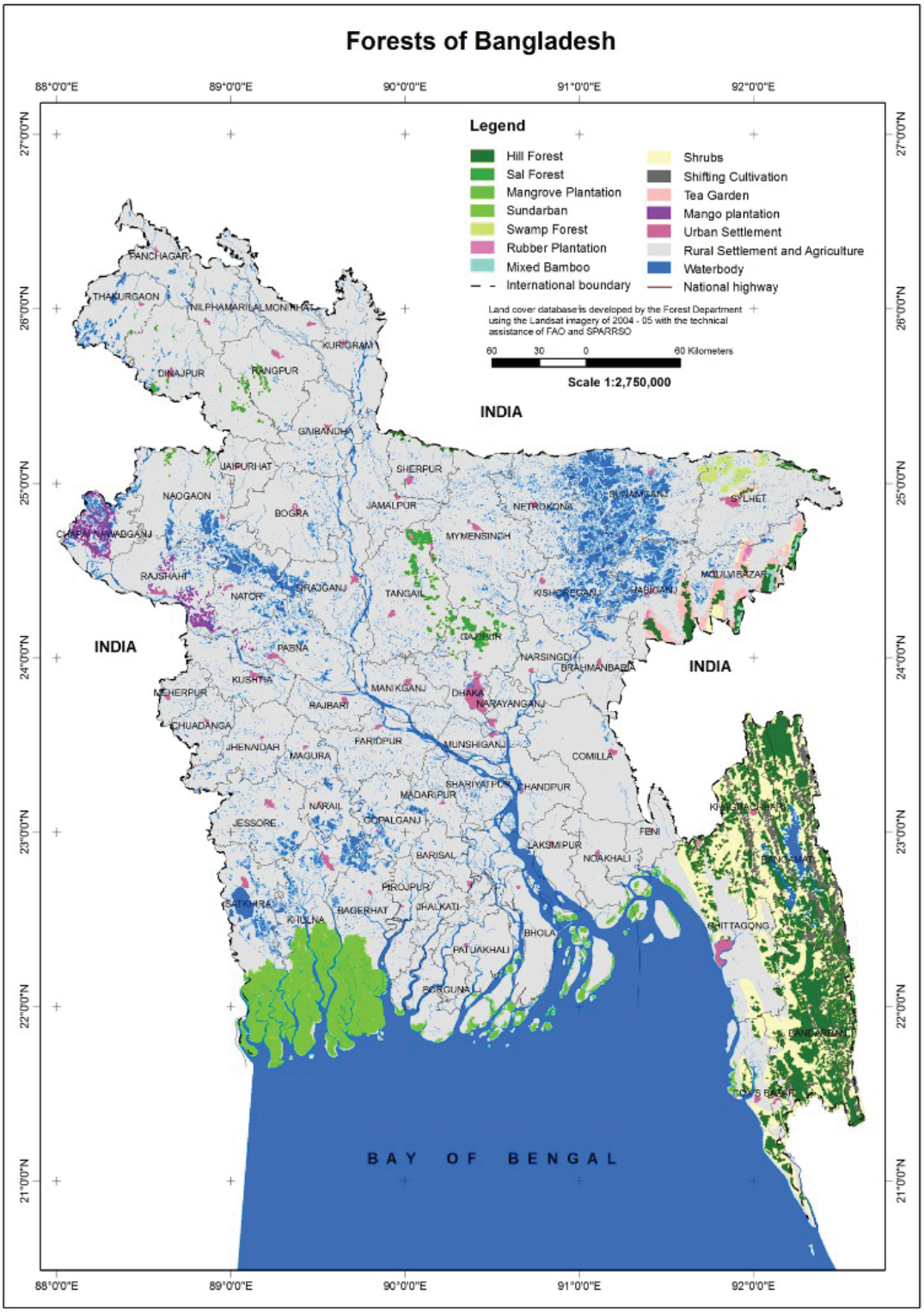
- Women and men in rural areas who are highly dependent on natural resources for their livelihoods are especially vulnerable.

- There are opportunities for land reclamation, protection from storm surges, and carbon sequestration on newly accreted lands in coastal areas via afforestation.

- Opportunities exist for agroforestry, social forestry and homestead forestry for the production of food, wood and fuel and improving the environment. The role of homestead forests is potentially very significant in rural economies but needs to be better understood and supported. Social forestry approaches present "win–win" solutions for livelihoods and the environment.

- Watershed management - the integrated management of soil, water, vegetation, wildlife, and human activities at the watershed level - should be promoted.

Figure 3.1 Forest zones of Bangladesh



Source: Bangladesh Forest Department (2007)

BIODIVERSITY CONSERVATION

The GoB's conservation vision is to improve ecosystem quality through the conservation of forests and biodiversity and to enhance the benefits obtained from ecosystem services through active community participation (MoEF, 2012d).

Bangladesh is a highly biodiverse country, but many wildlife populations have declined sharply (Department of Environment, 2016; Choudhury, 2015). The 2010 National Biodiversity Assessment Report assessed wild mammals as the most threatened faunal group. Besides the well-known Royal Bengal Tiger, critically endangered species include the Northern River Terrapin *(Batagur baska)*, Gharial *(Gavialis gangeticus)*, and the Asian Elephant. The GoB prepared the Bangladesh Tiger Action Plan in 2009 to address tiger conservation in the Sundarbans.

Although the country has designated significant areas for conservation, the management of these areas has been unable to address socioeconomic pressures. River bank erosion, inefficient irrigation systems, the overexploitation of biomass from agricultural fields, the destruction of top soil by brick kilns, unplanned industrial activities and reductions in river water flow in dry seasons have contributed to water pollution, soil degradation, and biodiversity loss. Nevertheless, good management practices have been developed in several conservation areas in recent years, particularly with support from the United States Agency for International Development (USAID), and these have been identified as important investment areas in the EFCC CIP. Other models of community-based conservation activities have also been piloted and are worth learning from.

The Wildlife (Conservation and Security) Act 2012 recognizes various categories of protected areas, such as: wildlife sanctuaries, national parks, community conservation areas, safari parks, eco-parks, botanical gardens, wildlife breeding centres, landscape zones or corridors, buffer zones and core zones, national heritage, memorial trees, sacred trees and kunjaban (see Chapter IV of the Act). In order to preserve the country's biodiversity, the Cabinet approved a draft of the Bangladesh Biodiversity Act in 2016 that specifically prohibits individuals and organizations from gathering information or knowledge, doing conservation work or research and making commercial use of biodiversity or bio resources without official sanction; otherwise, it is a punishable offence. On a similar note, the Bangladesh Biosafety Rules (2012) provides regulations on the approval process for biotech products developed domestically or by a third country. It also sets out requirements of approval before any genetically engineered products can be imported or sold within Bangladesh.

As per provisions of the Bangladesh Environment Conservation Act (1995, last amendment in 2010), 13 areas have been declared Ecologically Critical Areas (ECAs), and the country's first marine park has been declared in the Bay of Bengal. The different types of protected area have differing levels of protection and use, but a common theme is the importance of local communities' participation in their management. ECAs are designed to protect ecosystems that are threatened or in a critical state due to environmental degradation. The Ministry of Environment and Forests, with recommendations from Department of Environment, has the legal authority to declare such areas by official Gazette notification.

Existing "community-conserved areas" are highly pressured (Islam et al., 2010; Roy, 2000). Eco-parks and safari parks have been created on reserved forest land for recreational (rather than conservation) purposes.

Bangladesh has continued to expand its conservation areas, creating nine protected areas in the last five years (MoEF, 2015) and the 7th FYP aims to increase protected areas to 5 percent of the country by 2021. A notable success to that end has been to strengthen co-management with communities. Funding is an important obstacle to strengthening conservation, with high dependence on government allocations and international projects and little realistic financial planning. Two positive developments have been the establishment, by the government, of a recurring budget line for co-management committees in protected areas, and the sharing of revenues earned from non-wood forest products (NWFPs) as a financing source for the Sundarbans (MoEF, 2012d). Consultations highlighted, however, the importance of assessing existing co-management mechanisms to identify what has worked and what needs correction.

Bangladesh aims to achieve the CBD's Aichi Biodiversity Target 11[12], which is to designate 17 percent of terrestrial and inland water areas, and 10 percent of coastal and marine areas, as protected areas by 2020 (MoEF, 2012d).

[12] Important biodiversity monitoring commitments under the CBD include, (i) identifying and monitoring the components of biodiversity for conservation and sustainable use; (ii) establishing protected areas to conserve biodiversity while promoting environmentally sound development in buffer zones; (iii) rehabilitating and restoring degraded ecosystems and promoting the recovery of threatened species, in collaboration with local communities; and (iv) ensuring biodiversity conservation in livestock and fisheries.

Table 3.1 shows the various types of conservation areas.

Table 3.1 Overview of conservation areas in Bangladesh

Type	Number
Forest protected areas	37
Marine protected areas	1
Vulture safe zone	2
Ecologically critical areas	13
Eco-parks	10
Safari parks	2

Source: Annual Report of the Bangladesh Forest Department 2014-15

Many of the ECAs in Bangladesh have long suffered from encroachment, pollution and management problems. DoE's project "Coastal and Wetland Biodiversity Management at Cox's Bazar and Hakaluki Haor (CWBMP)", financed by GEF/UNDP, has been implementing strategic programs towards the conservation of the biological diversity in four ECAs: Cox's Bazar-Teknaf Peninsula, Sonadia Island, St. Martin's Island and Hakaluki Haor. Similar programs have also been initiated in the Cox's Bazar-Teknaf ECA by DoE, UNDP and IUCN to increase local resilience to climate change impacts, promote biodiversity and diversify livelihood options. The establishment of 68 village conservation groups, 10 water sanctuaries and 4 bird conservation areas are some important outputs of the project.

According to the GoB's assessment of protected areas (using the IUCN classification), protected areas cover 6.8 percent (1.0 million hectares) of the land areas and inland waters, and 6.2 percent (0.91 million hectares) of coastal and marine areas (MoEF, 2012d).[13] This is much more than estimates reported elsewhere (e.g. by IRG, 2012a, and Islam et al., 2013, which both put the area in protected areas at less than 2 percent).

Bangladesh's newest marine protected area ("Swatch of No Ground"), created in October 2014 in the Bay of Bengal[14], is a spawning and breeding ground for cetaceans, including dolphins, whales and porpoises, and for sharks. It is the country's first offshore protected area; it covers 173 800 hectares and has an average depth of 900 metres over a submarine canyon. Fishing and other offshore activities are restricted in this protected area. The area has substantial potential to contribute to the 'blue economy', and a sustainable strategy for resource exploitation from the marine protected area is needed.

Bangladesh's most important saline wetland is the Sundarbans Reserved Forest. Certain forms of resource extraction are allowed in this forest, but it is illegal for anyone to live, cultivate land, or graze livestock in it. In addition, three areas within the forest totalling 1 400 km^2 have been designated as wildlife sanctuaries and United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage sites, with all extraction prohibited. The Sundarbans Integrated Resource Management Plan proposes the extension of Sundarbans protection by 12 nautical miles into the Bay of Bengal for marine conservation, encompassing an area of 160 300 hectares.

Around 85 percent of the abovementioned conservation areas are forests under the lead responsibility of the Forest Department (95 percent of terrestrial areas and inland waters and 72 percent of coastal and marine protected areas). The remainder falls under the responsibility of the DoE and other agencies, such as the Department of Fisheries .

[13] The 0.91 million hectares stated here includes 0.74 million hectares reported in MoEF (2012d) plus 0.17 million hectares of the marine protected area created in 2014 called the Swatch of No Ground.

[14] Created under the 2012 Wildlife (Conservation and Security) Act.

Summary of key issues

- Threats to biodiversity arise from a loss of habitat, deforestation, soil degradation, inappropriate water and agricultural management, biomass loss and natural disasters.
- Institutional capacity constraints include conflicting and fragmented policies and mandates within government agencies, and a long-standing focus on production at the expense of conservation and sustainable management.
- A lack of dialogue, collaboration and capacity among stakeholders (e.g. policymakers, government departments, private-sector actors, NGOs, development partners and local communities) results in ineffective enforcement and a lack of development of alternative livelihood opportunities.

WETLANDS, WATER BODIES AND MARINE ECOSYSTEMS

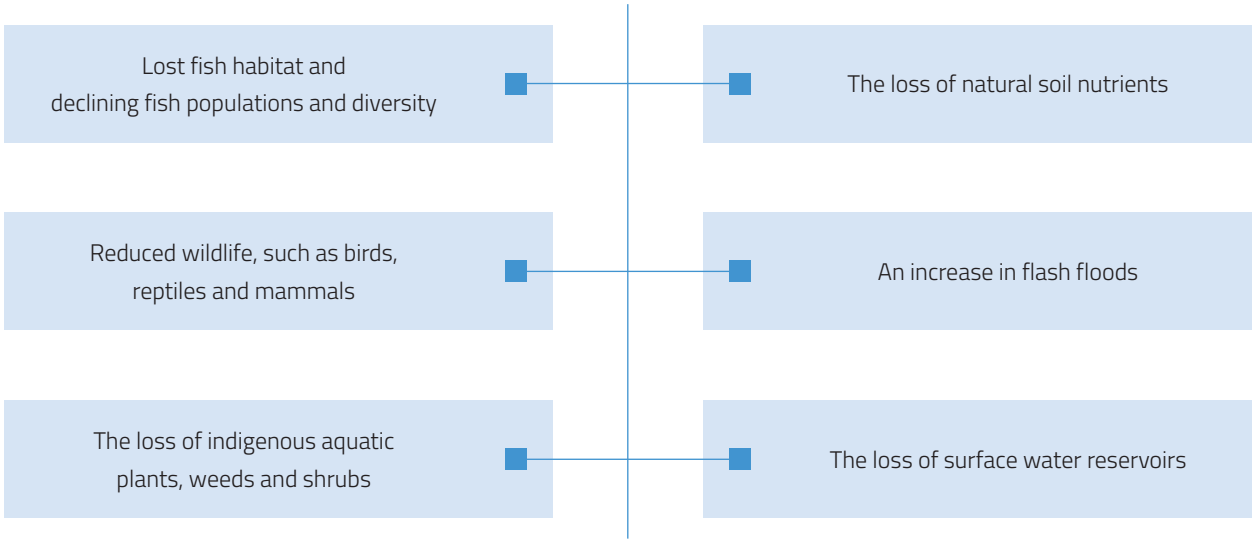
Bangladesh's enormous and varied network of aquatic ecosystems, covering around 2 million hectares, includes:

- freshwater wetlands, locally called baors and jheels (oxbow lakes in the meander of a river), beels (in shallow topographic depressions, often marshy), haors (in bowl-shaped depressions), swamps, marshes, rivers and canals;
- saltwater wetlands such as mangroves, tidal mudflats, brackish lagoons, coral reefs, shorelines and beaches;
- human-made water bodies such as fish and shrimp ponds, irrigated land, and salt pans; and
- palustrine wetlands (any inland wetland lacking flowing water that contains ocean-derived salts) and lacustrine wetlands (wetlands around lakes and reservoirs).

These aquatic ecosystems are home to hundreds of species of freshwater fish, migratory birds, shrimps, turtles, snails and wetland flora, and they provide livelihoods, fish, honey, materials and fuel for millions of people. Around three-quarters of animal protein consumption in Bangladesh is derived from fish, particularly among the poor. Wetlands also contribute to groundwater recharge, flood protection and carbon storage.

Inland-capture fisheries are an important source of fish production. Although Bangladesh is the fourth-highest fish producer worldwide, inland capture has been declining for some time due to overfishing, pollution and inadequate institutional capacity. In the decade from 1985, natural carp spawn catches declined by 75 percent and are now negligible, and major carp and large catfish catches have declined by half (USAID, 2010). More than 40 percent of Bangladesh's freshwater fish species are threatened with extinction (IUCN Bangladesh, 2010). The 1998 Wetland Policy incorporates sustainability principles, but it has been weak in practice.

Symptoms of degraded wetlands include:



Bangladesh's marine area covers about 220 million hectares, including a 710 km coastline. The Bay of Bengal is rich in biodiversity but has relatively low biological productivity (Hossain et al., 2015). Marine resources include fish, aquaculture, mangroves, sea salt and ecotourism – and potentially oil, gas, minerals, renewable energy and marine biotechnology. There are more than 385 species of freshwater fauna. About 30 million people (around one-fifth of the national population) are dependent on the marine sector for their livelihoods in sectors such as fisheries, aquaculture, tourism, shipping, shipbuilding, ship-breaking, and offshore oil and gas (Hossain et al., 2015).[15]

Decades-old coastal zone policies and plans have not been well-implemented. Progress has been hampered by a lack of coordination, insufficient scientific understanding and inadequate human resources. Also, the continuous pressure on the coastline and beaches has resulted in the deterioration of the seawater environment and seaweed loss. These problems have been exacerbated by ongoing population pressure.

Inland aquaculture shrimp production in the coastal zone has created a special set of environmental and natural resource issues, including those related to drainage, flooding and the introduction of saltwater. Tensions over land use are also associated with the rapid growth of the shrimp export sector.

Summary of key issues:

- Wetlands are subject to overexploitation – including overfishing, harmful fishing practices, unregulated access, short-term leasing and unplanned infrastructure construction.
- Siltation, industrial and agrochemical water pollution and salinity cause physical degradation. Some wetlands are disappearing due to a lack of upstream water flow, and the land is being used for other purposes.
- River erosion results in a significant loss of productive land and vegetation and thereby is a factor in keeping poor households in poverty. A Delta Plan baseline study estimated that 6 000 hectares of riverbank erosion occurs annually in Bangladesh, leading to the displacement of 50 000 people (GED, 2015b).

[15] It is worth noting that the 2014 settlement of the maritime boundary dispute with India and Myanmar allocated rights to Bangladesh over a greatly increased area of the Bay of Bengal.

GROUNDWATER

A decline in surface water availability in the dry season, combined with increasing water usage, is contributing to groundwater overexploitation, with yields falling and the water table declining by up to 3 metres per year in some places. This problem is especially acute in the northern part of Bangladesh. Groundwater used as drinking water may also be contaminated with naturally occurring inorganic arsenic under certain geological conditions (GoB, 2016). Water tables go beyond the suction limit in many parts of the country during the dry season, resulting in reduced access to drinking water. Excess saline groundwater further limits household water supply in southern districts.

Initial estimates suggest that the textiles industry may be consuming almost as much groundwater as Dhaka's 12 million inhabitants. Over 95 percent of washing, dyeing and finishing (WDF) units are concentrated near rivers, canals and other water bodies in Bangladesh's two major cities, Dhaka and Chittagong, primarily to dispose of large volumes of wastewater daily. Aside from a few dozen WDF units in the eight export-processing zones, most firms tend to be concentrated in informal, heterogeneous and underserviced industrial clusters. Impacts include the overexploitation of fresh groundwater resources, the pollution of water bodies and, to a lesser extent, pressure on energy supplies and associated emissions (GoB, 2016).

The GoB has placed special emphasis on the increased use of surface water and reduced use of groundwater in irrigation to protect the ecological balance and reduce irrigation expenses, stressing the conjunctive use of surface water and groundwater. Its strategy is to encourage the creation of water reservoirs and rainwater harvesting in rain-fed/coastal/hilly areas, and the development of small-scale water resource systems, which will be maintained at the local level by ensuring community participation and addressing related social and environmental issues.

OTHER LAND-USE ISSUES

Various efforts have been made to apply land zoning in Bangladesh, with regulations on the suitability of areas for certain forms of economic activity. One pending law – which may prove difficult to implement – seeks to prevent the conversion of prime agricultural land for other economic purposes. Significant amounts of land are classified as government-owned (i.e. khas) land, which may be occupied illegally by landless people who are often the displaced victims of lateral river erosion. The Ministry of Land generally controls land-leasing through the Assistant Commissioner of Land at the upazila (i.e. sub-district) level.

Summary of key issues:

- The increasing population, coupled with landlessness and inadequate land-use planning, is leading to land fragmentation and land-use conflicts, which are eroding resources in the agriculture sector in particular and the EFCC sectors generally.

- Government attention on land zoning and khas land management has been insufficient. This has given impetus for the inefficient implementation of many policies and regulations related to these issues.

3.3 POLICIES AND KEY ISSUES: ENVIRONMENTAL POLLUTION

Bangladesh's population of approximately 160 million people, combined with steady annual economic growth of more than 6 percent for the past several years (Planning Commission, 2016), is putting significant pressure on the natural environment, with implications for human health and livelihoods. Although Bangladesh has several policies and action plans to counter environmental degradation, the status of environmental management is worrisome.

Bangladesh has about 230 small and large rivers, which are used extensively for living, transportation and connectivity. Especially in the proximity of cities, however, river water has become heavily contaminated with toxic waste, sewage, industrial effluents and agricultural chemicals (including persistent organic pollutants). The Buriganga, one of the country's largest rivers, has been reported to be a dying river (Kibria, Kadir and Alam, 2015), and its contaminated water may pose a serious threat to public health.

According to the World Health Organization, Bangladesh has the fourth-worst air quality among 91 countries. A recent study by the World Bank and the Institute for Health Metrics and Evaluation (2016) estimated that the total number of deaths in Bangladesh from air pollution increased steadily from nearly 93 000 people in 1990 to about 155 000 people in 2013. The study also showed that the total welfare loss due to air pollution in the country increased during the period. The total welfare loss was equivalent to 6.14 percent of Bangladesh's GDP in 2013, up from 4.66 percent in 1990.

The poor management of household, industrial, medical and electronics waste constitutes another category of environmental threat, with significant impacts on livelihoods (particularly in cities) and the natural environment. Poor waste management also leads to a higher risk of disease and clogged drainage systems.

Environmental pollution has a significant economic impact. For example, the health impact of air and water pollution has been estimated at 1–3 percent of gross national income annually due to mortality, morbidity, lost productivity and the additional burden on the health system (see, for example, World Bank, 2006). The "polluter pays" principle is mentioned in policies but weakly applied, with the negative externalities of environmental pollution paid instead by society. Damage to ecosystem services can cause financial losses (e.g. decreased quality of mangos due to air pollution and the loss of fish supplies due to water pollution).

Bangladesh's first environmental policies were developed in the 1970s. Later, the National Environmental Policy (1992) and the National Environmental Management Action Plan (1995) focused on improving the management of scarce resources, reducing the rate of environmental degradation, improving the natural and human environment, conserving habitats and biodiversity, promoting sustainable development, and improving the quality of living conditions. A draft Environment Policy was released in 2015 and is currently in the process of being approved. The draft policy revised the Environment Policy (1992) in the light of recent developments in relevant environmental issues at the national and international levels. The Bangladesh Environmental Conservation Act and Rules (1995, amended 2010) and Environment Conservation Rules (1995) provide for the conservation of the environment, the improvement of environmental standards and the control and mitigation of environmental pollution.

The former also emphasizes industrial water pollution and sets waste discharge quality standards. Bangladesh also established environmental courts under the Environmental Court Act (2010). Sectoral policies such as the National Water Policy (1999) and the Water Act (2013) are in place to regulate water resources, water quality, sanitation, fisheries and the participation of local communities in water-sector development.

Actions were taken under the Sixth Five-Year Plan to address pollution in the ship-breaking and brick-kiln industries. These industries have not been cleaned up completely, however, and further action is needed.

The Ship Recycling Bill has been approved by the Cabinet and is due to go before Parliament. It is intended to ensure safe working conditions, better waste management and environmental protection, and it will set up the Bangladesh Ship Recycling Board to monitor the sector. The Brick Manufacture and Brick Kiln Set-up (Control) Act (2013) facilitates the establishment of units with cleaner technology, restricts the establishment of units in certain places, bars the use of woodfuel and top soils and encourages the production of alternative bricks, but further work is needed to complete the process.

Summary of key issues

- weakly planned, regulated and enforced industrial development;
- insufficient capacity for awareness-raising, law enforcement, and the development of effective policy instruments;
- economic growth outpacing the capacity to address growth-induced environmental issues; and
- limited attention given to environmental issues compared with that given to economic growth.

The following areas were also identified as needing further investment:

- the reduction of industrial pollution and pollution in the ship-breaking sector, and preventing oil spills in the marine environment;
- the reduction of municipal and household pollution, including wastewater and sewage management; and
- the reduction of agricultural sources of pollution via improved management practices and addressing other sources of pollution (e.g. the removal and rehabilitation of old pesticide storage facilities).

3.4 POLICIES AND KEY ISSUES: CLIMATE CHANGE

Bangladesh is one of the world's most climate-vulnerable countries, and it is predicted to be one of the most badly affected by climate change. Most of the negative impacts of climate change (e.g. sea-level rise, extreme weather events, variable rainfall patterns, and temperature rises) will affect ecosystems and people in both rural and urban areas in Bangladesh. Figure 3.2 illustrates the areas that are adversely affected by climatic events and which climate change is likely to make even more vulnerable. Climate-change models for the country suggest that the effects are likely to be complex, requiring diverse strategies to address them.

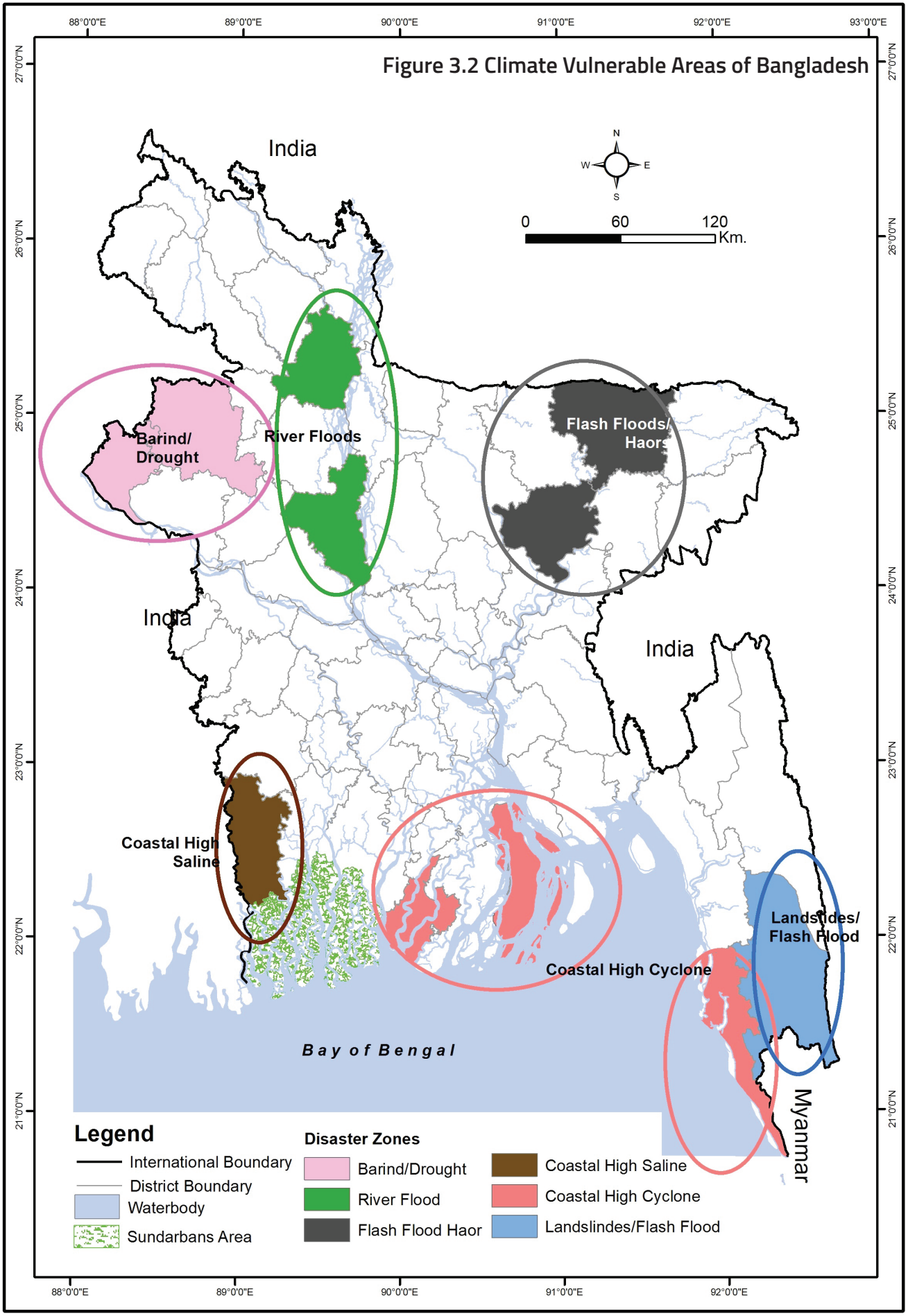
According to Germanwatch (see Kreft et al., 2015), which compiles the Climate Risk Index based on the impacts of extreme weather events[16] in various countries, Bangladesh suffered an average annual loss of more than 700 lives and almost USD 2.5 billion (0.86 percent of GDP) over the period 1995 to 2014.

The GoB recognizes that tackling climate change requires an integrated approach involving many ministries and agencies, civil society and the private sector. Under the leadership of the MoEF, the GoB launched the National Adaptation Programme of Action (NAPA) in 2005 and updated it in 2009. The NAPA identifies priority activities to provide a response to urgent and immediate adaptation needs.

Bangladesh was also one of the first countries to introduce a climate-change strategy and action plan (the Bangladesh Climate Change Strategy and Action Plan, BCCSAP) in 2009. The BCCSAP identifies six thematic areas: 1) food security, social protection and health; 2) comprehensive disaster management; 3) infrastructure; 4) research and knowledge management; 5) mitigation and low-carbon development; and 6) capacity building and institutional strengthening (see Annex 6). The BCCSAP will run through 2018. It needs to be updated in light of evolving national and international elements, including the Paris Agreement. Its revision has commenced.

In response to the global call for concerted action to address climate change, Bangladesh submitted its Intended Nationally Determined Contributions (INDC) to the UNFCCC. The INDC sets an unconditional target to reduce GHG emissions in the power, transport and industry sectors by 12 MtCO2e by 2030 or 5 percent below business as usual (BAU). Conditional upon receiving additional international support, Bangladesh could reduce emissions by more 24 MtCO2e from those sectors within the same timeline (MoEF, 2015). The INDC also notes that "sectors other than power, transport, and industry were not included in the quantified contributions as a robust data-set is not as readily available for these other sectors, making quantification of mitigation potential more challenging. Yet, Bangladesh will carry out more work in future, under the umbrella of the BCCSAP, to improve analysis in other sectors" (MoEF 2015; p. 6). Mitigation measures will be considered in other sectors, such as households, commercial buildings, agriculture, waste, and land use, land use change and forestry.

[16] Climate-change-related extreme events such as extreme precipitation, and coastal flooding, can already be observed, as stressed in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, 2014).



Source: UNDP (2015)

The INDC identifies 14 priorities for climate-change adaptation (Table 3.2).

Table 3.2 Adaptation priorities for Bangladesh

Priority Order	Priority
i	Improved early warning system for tropical cyclones, floods, flash floods and droughts
ii	Disaster preparedness and construction of flood and cyclone shelters
iii	Tropical cyclones and storm surge protection
iv	Inland monsoon flood-proofing and protection
v	Climate-resilient infrastructure and communication
vi	Climate-resilient housing
vii	Improvement of urban resilience through improvement of drainage system to address urban flooding
viii	River training and dredging (including excavation of water bodies, canals and drains)
ix	Stress tolerant (salinity, drought and flood) variety improvement and cultivation (including livestock and fisheries)
x	Research and knowledge management
xi	Adaptation on local-level perspectives etc.
xii	Adaptation to climate-change impacts on health
xiii	Biodiversity and ecosystem conservation
xiv	Capacity building at the individual and institutional level to plan and implement adaptation programmes and projects in the country

Source: MoEF, 2015.

Some interventions have the potential to yield both mitigation and adaptation benefits simultaneously. For example, reforestation and afforestation absorb CO2 from the atmosphere (mitigation) while reducing vulnerability to soil erosion and water runoff (in hilly areas) and tidal surges and cyclones (in coastal areas). The promotion of cleaner technologies and renewable energy can provide opportunities for job creation (increasing incomes and reducing vulnerabilities) while reducing GHG emissions.

To address the threat of climate change, the GoB has given high priority to climate finance and mobilized significant funds from its own budgetary resources; 6–7 percent of its annual combined development and non-development budgets have been allocated to climate-sensitive activities (GED, 2012).

Bangladesh also set up a fund (the Bangladesh Climate Change Trust Fund – BCCTF) to support climate-change adaptation and mitigation projects at the local level.

The GoB has already allocated USD 385 million through the BCCTF. These efforts have been complemented by the international community through the establishment of the Bangladesh Climate Change Resilience Fund, the Pilot Program for Climate Resilience, and many other bilateral initiatives. Bangladesh is looking beyond its borders to find common cause with neighbouring countries in managing climate-change impacts through regional action plans. Adaptation to climate change will place a massive burden on Bangladesh's development budget, and international support and investments will be essential to help the country rise to the challenge (GED, 2010).

Climate-change budgeting exercises have been done for the fiscal years 2009/10 to 2013/14, focusing mainly on budgetary accounting. In these exercises, expenditures were disaggregated according to the six pillars of the BCCSAP. The GoB's ambition is to operationalize a "climate fiscal framework" that ties together climate expenditure, financing demands, and revenues into national planning and budgetary systems (MoF, 2014). An opportunity exists because the Ministry of Finance is revising its Chart of Accounts (budget and expenditure classification) and formats for financial reports (Islam, 2012). To assist in classifying the public accounts, the Ministry of Finance has proposed the development of the Climate Expenditure Tracking Framework, a database tool attached to the Computerized Budget Database at the Ministry and the Computerized Accounts Consolidation System attached to the Office of the Controller General of Accounts (Ministry of Finance, 2014). To date, however, no link has been made, between climate investments and results indicators.

In addition to the BCCSAP, policies on climate-related water infrastructure such as flood control embankments, polders, dykes, roads and bridges are mentioned in the Bangladesh Environmental Impact Assessment Guidelines. MoEF developed a gender action plan for the BCCSAP in 2013 (MoEF, 2013a). Climate change is also an integral part of the 7FYP, thereby laying the foundation for continuing efforts to achieve the SDGs.

A review of documents and an extensive consultation process led to the identification of the following priority areas for investments closely linked to the BCCSAP thematic areas:

- Disaster risk reduction – in particular with respect to the maintenance and improvement of early warning systems, strengthening climate-resilient infrastructure, and improving risk management in the face of climate-change-associated losses (see theme 2 of the BCCSAP).
- Sustainable infrastructure and water resource management – especially the strengthening of embankments and other water works, the development of climate-proof water management systems, and the further development of irrigation schemes to increase resilience to extended droughts (see theme 3 of the BCCSAP).
- Climate-change mitigation – with a focus on sustainable forest management for carbon sequestration, the establishment and implementation of climate-smart technologies, and low-emission practices (see theme 5 of the BCCSAP).
- Increased resilience to climate-change-related risks at the community level (see theme 6 of the BCCSAP).

Themes 4 and 6 of the BCCSAP, which deal with research, knowledge management, and capacity strengthening, are addressed in this CIP in a dedicated pillar on environmental governance.[17] Capacity development in its various forms is essential to develop strategic projects and access recent sources of climate finance (such as the Green Climate Fund, the Global Climate Change Alliance+, the GEF and bilateral sources), to adequately monitor the impacts of such investments and effectively implement climate-relevant policies and plans.

[17] The development of "climate-smart" crop varieties (e.g. those that are tolerant of water stress or require shorter growing cycles) is specified in theme 1 of the BCCSAP and addressed in the FS CIP.

3.5 POLICIES AND KEY ISSUES: ENVIRONMENTAL GOVERNANCE

The quality of governance and the functioning of government institutions often determines whether natural resources are used efficiently, sustainably and equitably, and whether countries achieve development goals that depend on natural resources (MoEF, 2007; Hasan et al., 2015). Poor natural-resource governance has ripple effects and often reflects overall weaknesses in a country's governance. Improving governance is high on the political agenda in Bangladesh, and it has received significant attention in the 7FYP (GED, 2015a).

Bangladesh's governance performance has improved in measures such as "control of corruption", "government effectiveness", "rule of law", "voice and accountability", "regulatory quality" and "political stability and absence of violence", but further efforts are needed. In 2014, Bangladesh ranked above average among low-income countries for three of these indicators of governance but trailed behind in "regulatory quality", "control of corruption", and "political stability and absence of violence" (General Economics Division, 2015a and World Bank, 2016).[18]

In the chapter dedicated to the environment and climate-change sectors, the 7FYP lists issues related to the need to improve environmental governance. In particular, it highlights that "Policies to combat pollution are largely ineffective because of loose regulatory practices. Governance elements such as information access, transparency, accountable decision-making, management tools all need improvement. The GoB realizes that environmental policies need to instil market-based incentives to firms to encourage good environmental performance. Access to information and knowledge about risks could greatly reduce the harmful impacts of environmental factors." In the sections that refer to climate-change adaptation, the 7FYP advocates mechanisms that would allow the "people's voice" to be incorporated and evaluated in the design of climate-change adaptation projects.

More than 200 laws and bylaws (listed in Annex 3) deal with aspects of the environment. The majority of these were passed many years ago, when economic and social conditions were substantially different. For example, the Factories Act (1965) and other health protection laws were designed before the rapid economic development of recent decades, when industrial pollution and hazardous substances became serious issues. Moreover, generally accepted principles of environmental justice – such as the precautionary principle and the polluter pays principle – are not adequately expressed in Bangladesh environmental laws and regulations.

The Bangladesh Environment Conservation Act (1995) (last amended in 2010) and the accompanying Environment Conservation Rules (1997) are the key legislative items providing legally binding direction for environmental protection and conservation, improved environmental standards and the control and mitigation of environmental pollution.[19]

In addition to legally binding instruments, Bangladesh has many sectoral policies, strategies and action plans pertinent to environmental administration (more than 60 have been identified). These often contain progressive notions, but because they are not legally binding they have tended to not lead to hoped-for outcomes. The Environmental Policy was first framed in 1992 in line with the general recommendations of the Rio Declaration. It dealt primarily with the protection of the biosphere; the sustainable use of natural resources; the reduction and disposal of waste; energy conservation; risk reduction; safe products and services; environmental restoration; informing the people; management commitment; and assessment. It included provisions on the institutional structure of environmental governance and the formation of the National Environment Committee and its executive committee.

[18] http://info.worldbank.org/governance/wgi/index.aspx#reports.

[19] The provisions of the Act pertain to the establishment of the Department of Environment; issuance of Environmental Clearance Certificates; the declaration of Ecologically Critical Areas; and the power to make rules and take legal action. The Act also includes substantive and procedural provisions. The Environment Conservation Rules (1997) set environmental standards for air and water quality, noise, emissions and discharges and categorize all development projects into four classes (Green, Orange-A, Orange-B and Red) according to their potential threat to and impact on the environment.

Multilateral Environmental Agreements (MEAs) play crucial roles in the overall framework of environmental laws and conventions. MEAs form the overarching international legal basis for global efforts to address particular environmental issues, and they complement national legislation and bilateral and regional agreements. Bangladesh is signatory to a number of MEAs, including the UNFCCC, the CBD and the United Nations Convention to Combat Desertification (UNCCD). In some cases, the GoB has adopted or amended existing legal provisions to align them with commitments made within MEAs.

It is important that the public has access to data on official development assistance and project documents to ensure transparency and accountability. The GoB is proactively creating an enabling environment for the disclosure of public documents, especially through the enactment of the Right to Information Act (2009) and the establishment of the independent Information Commission. The 7FYP stipulates that all aid data should be made public and that the Aid Information Management System (AIMS) should be the principal means of data-sharing by development partners in Bangladesh. The 7FYP also notes that progress in areas such as e-governance, the right to information, elected local governments, and the medium-term budgetary framework are all indicators of the GoB's commitment to improving governance in the longer term.

Summary of key issues

- Inadequate awareness of issues as well as of existing regulatory frameworks at all levels, including the level of policymakers.
- Inadequate law enforcement.
- Limited administrative resources and capacities to support the sustainable management of shared natural resources and address transboundary environmental issues.
- Limited scope of the judicial system to uphold the environmental rights of the people (functional environmental courts at the local level).
- A lack of knowledge and capacity development on environment protection among people and industrialists, businesses and importers, which hinders the implementation and enforcement of environmental instruments and poses major challenges in implementing the MEAs.
- Inadequate human resources and organizational set-up in the DoE (the department has a presence in 21 of 64 districts; it has a nominal staff of 735 posts, but only 436 are active and the remainder are vacant).
- A notable coordination gap among relevant ministries and departments in the implementation of environmental policies.
- Inconsistent and unequal application and enforcement of regulatory frameworks.

- The lack of a mechanism for mediating and arbitrating among users of ecosystem services.
- Weak safeguarding of people's environmental rights.
- The lack of systematic involvement of civil-society organizations and the private sector in the implementation of environmental regulations (there is a large untapped capacity outside the GoB).
- Inadequate transparency and accountability (especially in the allocation and use of funds).
- Insufficient monitoring and information systems for decision-making and policy development and implementation.
- Only modest uptake of the Gender Action Plan for the BCCSAP. Notwithstanding significant progress, gender remains an issue and needs to be mainstreamed systematically into sectoral policies.
- A need to develop and strengthen institutional arrangements to support the sustainable management of shared natural resources and address transboundary environmental issues.
- The lack of strategic environmental assessment to integrate environmental considerations into policies, plans and programmes and to evaluate their interlinkages with economic and social considerations.

4. Rationale for the EFCC CIP

4.1 OVERALL JUSTIFICATION

The need for investment in the environment, forestry and climate change in Bangladesh is significant (Shaheduzzaman, 2013). The need is bound to increase as economic and population growth puts pressure on environment and natural resources, and climate change is a risk to sustainable development in Bangladesh. Policies and plans exist, but their implementation is weak. Inadequate interagency coordination is repeatedly mentioned in the 7FYP as an issue and an obstacle. The 2016–2017 ADP lists about 170 projects that could be categorized as attending to these needs. However, there is limited coordination among ministries and agencies in designing and implementing these projects, meaning missed opportunities for synergies and complementarities.

The GoB applied a similar justification for developing the FS CIP, which has helped improve information sharing, coordination and resource mobilization in underinvested areas.[20]

Bangladesh currently does not have a framework linking EFCC policies with investments. Against this backdrop, the EFCC CIP will help improve the planning, implementation, coordination and – most importantly – the monitoring of investments in the EFCC sectors. It will also help mobilize new resources and direct them to where they are most needed.

The EFCC CIP, therefore, should be read as a cross-sectoral strategic framework to guide national and international investments in the EFCC sectors and to coordinate implementation among all sectoral stakeholders.

In particular, the CIP will help:

- Provide a framework for formulating, financing and implementing EFCC projects and programmes in alignment with national priorities.
- Translate national priorities into realistic and achievable targets and objectives.
- Mobilize public and private investments aimed at addressing Bangladesh's environmental challenges.
- Improve GoB public finance effectiveness on environmental issues by increasing coordination among government agencies, development partners and other stakeholders in civil society and the private sector.
- Define the roles and responsibilities of actors.
- Provide a framework for monitoring and evaluating investments with a view to improving implementation and recommending measures to strengthen existing activities.

Overall, the EFCC CIP is expected to offer a way of integrating natural resource management, environmental and climate-smart concepts and of developing human and institutional capacity to improve programmes in the EFCC sectors in a sustainable manner.

[20]The aim of the FS CIP was to support the implementation of the National Food Policy (2006) and National Food Policy Plan of Action (2008-2015).

4.2 MAIN EXPECTED BENEFITS

Economic and social

The main economic and social benefits expected from the programmes in the EFCC CIP are:

- Reduced economic costs associated with environmental degradation such as damages from natural disasters, lost productivity and health costs.
- Increased incomes resulting from increased production from natural resources, such as agricultural land, forests and wetlands.
- Improved access for producers to research and extension support and to markets and market information.
- Increased market opportunities and returns for the activities of smallholders and investments in agriculture, forestry and aquaculture, such as processing and marketing.
- Improved equity in the management of natural resources.

Environmental

The key environmental benefits expected to arise from the promotion of sustainable natural resource management under the EFCC CIP are:

- Improved sediment retention and flood control.
- Improved land management.
- Improved access to water.
- The integration of conservation and other climate-smart techniques.
- The protection and rehabilitation of wetlands and the conservation of indigenous plant species.
- Increased carbon sequestration.
- Positive outcomes arising from sustainable agroforestry-based enterprises, such as environmentally friendly and energy-efficient production and – to a lesser extent – the safer disposal of agro-industrial waste.

Institutional

The main institutional benefits expected from the implementation of the EFCC CIP are:

- More effective planning, coordinating and monitoring of development interventions in the EFCC sectors by both central and decentralized government agencies.
- Improved laws, and their enforcement.
- Improved coordination among development partners and other stakeholders, resulting in more effective decision-making and reducing transaction costs.
- Increased delivery by research and training institutions of knowledge products aimed at improving the EFCC sectors, including their impact on human health.

5. Structure of the EFCC CIP

The EFCC CIP has a hierarchical structure, as set out in Table 5.1. It has four pillars, which were introduced in Chapter 1. The pillars represent the strategic priority areas of investment in the EFCC sectors over a five-year period (i.e. 2016 – 2020). Key areas for intervention – called programme areas – are identified for each pillar. Each programme consists of sub-programmes that describe the planned achievements in manageable costing areas. Hence, the sub-programmes represent ingredients that can be combined as needed to develop investment projects. Priority investment areas, i.e. activities, are identified under each sub-programme through extensive stakeholder consultation and policy review.

Table 5.1 Strategic priority areas for investment in the EFCC sectors over a five-year period (2016 – 2021)

Pillar 1: Sustainable development and management of natural resources

Programmes	Sub-programmes (priority areas of intervention)
1. 1: Sustainable forest management, and enhanced socioeconomic benefits from forests	1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry*
	1.1.2. Improve forest monitoring (to include both biophysical and socioeconomic aspects) – geographic information systems (GIS) and remote sensing-based forest management*
	1.1.3. Develop small and medium-sized forest enterprises and value chains for socioeconomic benefits, food security and employment creation*
	1.1.4. Improve security of land tenure, stakeholder awareness and capacity*
1.2. Biodiversity conservation	1.2.1. Develop and enhance the conservation of protected areas through government–community co-management*
	1.2.2. Improve biodiversity monitoring (including by strengthening the monitoring capacity of institutions)*
	1.2.3. Endangered species conservation and management
	1.2.4. Support integrated resource management in the Sundarbans
1.3. Sustainable management of wetlands, rivers and marine ecosystems	1.3.1. Support the implementation and scaling up of the Master Plan for the Haor and Flood-prone Areas*
	1.3.2. Sustainable fisheries and fishing habitat management in inland and marine ecosystems
	1.3.3. River water improvement
1.4. Soil and groundwater management	1.4.1. Improve soil fertility and groundwater management, with particular focus on north and northwest Bangladesh
	1.4.2. Manage soil erosion in hilly areas
	1.4.3. Manage coastal land and prevent and cope with waterlogging and salinity

Pillar 2: Environmental pollution reduction and control

Programmes	Sub-programmes (priority areas of intervention)
2.1. Reduced industrial pollution	2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather
	2.1.2. Prevent, reduce and mitigate damage to natural ecosystems due to oil spills, ship-breaking and drilling
2.2. Reduced municipal and household pollution	2.2.1. Improve the collection, management and treatment of solid waste (including household and medical waste) at the municipal and cross-municipal levels
	2.2.2. Improve the supply of safe drinking water to semi-urban and rural communities
	2.2.3. Increase the collection and treatment of sewerage and drainage water
	2.2.4. Improve sanitation at the community level
2.3 Reduced pollution from agriculture and other sources	2.3.1. Minimize pollution from fertilizers and pesticides*
	2.3.2. Reduce pollution from chemical use

Pillar 3: Adaptation and resilience to, and mitigation of, climate change

Programmes	Sub-programmes (priority areas of intervention)
3.1. Disaster risk reduction*	3.1.1. Strengthen early-warning systems
	3.1.2. Strengthen climate-change-resilient buildings, roads and storage facilities
	3.1.3. Manage the risk of losses of income and property
3.2: Sustainable infrastructure development	3.2.1. Strengthen coastal and inland embankments and improve drainage capacity
	3.2.2. Support the operation and maintenance of water management systems*
	3.2.3. Support the development of irrigation schemes (drought-prone areas)*
3.3: Mitigation and low -carbon development	3.3.1. Support climate-smart technologies for industry and power generation
	3.3.2. Promote low-cost public transport models and low-emission vehicles
3.4. Increased resilience at the community level*	3.4.1. Develop community adaptation through community-based and ecosystem-based adaptation*
	3.4.2. Scale up local innovations on adaptation*

Pillar 4: Environmental governance, gender, and human and institutional capacity development

Programmes	Sub-programmes (priority areas of intervention)
4.1. Improved legislative, regulatory and policy framework	4.1.1. Strengthen the regulatory framework for the EFCC sectors (including pollution prevention and control)*
	4.1.2. Improve the application and enforcement of the regulatory framework*
	4.1.3. Support rational arbitration among users of ecosystem services
	4.1.4. Improve the knowledge base for the formulation, coordination and implementation of EFCC policies*
4.2. Improved stakeholder participation and gender equity *	4.2.1. Develop and strengthen mechanisms for stakeholder participation in EFCC policy development and implementation*
	4.2.2. Encourage gender equity and empowerment and increase the inclusion of minorities in the EFCC sectors*
	4.2.3. Support producer organizations and other rural groups*
4.3. Improved organizational capacity and processes for evidence-based decision-making*	4.3.1. Support the development of systems for data collection, use and dissemination as an aid for improving budget planning, implementation, monitoring and evaluation*
	4.3.2. Support training and extension in the EFCC sectors*
	4.3.3. Establish a centre for knowledge management and training on EFCC*
	4.3.4. Support knowledge systems, including the implementation of the Research Master Plan and strengthening research organizations, and extension and educational NGOs*

* Indicates that gender is in the description and results framework.

6. Programmatic framework of the EFCC CIP

6.1 PILLAR 1: SUSTAINABLE DEVELOPMENT AND MANAGEMENT OF NATURAL RESOURCES

Pillar objective

The majority of the Bangladesh population is dependent, to greater or lesser extents, on natural resources for their livelihoods. Therefore, the sustainable use of those resources is very important for the country. The overall objective of Pillar 1 is the sustainable management and use of natural resources – such as land, surface water, groundwater, forests and biodiversity – that provide the ecosystem services from which people benefit. The expected outcome is the enhanced provision of ecosystem services from natural resources. By improving the management of natural resources, activities undertaken for this pillar will enhance the quantity and quality of forests, biodiversity, wetlands and other resources, and the resilience of communities. It will also increase employment and income-generation options for rural communities, especially vulnerable groups. Communities will benefit economically and in the quality of their environment from the improved co-management of biodiversity and conservation areas, the sustainable management of natural and human-made wetlands, and the adoption of sustainable land management practices. Communities will also benefit from the scaling up of practices such as agroforestry, the development of small and medium-sized enterprises, and ecotourism, supported by improved access to financial services.

The Pillar comprises four interrelated programmes:	
Programme 1.1	Sustainable forest management, and enhanced socioeconomic benefits from forests
Programme 1.2	Biodiversity conservation
Programme 1.3	Sustainable management of wetlands, rivers and marine ecosystems
Programme 1.4	Soil and groundwater management

Programme 1.1 Sustainable forest management and enhanced socioeconomic benefits from forests

Forests provide important socioeconomic benefits to people living in and outside the vicinity of forests. These benefits can be improved with better information about the resource base and the services it provides, improving the enabling environment for the development of forest enterprises, and better forest management. Stakeholders agreed that support is required to strengthen the capacities of key stakeholders, such as the Forest Department, other agencies, and communities involved in social forestry and co-management arrangements. Research and extension activities also need support.

The main objective of this programme is to improve forest management and increase the socioeconomic benefits from forests through employment creation, income generation, and the increased provision of carbon sequestration and water, soil and biodiversity conservation.

The programme has four sub-programmes, as listed below.

1.1.1:	Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry
1.1.2:	Improve forest monitoring (to include both biophysical and socioeconomic aspects) – geographic information systems and remote sensing-based forest management
1.1.3:	Develop small and medium-sized forest enterprises and value chains for socioeconomic benefits, food security and employment creation
1.1.4:	Improve security of land tenure, stakeholder awareness and capacity

Each sub-programme is explained below, along with the respective priority investment areas and implementing agencies.

Sub-programme 1.1.1

Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry

Activities like afforestation and reforestation, reduction of deforestation and forest degradation, and sustainable forest management not only provide climate-change mitigation and adaptation benefits but also substantial co-benefits in terms of employment and income generation, biodiversity and watershed conservation, the provision of wood and fibre, energy, and recreational services. Besides forest expansion, increasing and enriching existing forests is also an important area that contributes to livelihoods, biodiversity, carbon sequestration and water regulation. Social forestry is an important means for managing, protecting, enriching and conserving forest resources. It also provides important livelihood opportunities for local communities and offers good entry points for the empowerment of women. Bangladesh has a long tradition in social forestry, which can be enhanced by working with communities to improve site selection and zoning, nursery management, and resource extraction planning. Coastal greenbelt development is an important intervention for stabilizing coastal areas and increasing protection from storms and cyclones.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 1.1.1
1.	Coastal afforestation and the creation and maintenance of coastal greenbelts (e.g. mangrove plantations)
2.	Afforestation/reforestation in forest areas in the hills and plains
3.	Forest co-management and participatory afforestation and enrichment planting (social forestry, including plantations on marginal land and degraded forests) and livelihood support (including homestead forestry and agroforestry) for forest-dependent communities, including for energy
4.	Enhancement of the Forest Department's planting capacity (including the supply of genetically improved quality nursery stock and planting materials, maintenance and supervision)
5.	Increased declarations of coastal afforested areas (by various stakeholders) as "reserve forests"
6.	Improved social forestry guidelines that highlight genetic improvement in seedling production, land and species suitability, and maintenance operations

The organizations for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.1.

Table 6.1 Agencies for implementing sub-programme 1.1.1

Main agencies	Supporting agencies
Forest Department	Bangladesh Forest Industries Development Corporation
Chittagong Hill Tracts Development Board	Local Government Engineering Department
Bangladesh Forest Research Institute	Roads and Highways Department
	Bangladesh Water Development Board

Sub-programme 1.1.2

Improve forest monitoring (to include both biophysical and socioeconomic aspects) – geographic information systems (GIS) and remote sensing-based forest management

Considerable improvement is needed in remote sensing capacity and the monitoring of forest change. This would help improve forest governance and ensure adequate forest protection, conservation and sustainable management. The socioeconomic benefits of forests is often underestimated, leading to the suboptimal use and conservation of this resource. Thus, a comprehensive forest monitoring system may help in better understanding forest services and the importance of their sustainable management for environmental health and livelihoods.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 1.1.2
1.	Support for a national forestry inventory and satellite forest monitoring system that includes both biophysical and socioeconomic (including gender) aspects.
2.	Capacity development to implement a satellite-based monitoring system.
3.	Improved linkages between forest monitoring, national statistics, rural development and law enforcement initiatives in order to increase the utilization of data for various national and international purposes

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.2.

Table 6.2 Agencies for implementing sub-programme 1.1.2

Main agencies	Supporting agencies
Forest Department	Department of Land Records and Survey
Bangladesh Space Research and Remote Sensing Organization	Survey of Bangladesh
Bangladesh Bureau of Statistics	Centre for Environmental and Geographical Information System

Sub-programme 1.1.3

Develop small and medium-sized forest enterprises and value chains for socioeconomic benefits, food security and employment creation

Ecotourism is a growing industry in Bangladesh, and it is considered a potential instrument for rural economic development and natural heritage conservation. Ecotourism could be a source of revenue and employment as well as a way of promoting historical and cultural education. Care is needed to ensure that fragile sites of ecological or cultural significance are not degraded by unregulated tourism development or over-visitation. There are many opportunities to generate revenue from NWFPs. Products such as bamboo, cane, murta, medicinal plants, honey, wax and golpata (*Nypa fruticans*) hold promise for forest enterprise development in Bangladesh, especially among women. NWFPs have the potential to contribute to poverty reduction, food security and livelihoods. Value chains can also be further developed, for example through improved coordination and the organized marketing of agroforestry products.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 1.1.3
1. Development of infrastructure and sites for ecotourism including that based on marine ecosystem
2. Enterprise/business development (e.g. agar plantations, bamboo products, trainings on making non-wood products etc.)
3. Support for financial services and credit programmes for forest-based and conservation-based enterprise development, with special attention to vulnerable groups, including women
4. Value-chain development
5. Analysis of markets for forest product
6. Promotion of certification and labelling for enterprises that meet established legal, economic, social and environmental standards
7. Facilitation for the adoption of internationally verified forest certification schemes for increasing access of Bangladesh forest products to international markets

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.3.

Table 6.3 Agencies for implementing sub-programme 1.1.3

Main agencies	Supporting agencies
Forest Department	Ministry of Commerce
Bangladesh Forest Industries Development Corporation	Bangladesh Small and Cottage Industries Corporation
Bangladesh Parjatan Corporation	Bangladesh Standards and Testing Institution
Bangladesh Tourism Board	
Bangladesh Bank	

Sub-programme 1.1.4

Improve security of land tenure, stakeholder awareness and capacity

Tenure security is a significant challenge in Bangladesh (General Economics Division, 2015a). The existence of multiple claims on khas lands, weak enforcement, and the complex involvement of multiple public stakeholders (e.g. the Ministry of Land; district administrations; the Forest Department; and the Chittagong Hill Tracts Authority) contribute to tenure insecurity, which facilitates encroachment and illegal logging and provide disincentives for the sustainable management of trees and land. Consultations for the EFCC CIP pointed to an inability of existing leasing policies – which pay only limited attention to environmental aspects – to promote investment in better forest management. Addressing the tenure issues associated with land and trees is a complex task that requires a long-term approach and political will.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 1.1.4
1. Digitization, updating and archiving (digitally and in hardcopy) the land records of the Forest Department[21]
2. Development of legal and judicial mechanisms to aid resolution of land tenure and ownership conflicts
3. The analysis of tenure issues, highlighting, for example, stakeholder involvement and engagement, land-use change, impacts on resources such as lands and trees, encroachment and logging, and recommending elements for time-bound action plans
4. Updating the demarcation of forest areas to prevent encroachment
5. Awareness-raising programmes and capacity strengthening for people and other institutional stakeholders

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.4.

Table 6.4 Agencies for implementing sub-programme 1.1.4

Main agencies	Supporting agencies
Forest Department	Law and Justice Division, Ministry of Law,
Chittagong Hill Tracts Development Board	Justice and Parliamentary Affairs
Hill District Councils (Rangamati, Bandarban, Khagrachori)	
Department of Land Records and Survey	
Survey of Bangladesh	

[21] Land tenure is a complex issue. The challenges are more than technical, but updating and archiving land records are important steps in bringing more transparency. This activity is in duplication with priority investment areas 3 of sub-programme 1.1.2 in the FS CIP (2010).

Programme 1.2: Biodiversity conservation

The root causes of biodiversity loss include both natural processes and human-induced pressures such as climate change, unsustainable use, and the overexploitation of resources. In Bangladesh, threats to biodiversity arise primarily from the loss of habitat (including deforestation), inappropriate water and agricultural management, and natural disasters.

The main objective of this programme is to conserve and (where necessary) restore the country's biodiversity with active community participation. The expected outcome is the conservation of biodiversity.

The programme has four sub-programmes:

1.2.1.	Develop and enhance the conservation of protected areas through government–community co-management
1.2.2.	Improve biodiversity monitoring (including by strengthening the monitoring capacity of institutions)
1.2.3.	Endangered species conservation and management
1.2.4.	Support integrated resources management for in the Sundarbans

Each sub-programme is explained below, along with the respective priority investment areas and implementing agencies.

Sub-programme 1.2.1

Develop and enhance the conservation of protected areas through government–community co-management

Under this sub-programme, interventions will be developed to enhance the management of conservation and protected areas, including: 1) national parks – to protect scenery, flora and fauna in natural states accessible for recreation, education and research; 2) wildlife sanctuaries[22] to protect wildlife; 3) ecologically critical areas declared under the Environment Conservation Act (2005) to protect ecosystems that are threatened or in a critical state due to environmental degradation – the Environment Department has legal authority to make such declarations by notification in the Official Gazette; and 4) community-conserved areas – which are under pressure (Islam et al., 2010; Roy, 2000).

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 1.2.1
1. Improving the management of national biodiversity conservation and protected areas, and biodiversity hotspots to promote environmental sustainability
2. Developing protection/restoration management plans for specific protected areas in consultation with local communities, and implement those plans in a time-bound manner. Plans exist for nine protected areas, and similar plans are needed for other areas, too
3. Developing management plans for each water body, typically involving fish sanctuaries, closed seasons and bans on destructive fishing methods
4. Supporting resource management organizations and co-management committees
5. Setting up a regional botanical garden to encourage consistent biodiversity conservation countrywide
6. Restoring sal forests and continue reed-land planting

[22] Wildlife sanctuaries are areas where capturing, killing, shooting or trapping wildlife is prohibited. Natural resources such as vegetation, soil and water are strictly conserved in these areas to support the wildlife.

The agencies for pursuing these priority investment areas are listed in Table 6.5.

Table 6.5 Agencies for implementing sub-programme 1.2.1

Main agencies	Supporting agencies
Forest Department	Bangladesh National Herbarium
Department of Environment	International Union for Conservation of Nature (IUCN) Bangladesh
Department of Fisheries	

Sub-programme 1.2.2

Improve biodiversity monitoring (including by strengthening the monitoring capacity of institutions)

Bangladesh houses a very rich biodiversity of both flora and fauna. Plant species include three gymnosperms, 1700 pteridophytes, and 5700 angiosperms, and animal species include 53 amphibians, 158 reptiles, 690 birds and 121 mammals (Rahman and Rakhimov, 2015). This rich biodiversity is subject to a very steep declining trend, however, and quick action is needed. IUCN Bangladesh maintains the Red List of Threatened Species for animals, but there is no such list for plant species. A comprehensive biodiversity assessment, therefore, is important for providing a baseline for the proper monitoring of biodiversity.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 1.2.2
1. Carrying out a national biodiversity assessment (with identified components, communities and hotspots) of both flora and fauna for both inland and marine ecosystems
2. Setting up a well-designed participatory system (including the development of tools and periodic reporting) for monitoring biodiversity in all important and sensitive ecosystems (specifically in the context of REDD+)
3. Strengthening institutional and human capacity for monitoring. Additional investments may be needed to implement activities in the National Biodiversity Strategy and Action Plan (currently being prepared by DoE)

The organizations for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.6.

Table 6.6 Agencies for implementing sub-programme 1.2.2

Main agencies	Supporting agencies
Forest Department	Bangladesh Forest Research Institute
Department of Environment	
Bangladesh National Herbarium	

Sub-programme 1.2.3

Endangered species conservation and management

The policy review in Chapter 3 identified that threats to biodiversity arise from a combination of habitat loss, deforestation, soil degradation, inappropriate water and agricultural management, biomass loss and natural disasters. Also, a long-standing focus on production at the expense of conservation and sustainable management has served to sustain the degradation process. Thus, in addition to the conservation and rehabilitation of endangered species in their niches, strengthening institutional management and sponsoring the scientific knowledge base are also equally important.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 1.2.3
1. Management of wildlife sanctuaries and protected areas to conserve endangered floral and faunal species
2. Rehabilitation of rare, threatened and endangered native, wild and domesticated species and updating the RED Data Book
3. Implementation of the Bangladesh Tiger Action Plan
4. Establishment of a germplasm centre for forest and associated species
5. Studying the desirability of game reserves to protect and increase wildlife populations
6. Scientific assessment of ecosystem carrying capacity of ecosystem to support critical species

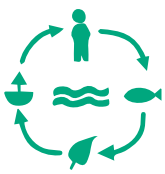
The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.7.

Table 6.7 Agencies for implementing sub-programme 1.2.3

Main agencies	Supporting agencies
Department of Environment	IUCN Bangladesh
Forest Department	Dhaka Zoo
Bangladesh Forest Research Institute	
Department of Fisheries	
Department of Livestock Services	

Sub-programme 1.2.4

Support integrated resource management in the Sundarbans



Securing the future of the Sundarbans will ensure the continued provision of essential ecosystem services, such as sediment trapping and land formation; the protection of human lives and infrastructure from cyclones; fish and oxygen production; and carbon cycling and sequestration (coastal habitats such as mangroves, sea grasses and salt marshes can sequester 50 times more carbon per hectare than tropical forest; USAID, 2010).

This sub-programme will particularly support the implementation and scaling up of the Integrated Resources Management Plans for the Sundarbans 2010–2020 with a view to improving coordination and contributing to the plans' main outcomes, such as maintaining the health, productivity, diversity and resilience of forests, terrestrial resources, wetlands and aquatic resources in the Sundarbans.

The priority investment areas under this sub-programme are given below.

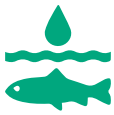
Priority investment areas under sub-programme 1.2.4
1. Engaging local communities and creating alternative livelihoods
2. Providing support to control poaching, especially of tigers and deer
3. Establishing resource conflict resolution mechanisms through co-management committees
4. Implementing habitat restoration works (identification of eco-restoration activities, including water conservation and excavation, canal (i.e. khal) connectivity, and other low-input land husbandry practices)

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.8.

Table 6.8 Agencies for implementing sub-programme 1.2.4

Main agencies	Supporting agencies
Forest Department	Ministry of Home Affairs
	Bangladesh Coast Guard

Programme 1.3. Sustainable management of wetlands, rivers and marine ecosystems



The main objective of this programme is to ensure the sustainable management of wetlands and other water bodies in Bangladesh. The expected outcomes are the conservation and maintenance of aquatic biodiversity.

The programme has four sub-programmes, as listed below:

1.3.1	Support the implementation and scaling up of the Master Plan for the Haor and Flood-prone Areas
1.3.2	Sustainable fisheries and fishing habitat management in inland and marine ecosystems
1.3.3	River water improvement

Each sub-programme is explained below, along with the respective priority investment areas and implementing organizations.

Sub-programme 1.3.1

Support the implementation and scaling up of the Master Plan for the Haor and Flood-prone Areas

The GoB has taken many initiatives to boost the country's development, including the preparation of national and regional strategies to enhance economic growth. The 7FYP includes reference to lagging regions and leaving no one behind. The central and north-central Haor region of Bangladesh has long lagged behind mainstream national development and thus requires investments for conservation and restoration in order to maintain their supply of ecosystem services.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 1.3.1
1.	Supporting the priority investment areas in the first phase of the Haor Master Plan identified as top priorities
2.	Supporting the Directorate of Bangladesh Haor and Wetland Development

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.9.

Table 6.9 Agencies for implementing sub-programme 1.3.1

Main agencies	Supporting agencies
Directorate of Bangladesh Haor and Wetland Development	Water Resources Planning Organization
Department of Agriculture Extension	Department of Environment
	IUCN Bangladesh
	Office of Respective Deputy Commissioners

Sub-programme 1.3.2

Sustainable fisheries and fishing habitat management in inland and marine ecosystems

The Department of Fisheries developed the National Aquaculture Development Strategy and Action Plan in 2013 with the aim to: "improve the welfare of the resource-poor people depending on the aquatic resources for livelihood, reduce poverty by stimulating employment and improving income, conserve if not enhance the natural resources on which livelihoods are based, promote the sustainable development of rural communities, increase export earnings, and contribute to the creation of wealth for the nation and improvement in the welfare of the people".

The plan consists of 16 outputs under four strategic objectives (social, economic, ecological and institutional). In particular, outputs linked to the ecological objective will contribute to the conservation of the land, water and genetic/biological resources on which aquaculture depends, and the plan seeks to ensure that aquaculture contributes to the conservation of natural resources, especially fisheries. An important aspect is to reduce the dependency of aquaculture on wild species (which are often harvested unsustainably).

In addition, Bangladesh possess 1738 square kilometres of marine protected areas that are home to many fish and aquatic species, for which sustainable fishing and management is necessary.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 1.3.2
1. Implementation and scaling up of the National Aquaculture Development and Action Plan 2013–2020. In particular, the following investment priorities are recommended in the coastal delta: a. Development of mixed farming/aquaculture systems in waterlogged areas, and b. Implementation and enforcement of a (salt water) shrimp culture zone (see national shrimp policy of 2014)
2. Excavation, re-excavation of canals, ponds and other water bodies to store more natural water for aquaculture as well as irrigation in crop lands
3. Development of national guidelines on sustainable management and harvesting of fish, invertebrates and aquatic plants in the Bay of Bengal, taking into consideration ecosystem approaches and addressing overfishing issues
4. Reduction of pressure on critical marine ecosystems (spawning grounds) through regulation, alternative income opportunities, and awareness raising

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.10.

Table 6.10 Agencies for implementing sub-programme 1.3.2

Main agencies	Supporting agencies
Ministry of Fisheries and Livestock	Ministry of Land
Department of Fisheries	
Bangladesh Fisheries Research Institute	

Sub-programme 1.3.3

River water improvement

The three main rivers in Bangladesh are the Brahmaputra, Ganges and Meghna. The total length of these rivers combined is over 6 000 km. The rivers are of high relevance for Bangladesh with respect to drainage and irrigation, water supply, navigation and fisheries and thus support many livelihoods. However, the risks of river floods and river bank erosion are increasing while pollution from industries and households is negatively affecting its quality and navigable properties. In addition, man-made interventions such as upstream dams further affect river flow. There is thus a need for investments related to river water management to maintain a sufficient water flow, prevent floods and erosion and improve water quality.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 1.3.3
1. Assessment of the bottlenecks in water flow and total maximum daily load in the four main rivers around Dhaka city
2. Feasibility study on the channelization of the four (Buriganga-Balu-Shitalakhya-Turag) main rivers
3. Strengthening data generation and analysis capacities to help negotiations on transboundary river issues
4. Removal of accumulated waste along the waterways of the three rivers
5. Reduction of illegal encroachments along canals and river beds and carrying out an embankment plantation programme

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.11.

Table 6.11 Agencies for implementing sub-programme 1.3.3

Main agencies	Supporting agencies
River Research Institute	Department of Environment
Bangladesh Water Development Board	Ministry of Industries
Bangladesh Inland Water Transport Authority	Ministry of Home Affairs
City corporations	Office of the Deputy Commissioner, Dhaka

Programme 1.4. Soil and groundwater management

During the consultations, divisional stakeholders stressed the importance of addressing the degradation of natural resources in a wide range of contexts (beyond the main forests and wetlands). Degradation occurs when the resilience and adaptive capacity of the natural resource base is compromised. This can be seen in the loss of soil fertility, soil erosion, the siltation of water courses, salinization, and waterlogging.[23] Two issues were especially highlighted by stakeholders: improved management of (i) soil (including dealing with waterlogging and salinity), and (ii) groundwater.

[23] Under current hydrological and water-use conditions, the recharge period is shorter compared with discharge (flow from aquifer to river), except in Jamuna (Bangladesh Integrated Water Resources Assessment Supplementary Report, Surface and Groundwater Interaction, (March 2014).

In addition, river bank erosion is a perennial problem in Bangladesh. It is estimated that about 5 percent of the country's total floodplain is directly affected by this problem (Banglapedia, 2016). Standing crops, farmland, homesteads and houses worth millions of dollars perish every year due to river bank erosion, particularly during the monsoon season. This calls for the improved management of river banks with the participation of local stakeholders and the institutional innovation for better coordination among relevant government agencies.

Considering the above issues, the main objective of this programme is to ensure that land and water resources are managed effectively to enhance their capacity to sustain agricultural production, improve groundwater conservation, conserve biodiversity, regulate water and nutrient cycles, sequester carbon, and provide livelihoods.

The programme has three sub-programmes:

1.4.1:	Improve soil fertility and groundwater management, with particular focus on north and northwest Bangladesh
1.4.2:	Manage soil erosion in hilly areas
1.4.3:	Manage coastal land and prevent and cope with waterlogging and salinity

Each sub-programme is explained below, along with the respective priority investment areas and implementing agencies.

Sub-programme 1.4.1

Improve soil fertility and groundwater management, with particular focus on north and northwest Bangladesh

Agriculture is the most important sector in the economy and plays a vital role in food security, employment and livelihoods. Thus, the management of soils and groundwater resources is of key importance. However, floods, unsustainable land management and population pressure have caused the loss of soil fertility and declining levels of groundwater. These problems are especially acute in north and northwest Bangladesh, and thus these regions require urgent investments in soil and groundwater management.

Driven by tube-well irrigation, the use of high-yielding crop varieties, the greater use of fertilizers and pesticides, and mechanization, crop yield in Bangladesh has increased spectacularly in past decades. In particular, the irrigated winter crop has now become the main food source in the country. However, groundwater has been over-extracted in some areas, and the volume of accessible water has fallen, particularly in the north and northwest parts[24] despite abundant rainfall and thus the recharge of aquifers. In addition, some of the key indicators of soil fertility (such as soil organic matter percentage) are falling, and there are suggestions that the fertilizer response is declining.

[24] The declining groundwater level in urban areas is also a major concern in the country. This problem is due to the excessive use of groundwater for domestic and industrial purposes. In Dhaka city, for example, the groundwater level has dropped to 52 metres below sea level in 2011 (Sengupta, 2012).

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 1.4.1
1.	Inventory of groundwater resources and development of guidelines for their efficient use in urban and rural areas
2.	A feasibility study to assess opportunities for waste- and irrigation-water reuse and recycling
3.	Development and implementation of new water conservation technologies and practices
4.	Programmes for the amelioration of acidity; soil organic matter content; more balanced fertilizers use; and enhanced soil fertility management, including conservation agriculture
5.	Increase soil health and water-holding capacity with organic amendments
6.	Assessment of opportunities for artificial and natural groundwater recharge, based on the pilot scheme initiated by WASA
7.	Development of a regulatory framework and action plan for groundwater monitoring and charging, as mentioned in the Bangladesh Water Act
8.	Development of a compensation-based system for farmers to support the sustainable use of soil and water

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.12.

Table 6.12 Agencies for implementing sub-programme 1.4.1

Main agencies	Supporting agencies
Soil Resource Development Institute	Department of Public Health Engineering
Barind Multipurpose Development Authority	Bangladesh Agriculture Development Corporation
Department of Agriculture Extension	
Ministry of Water Resources	

Sub-programme 1.4.2

Manage soil erosion in hilly areas

The Chittagong Hill Tracts cover approximately 10 percent of the land mass of Bangladesh. The terrain is hilly, rising to over 1 000 m above sea level. Land use is characterized by forests and shifting cultivation on the hill slopes and conventional agriculture in the valleys. The area receives abundant rainfall during the monsoon, but the winter months are dry. The physical geography of the Chittagong Hill Tracts is dominated by Kaptai Lake, which was flooded in the early 1960s. The resultant population displacement increased population pressure on land used for shifting cultivation, with fallow periods shortening from 12–15 years to 2–3 years. This – along with large-scale illegal and unregulated timber extraction – has caused significant soil erosion, reducing the area of land that can be cultivated on the slopes and leading to the siltation of water bodies.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 1.4.2	
1.	Promotion of multi-layered perennial crops and afforestation with indigenous species in hilly areas
2.	Land-zoning in hilly areas (for the establishment of fast-growing crops, fruit orchards and plantings of native forest species) to arrest soil erosion
3.	Strengthening the monitoring and prevention of hill-cutting and enforcing environmental impact assessment regulations
4.	Promotion of improved practices in shifting cultivation systems
5.	Adoption of low-cost soil conservation technologies for controlling soil erosion
6.	Watershed management (i.e. the integrated management of soil, water, vegetation, wildlife and human activities)

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.13.

Table 6.13 Agencies for implementing sub-programme 1.4.2

Main agencies	Supporting agencies
Forest Department	Bangladesh Agricultural Research Institute
Department of Agriculture Extension	Department of Environment
Soil Resource Development Institute	
Hill Districts Councils (Rangamati, Khagrachari and Bandarban)	

Sub-programme 1.4.3

Manage coastal land and prevent and cope with waterlogging and salinity

The coastal area of Bangladesh comprises the delta system, in which three major river systems (the Padma, Jamuna and Meghna) meet the Bay of Bengal. A major infrastructure programme was undertaken from the 1960s to build coastal embankments/polders to protect delta communities from storm surges and salinity and to reclaim land. An unwanted side-effect of this work to emerge in the last 20 years – exacerbated by the reduced flows due to upstream water extraction in India – has been problems with drainage and waterlogging. Parts of the river system are silting up, with the result that previously productive lands are now permanently marshy. Reduced flows, particularly in the dry season, also contribute to seasonal problems of salinization due to the increased intrusion of tidal saltwater. The popularity of brackish-water shrimp cultivation has led to conflicts over natural resources between shrimp farmers and rice farmers.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 1.4.3
1.	Improvement of drainage through the re-excavation and maintenance of rivers, canals and other enhanced water control infrastructures (General Economics Division, 2015c)
2.	Raising embankments
3.	Implementation of tidal river management schemes[25]
4.	Development of mixed farming/aquaculture systems in waterlogged areas
5.	Development and promotion of innovative techniques suitable for the coastal region

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.14.

Table 6.14 Agencies for implementing sub-programme 1.4.3

Main agencies	Supporting agencies
Bangladesh Internal Water Transport Authority	Department of Environment
Bangladesh Water Development Board	Bangladesh Agricultural Research Institute
Department of Fisheries	Bangladesh Livestock Research Institute
Local Government Engineering Department	Bangladesh Fisheries Research Institute
Soil Resource Development Institute	
Department of Agricultural Extension	

[25] Tidal river management can be controversial where competing land-use options are involved – such as cropping or aquaculture.

6.2 PILLAR 2: ENVIRONMENTAL POLLUTION REDUCTION AND CONTROL

Pillar objective

The overall objective of Pillar 2 is to reduce pollution and restore polluted and degraded ecosystems so they can produce the needed ecosystem services.

Partially treated and untreated liquid waste disposal from a series of industries, households and other sources often exceed the assimilative capacity of the waterways. For example, it is estimated that 22 000 cubic metres of untreated effluent, including chromium, is discharged daily into the Buriganga River (GED, 2015a). This pillar will help reduce environmental pollution by supporting investments that target improvements in the industrial sector in sustainable solid waste collection and treatment, the management of hazardous chemicals, and improved drinking-water and sanitary facilities.

The Pillar comprises three interrelated programmes:	
Programme 2.1	Reduced industrial pollution
Programme 2.2	Reduced municipal and household pollution
Programme 2.3	Reduced pollution from agriculture and other sources.

Programme 2.1 Reduced industrial pollution

The main objective of this programme is to reduce water and air pollution from industrial sources, including those from the ship-breaking sector, through the adoption of improved technology and sustainable management practices, and the effective implementation of relevant regulations.

The top five most polluting industries in Bangladesh are tanneries, pulp-and-paper manufacturing, fertilizer production, textiles and cement production (Hoque and Clarke, 2013). Many other industrial activities, such as brick-making, also contribute to pollution. Industrial activities in general bear responsibility for the deterioration of water, land and air quality in Bangladesh. Particularly, rapid and largely unregulated industrial developments affect aquatic ecosystems and, in so doing, the systems that support the livelihoods of millions of local people.

Another serious concern is air pollution (e.g. particulate matter, sulphur oxide and volatile organic compounds). The World Health Organization (2014) reported that Bangladesh had the fourth-worst air quality among 91 countries studied. In particular, Dhaka has been in the top-ten list of cities worldwide with the worst air quality for many years now. It is estimated that poor air quality in the city costs around 15 000 lives per year. In addition, the marine environment in Bangladesh is under pressure from oil spills, garbage and the impacts of ship-breaking activities. Offshore drilling and seabed mining exert additional pressure on the environment by contributing persistent organic pollutants, heavy metals and oil.

The programme has the following two sub-programmes:

2.1.1:	Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather
2.1.2:	Prevent, reduce and mitigate damage to natural ecosystems due to oil spills, ship-breaking and drilling

Each sub-programme is explained below, along with the respective priority investment areas and implementing agencies.

Sub-programme 2.1.1

Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather

Current levels of inland water pollution, as monitored by the Department of Environment and by (inter)national research organizations, show concentrations of microbial loads, nutrients, metals and other pollutants at worrying levels (DoE, 2015; Bhuiyan et al., 2011; Uddin et al., 2015); similarly, factories and brick kilns in and around Dhaka cause serious problems of particulate emissions and smog in winter. Regulations exist to control emissions and effluent (e.g. through effluent treatment plants), but their implementation is inconsistent.

The priority investment areas under this sub-programme are given in the box below.

Priority investment areas under sub-programme 2.1.1	
1.	Establishment, through public–private partnerships, of treatment units for spent toxic and hazardous chemicals and sludge generated in industrial sectors
2.	Creation of industrial parks for the textiles sector, with centralized treatment plants, preferably through public–private partnerships, and the relocation of existing polluting industries/enterprises from inside of Dhaka to other suitable place(s) (see the proposal in the 7FYP to relocate existing tanneries from Hazaribagh to Savar and to build a tannery estate)
3.	Improvement of production processes and technologies in the brick-kiln sector (involving small and medium-sized entrepreneurs and enterprises, as well as big manufacturers)
4.	Incentives/benefits packages to encourage industries to adopt zero-discharge policies
5.	Reductions in indoor air pollution in rural areas, for example through the use of improved cooking stoves
6.	"Polluter pays" (cost of resources, imposing of tax, etc.) schemes or policy and fiscal measures that discourage polluting and encourage the use of clean technology
7.	Assessment of mechanical screening and compact treatment plants in rivers/canals at risk of industrial pollution
8.	Real-time online monitoring of effluent treatment plants and stack facilities. Also a monitoring programme in the Buriganga-Balu-Turag-Shitalakhya river channels (declared as ecologically critical areas) is recommended to track pollutants

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.15.

Table 6.15 Agencies for implementing sub-programme 2.1.1

Main agencies	Supporting agencies
Department of Environment	Chambers of commerce and trade associations
Ministry of Industries	Ministry of Science and Technology
Ministry of Textiles and Jute	Local Government Division
	Ministry of Commerce
	City corporations
	Public Private Partnership Authority
	SME Foundation
	Bangladesh Small and Cottage Industries Corporation
	National Board of Revenue
	Bangladesh Bank

Sub-programme 2.1.2

Prevent, reduce and mitigate damage to natural ecosystems due to oil spills, ship-breaking and drilling

Despite popular perceptions, the marine resources of the Bay of Bengal are not infinite, and marine activities have caused significant damage to inshore coastal waters. An oil spill from a ship near the port of Mongla affected an area in the Sundarbans in December 2014; and ship-breaking activities in and around the Karnafuli estuary at Chittagong inevitably release toxic chemicals to the environment. DoE has already drafted a National Oil Spill and Chemical Pollution Contingency Plan, which describes various elements/strategies to control and mitigate pollutions emitting from those sources. However, approval and implementation of the action plan needs to be in place quickly to avoid further pollution.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 2.1.2	
1.	Developing a policy to define authorized zones for ship-breaking, recycling and waste management, etc.
2.	Providing and applying technologies to protect the environment (e.g. with respect to impermeable surfaces and storage facilities), particularly for the marine ecosystem
3.	Establishment of waste reception facilities at ports to prevent waste disposal into the sea
4.	Development of an action plan to prevent pollution due to off-shore gas/oil drilling
5.	Strengthening management capacities for recycling and ship-breaking
6.	Strengthening capacity in DoE to monitor pollution caused by offshore drilling

Table 6.16 Agencies for implementing sub-programme 2.1.2

Main agencies	Supporting agencies
Ministry of Shipping	Energy and Mineral Resources Division, Ministry of Power, Energy and Mineral Resources
Bangladesh Inland Water Transport Authority	
Department of Environment	
Ministry of Industries	
Chittagong Port Authority	
Mongla Port Authority	
Payra Port Authority	

Programme 2.2 Reduced municipal and household pollution

The main objective of this programme is to reduce pollution generated by municipal and household sources. Municipal and household pollution is not only an environmental problem but an economic one because it affects health and economic productivity. The problems associated with waste should be addressed by activities that prevent or minimize the generation of waste and improve the handling of waste. This programme also prioritizes investments in safe drinking water since many people still lack access to it, which impacts human health and the economy adversely.

The programme has the following four sub-programmes:

2.2.1:	Improve the collection, management and treatment of solid waste (including household and medical waste) at the municipal and cross-municipal levels
2.2.2:	Improve the supply of safe drinking water to semi-urban and rural communities
2.2.3:	Increase the collection and treatment of sewerage and drainage water
2.2.4:	Improve sanitation at the community level

Each sub-programme is explained below, along with the respective priority investment areas and implementing agencies.

Sub-programme 2.2.1

Improve the collection, management and treatment of solid waste (including household and medical waste) at the municipal and cross-municipal levels

Solid waste includes the garbage produced in households, businesses, medical facilities and industries. It may contain toxic compounds such as heavy metals and organic compounds, but much of it can be recycled and valuable products extracted. The system for collecting and handling the tonnes of waste produced each day[26] is unsustainable, and waste pits are usually uncontrolled. In addition, garbage clogs storm water drainage systems, with the potential to cause avoidable flooding.

The poor management of waste can pose dangers for health. For example, infectious diseases can flourish in conditions arising from the indiscriminate dumping of human wastes into the environment. The poor management of waste is also leading to pollution in rivers, lakes, natural areas and soils – with the potential for toxic chemicals to end up in the food chain. The burning of waste – even in cities – causes air pollution and serious respiratory concerns among residents.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 2.2.1
1	Development of infectious-waste treatment centres (e.g. for medical waste)
2	Providing medical staff with training on medical waste management in their facilities
3	Assessment and improvement of collection systems for household solid waste (including the separation of waste at the household level)
4	Establishment of lead recovery and recycling plants for used batteries via public–private partnerships
5	Design and implementation of plans for solid-waste management in accordance with the 4R policy (i.e. "reduce, reuse, recycle and recover")
6	Removal of illegal dumping sites in cities
7	Judicious selection of landfill sites by undertaking environmental impact assessments
8	Study to assess feasibility of installing solid-waste-based power generation projects in the big municipalities
9	Establishment of facilities for handling electronic waste through public–private partnerships
10	Development of composting and biogas facilities of organic waste flows via public–private partnerships
11	Setting up a national awareness-raising campaign on littering and the risks associated with dumping and burning waste
12	Providing training on enforcement with respect to the collection and disposal of waste
13	Institutionalize e-waste management practices with the proper monitoring of management activities and the health and safety of waste-handlers
14	Raising awareness and involving communities and relevant stakeholders to work as watchdogs to prevent pollution

[26] World Atlas (2012) estimates that 22.4 million tonnes of urban waste are produced per year.

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.17.

Table 6.17 Agencies for implementing sub-programme 2.2.1

Main agencies	Supporting agencies
City corporations (Local Government Division)	Bangladesh Bank
Ministry of Health and Family Welfare	Ministry of Social Welfare;
Ministry of Industries	Information and Communication Technology Division
Department of Environment	Department of Public Health Engineering
Local Government Engineering Department	Public Private Partnership Authority

Sub-programme 2.2.2

Improve the supply of safe drinking water to semi-urban and rural communities

According to the WHO (2016), water supply coverage in Bangladesh is around 97 percent, but only 40 percent of the population in the country has access to safe drinking water (The Water Project, 2016). Indeed, drinking water quality is variable, and specific localized problems, such as arsenic, iron and manganese contamination, and salinity create significant public health risks.[27] These problems and thus the risks are higher in semi-urban and rural areas, where more than 80 percent of the country's population live, in comparison to big cities such as Dhaka, Chittagong, Rajshahi and Khulna. The very low level of public investment is the main bottleneck for ensuring the supply of safe drinking water in semi-urban and rural areas of Bangladesh.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 2.2.2
1.	Monitoring and maintenance of drinking-water quality in semi-urban and rural areas
2.	Conducting a study on options for rainwater harvesting in Bangladesh, particularly in cities and municipal areas (for potential inclusion in the building code)
3.	Increasing piped-water coverage in rural areas, including water treatment plants
4.	Enhancing the availability of other improved water sources in remote areas, particularly salinity-prone areas
5.	Enhancing grey-water treatment and reuse capacities in municipalities
6.	Developing a surface-water and groundwater quality monitoring system involving local communities, school children and local government
7.	Conducting a study to identify appropriate and sustainable sources of water that is safe for drinking and other household uses (instead of supplied pipe water from municipalities) for the country's various geophysical regions (e.g. solar-powered production of drinking water)

[27] Bangladesh National Drinking Water Quality Survey 2009, published jointly by UNICEF and BBS in 2011.

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.18.

Table 6.18 Agencies for implementing sub-programme 2.2.2

Main agencies	Supporting agencies
City water supply and sewerage authorities	Local Government Engineering Department
Department of Public Health Engineering	Sustainable and Renewable Energy Development Authority
City corporations and municipalities	
Water Resources Planning Organization	

Sub-programme 2.2.3

Increase the collection and treatment of sewerage and drainage water

There is a need to construct new and improve existing sewage collection and treatment facilities in both rural and urban areas. Particularly, facilities for separating domestic sewage and stormwater should be constructed to prevent the pollution of water bodies through the direct discharge of sewage mixed with stormwater. Investment in the construction of sewerage systems will reduce the incidence of waterborne diseases and therefore the economic burden of such diseases.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 2.2.3	
1.	Development of sewage treatment plants in Tongi, Gazipur and Narayanganj
2.	Design and implementation of sewage collection and treatment in towns and paurashavas
3.	Maintenance of existing sewerage systems in Dhaka and Chittagong
4.	Rehabilitation of existing sewers in urban areas
5.	Design, construction and rehabilitation of stormwater drainage canals in urban areas, considering climate change and variability
6.	Installation of pumping stations for stormwater drainage
7.	Establishment of faecal sludge management infrastructure, including faecal sludge treatment plants in all cities and secondary towns and pourashavas served by on-site systems (e.g. septic tank systems and pit latrines)
8.	Development of sewerage master plan for all main cities in Bangladesh

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.19.

Table 6.19 Agencies for implementing sub-programme 2.2.3

Main agencies	Supporting agencies
City water supply and sewerage authorities	Bangladesh Bank
Local Government Engineering Department	
Department of Public Health Engineering	
City corporations and municipalities	

Sub-programme 2.2.4

Improve sanitation at the community level

The main objective of this programme is to reduce waterborne diseases by improving water, sanitary and hygiene standards. Water, sanitation and hygiene are key public health issues in Bangladesh. Sixty percent of the population endures unsafe drinking water, and 40 percent lack improved sanitation facilities (WASH Alliance, 2015). Low drinking-water quality, insufficient sanitary facilities, and the lack of an understanding of hygiene means that various waterborne illnesses – such as cholera, diarrhoea, dysentery and typhoid – are prevalent in Bangladesh, causing over 100 000 deaths per year (International Centre for Diarrhoeal Disease Research, Bangladesh, 2015). Moreover, drinking water drawn from certain groundwater sources are contaminated with arsenic and other heavy metals, with potential to cause severe health problems. The high prevalence of waterborne diseases significantly affects quality of life and hampers economic growth in Bangladesh. Given such effects on human health and the economy, increased investment in water, sanitation and hygiene is required.[28]

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 2.2.4
1.	Establishing public toilets in urban areas
2.	Conducting a national campaign to raise awareness on the benefits of hand-washing and other hygiene-related issues
3.	Conducting studies on the understanding of hygiene in communities
4.	Developing sanitary facilities for remote households using low-cost technologies

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.20.

Table 6.20 Agencies for implementing sub-programme 2.2.4

Main agency	Supporting agencies
Local Government Engineering Department	International Centre for Diarrhoeal Diseases Research Bangladesh
Department of Public Health Engineering	
Ministry of Health and Family Welfare	
City corporations and municipalities	

[28] These issues are also addressed in the FS CIP (2010)

Program 2.3 Reduced pollution from agriculture and other sources

As in many other countries, a wide range of chemicals is used in agriculture and many industrial production processes in Bangladesh; the agriculture sector uses mainly agro-chemicals such as pesticides and fertilizers. Some of the more hazardous products have been phased out of production and are no longer available commercially in Bangladesh, but traces of such products can still be found. There is a large (500 megatonnes) stockpile of obsolete dichlorodiphenyltrichloroethane (DDT) at the Central Medical Supplies Division in Chittagong, originally imported for insect vector control in the 1980s. This is now scheduled for disposal in 2016–2017 under the Stockholm Convention on Persistent Organic Pollutants. On the other hand, Bangladesh has made good progress in reducing emissions of ozone-depleting substances under the Montreal Protocol.

While indispensable for many economic activities, increasing evidence suggests that chemicals can adversely affect human health and the environment. Negative environmental impacts include pollution from production processes or unsound disposal methods. Adverse health impacts may result from improper handling, storage and transport accidents, occupational accidents, and chemical-induced diseases.

The programme has the following two sub-programmes:

2.3.1: Minimize pollution from fertilizers and pesticides
2.3.2: Reduce pollution from chemical use

Each sub-programme is explained below, along with the respective priority investment areas and implementing agencies.

Sub-programme 2.3.1

Minimize pollution from fertilizers and pesticides

Bangladesh pesticide use is estimated at around 1.54 tonnes of pesticide per 1000 hectares of land per year (FAO statistics, 2010)[29], which is significantly less than previously with the adoption of more modern, specific products. The quantity of mineral fertilizers used in certain districts is sufficiently high to have the potential to contribute to nitrate runoff and eutrophication (although this may be difficult to detect in already-polluted waters).

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 2.3.1
1.	Supporting and strengthening Farmer Field Schools on integrated crop management practices
2.	Strengthening the capacity of agricultural extension officers and input dealers to advise on techniques for minimizing the use of agrochemicals, particularly emphasizing integrated pest management and integrated crop management as alternatives to fertilizers and pesticides
3.	Enhancing fertilizer and pesticides use efficiency, including through research

[29] Plan protection wing of the Department of Environment.

4.	Supporting the development of organic farming techniques and organizations
5.	Making soil-testing facilities more easily available to farmers by increasing the number of mobile soil-testing vans of the SRDI

Investments in this sub-programme should build on the FS CIP (2011) and its successor – specifically Programme 3, which includes investments in efficient fertilizer use.

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.21.

Table 6.21 Agencies for implementing sub-programme 2.3.1

Main agencies	Supporting agencies
Department of Agriculture Extension	Bangladesh Agriculture Research Institute
Soil Resource Development Institute	Ministry of Industries
Bangladesh Agriculture Development Corporation	Field and centralized offices of the Agriculture Department

Sub-programme 2.3.2

Reduce pollution from chemical use

Investment in this sub-programme will help realization of relevant objectives in the 7FYP and the SDGs.

Bangladesh has prepared the National Implementation Plan (NIP) for Management of Persistent Organic Pollutants (POPs). This plan forms the basis for the fulfilment of Bangladesh's commitment under the Stockholm Convention on POPs, which aims to protect human health and the environment from POPs. Investments in this sub-programme will assist in achieving the objectives of the plan.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 2.3.2
1.	Developing laboratory facilities for DDT analysis and increasing the laboratory skills of technicians
2.	Implementing an awareness-raising programme through national workshops, seminars, published materials, radio and television programmes, and the mass media on the sound management of chemicals
3.	Eliminating the DDT stockpile, including by destroying it and shipping it out of the country, and training customs officials to prevent the illegal trading of DDT
4.	Developing a national chemical profile and chemical inventory
5.	Developing guidance on occupational health and environmental impact assessment in chemical handling
6.	Managing and implementing the phase-out of polychlorinated biphenyls (PCBs) by conducting an analysis of the extent of PCB contamination and starting a clean-up and transformer decontamination
7.	Identifying and remediating sites contaminated with persistent organic pollutants
8.	Conducting environmental monitoring of persistent organic pollutants and minimizing quantities of persistent organic pollutants produced unintentionally through technological development
9.	Scaling up the implementation and monitoring of the National Action Plan for Short-Lived Climate Pollutants

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.22.

Table 6.22 Agencies for implementing sub-programme 2.3.2

Main agencies	Supporting agencies
Ministry of Environment and Forests	Agricultural Information Service
Ministry of Agriculture	Ministry of Science and Technology
Ministry of Industries	Ministry of Commerce
Department of Environment	Ministry of Information
Ministry of Health and Family Welfare	National Board of Revenue
Department of Agriculture Extension	
Bangladesh Chemical Industries Corporation	
Bangladesh Council for Scientific and Industrial Research	

6.3 PILLAR 3: ADAPTATION AND RESILIENCE TO, AND MITIGATION OF, CLIMATE CHANGE

Pillar objective

Even with improved natural resource management (Pillar 1) and pollution reduction and control (Pillar 2), the benefits people derive from ecosystems can be severely endangered by climate change. Stakeholder consultations supported the idea of having a separate pillar on climate change in the EFCC CIP – even though all investments envisioned in the CIP should be "climate-smart". A separate pillar ensures that the needs for cross-sectoral investments (i.e. those beyond sectoral interventions) related to climate change is addressed. This pillar also ensures that the CIP is fully aligned with the country's existing climate-change plans and programmes, such as the BCCSAP[31].

The BCCSAP was considered as a major action plan during the formulation process of this CIP. The activities and issues of the BCCSAP are reflected in the programmes and sub-programmes under Pillar 3 as well as under other pillars of the EFCC CIP (see Annex 5). Overall, Pillar 3 contributes to the CIP investment goal by helping ensure that ecosystem services necessary for economic and social development are sustainable in the face of climate change.

The pillar comprises four interrelated programmes, listed below.	
Programme 3.1	Disaster risk reduction
Programme 3.2	Sustainable infrastructure development
Programme 3.3	Mitigation and low-carbon development
Programme 3.4	Increased resilience at the community level

Programme 3.1 Disaster risk reduction

Disaster risk reduction is a key theme in the BCCSAP. The main objective of this programme is to promote disaster risk reduction related to climate change, focusing on reducing the risks to livelihoods posed by natural disasters such as cyclones, floods and storm surges. Disaster risk reduction in Bangladesh is a significant economic issue and has many gender implications as well.

The risk of disasters can be reduced by improving the management of land, the environment and infrastructure, as well as by improving early-warning systems. Under this programme, all systems, buildings and guidelines will respond to the needs of women and men those of persons with disabilities.

The programme has the following three sub-programmes:

3.1.1: Strengthen early-warning systems
3.1.2: Strengthen climate-change-resilient buildings, roads and storage facilities
3.1.3: Manage the risk of losses of income and property

Each sub-programme is explained below, along with the respective priority investment areas and implementing agencies.

[31] Several development partners of Bangladesh also have specific strategic objectives related to climate change.

Sub-programme 3.1.1

Strengthen early-warning systems

Early warning systems (EWSs) on floods, cyclones and storm surges are required to support climate-change-related decision-making and improve the resilience of communities. Significant investments in EWSs have been made in the past and, as a result, substantial capacity exists in the country. Examples of systems currently in practice include the Cyclone Early Warning, the Cyclone Preparedness Programme (CPP), Red Crescent Volunteers as well as Interactive Voice Response (IVR) technology through mobile phones. Hence, this sub-programme focuses on areas that still require dedicated attention. For example, the Flood Forecasting and Warning Centre monitors river levels and rainfall and uses satellite imagery. However, flood levels in Bangladesh can only be forecast five days in advance of flooding; more upstream data are required to extend this time horizon. Agro-climatic and climate-related health advisory services are also lacking.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 3.1.1
1.	Institutional strengthening by supporting the operation and maintenance of existing EWSs and the efficient dissemination of information to local levels (e.g. through an agro-climatic and/or health advisory service)
2.	Development of a longer-lead-time flood forecasting[32] system, which also includes health risks
3.	Building on the awareness-raising activities of CDMP I and II, strengthening of disaster management capacity by, for example, providing relevant training courses and the development of a policy on disaster management
4.	Conducting awareness-raising campaigns in every district to increase the resilience of local communities to natural disasters, including potential effects on health (e.g. via school programmes[33])
5.	Promoting, and raising awareness about, existing drought adaptation technologies

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.23.

Table 6.23 Agencies for implementing sub-programme 3.1.1

Main agencies	Supporting agencies
Ministry of Disaster Management and Relief	Climate Change and Health Promotion Unit
Department of Disaster Management	
Bangladesh Meteorological Department	
Bangladesh Space Research and Remote Sensing Organization	
Department of Environment	
Directorate General of Health Services	

[32] The lead-time flood forecasting in Bangladesh is currently five days.

[33] The Comprehensive Disaster Management Programme Phase II (CDMP II) and the Department of Disaster Management (DDM) of the GoB have facilitated the incorporation of curriculum on disaster risk reduction, disaster management and climate change adaption in primary and secondary level. CDMP II and DDA have also facilitated the introduction of drills for early warning and preparedness.

Sub-programme 3.1.2

Strengthen climate-change-resilient buildings, roads and storage facilities

Infrastructure such as buildings, hospitals, roads and storage facilities (e.g. for food) built in traditional ways are vulnerable to the adverse impacts of climate change. This is particularly true for those in coastal areas and on river banks. One way of increasing resilience to natural disasters is to develop and strengthen infrastructure to better withstand natural shocks.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 3.1.2
1.	Development, repair and maintenance of cyclone shelters, including adequate water supply and sanitation facilities
2.	Strengthening and maintenance of existing buildings such as hospitals, medical centres and houses in coastal and disaster-prone areas to increase their resistance to extreme weather events
3.	Raising and repairing (connecting) flood-damaged roads aligned with the 2007 Bangladesh Roads Master Plan
4.	Increasing the capacity of household storage facilities (e.g. silos) to sustainably store economic goods and basic commodities such as water and seeds
5.	Climate-resilient water supply and sanitation facilities to be developed and scaled up in climate-vulnerable areas
6.	Setting up community-based storage facilities like silos for storing food and other basic needs

With respect to investment priorities 4 and 5, interventions should be aligned with sub-activity 8.3 of the FS CIP (2010) ,which deals with"increasing and modernizing public storage and handling facilities, including in disaster prone areas", including investments in warehouses for storing food (grain).

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.24.

Table 6.24 Agencies for implementing sub-programme 3.1.2

Main agencies	Supporting agencies
Department of Disaster Management	Ministry of Education
Local Government Engineering Department	Ministry of Primary and Mass Education
Department of Public Health Engineering	Ministry of Health and Family Welfare
Road Transport and Highways Division	Rural Development and Co-operatives Division
Roads and Highways Department	Ministry of Water Resources
Public Works Department	Road Transport and Highways Division
Directorate General of Health Services	Bangladesh Agriculture Development Corporation
Climate Change and Health Promotion Unit	Bangladesh Bank
Ministry of Food	Ministry of Health and Family Welfare
Bangladesh Climate Change Trust	

Sub-programme 3.1.3

Manage the risk of losses of income and property

Extreme weather events, exacerbated by climate change, can damage households, buildings, enterprises and agricultural activities. The situation is worse for people with various types of disabilities. To increase the resilience of communities to such events and to stimulate fast recovery, risk management practices should be established, with particular emphasis on the needs of people with disabilities.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 3.1.3
1.	Development or adaptation of regional models[34] to predict climatic impacts in specific vulnerable zones (e.g. warning of crop damage from pest infestation resulting from weather elements)
2.	Facilitating the development of insurance schemes via public–private–NGO cooperation for losses in property (e.g. loss of income, damage to buildings, and impacts on enterprises) due to climate change by supporting needs assessments and providing technical assistance

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.25.

Table 6.25 Agencies for implementing sub-programme 3.1.3

Main agencies	Supporting agencies
Bangladesh Meteorological Department	Bangladesh Water Development Board
Department of Disaster Management	Department of Agriculture Extension
Bank and Financial Institutions Divisions	Bangladesh Agriculture Research Council
Bangladesh Climate Change Trust	National Agriculture Research System
	Health Economics Unit

Programme 3.2 Sustainable infrastructure development

Climate change will have significant impacts on the environment in Bangladesh, with the risk of flooding likely to increase with rising sea levels and changes in rainfall.[35] Growing population density is exerting pressures on water resources, and continued deforestation increases the risk of flooding damage on the highly populated floodplains. There is a strong need, therefore, for the sustainable development and maintenance of infrastructure for effective water management and flood mitigation. Water is for everybody; the GoB should ensure, therefore, that it is managed on a participatory basis, involving all beneficiaries. Various mitigation and adaptation measures can be taken to reduce the negative impacts of climate change on water resources.

The flooding of large areas of land should be avoided because of the impacts on people, sustainable livelihoods and economic development; therefore, protection measures such as embankments and barrages need to be developed and maintained. It is estimated that, in 2025, around 3 000 km of embankments as well as health care facilities for 36 million people in the coastal belt will require maintenance, which will require significant investment, and there is also a need to increase the drainage capacity of land. On the other hand, it may be too difficult or costly, in the medium term, to protect certain locations from the effects of climate change.

[34] Dynamic and statistical downscaling procedures can be used for the development or adoption of the regional models.

[35] The General Economics Division of the Bangladesh Planning Commission, with the support and funding of the Government of the Netherland, is developing the Bangladesh Delta Plan 2100 (see http://www.bangladeshdeltaplan2100.org).

Adaptation measures, such as changes in land use, the further development and testing[36] of flood-resilient and salt-tolerant crops, and the wider use of tested crops will be required. Another effect of climate change on water resources is the likely increased length of drought periods. This calls for more investments in adapted cropping systems, development of a drought monitoring protocol for vulnerable areas[37], improved water-use efficiency, and management of water courses.

The issues discussed above are addressed in this programme through its three sub-programmes, which are listed below.

3.2.1: Strengthen coastal and inland embankments and improve drainage capacity
3.2.2: Support the operation and maintenance of water management systems
3.2.3: Support the development of irrigation schemes (drought-prone areas)

Each sub-programme is explained below, along with the respective priority investment areas and implementing organizations.

Sub-programme 3.2.1

Strengthen coastal and inland embankments and improve drainage capacity

Interventions in this sub-programme should be built on and complement programme 2 of the FS CIP (see also Chapter 10), especially sub-activity 2 ("Improve and increase efficiency of surface water irrigation, in particular in the South") and sub-activity 3 ("Reduce impact of saline water intrusion in the South and enhance river water flow"). These sub-activities include actions related to flood control, the excavation or dredging of canals, rivers and other water bodies, and improving drainage conditions, and they focus mainly on the southern part of the country. Therefore, this sub-programme of the EFCC CIP should encompass similar investments in other flood-prone areas. The World Bank is also supporting the Coastal Embankment Improvement Project (valued at USD 400 million), which will rehabilitate old embankments to address the impacts of climate change in coastal districts.

The priority investment areas under this sub-programme are given below.

	Priority investment areas under sub-programme 3.2.1
1.	Developing, strengthening and maintaining climate-proof embankments and dykes, including erosion-preventing measures
2.	Adopting and maintaining advanced flood-control mechanisms such as dams and sluices
3.	Conducting a feasibility study to assess the need for additional climate-related barrages to control and manage water flows
4.	Excavating and dredging rivers, canals and other waterways to combat flooding

[36] The Bangladesh Rice Research Institute has developed and tested some salt-tolerant crop varieties.

[37] DoE and DDM may be further consulted on this issue.

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.26.

Table 6.26 Agencies for implementing sub-programme 3.2.1

Main agency	Supporting agencies
Bangladesh Water Development Board	Ministry of Disaster Management and Relief
Local Government Engineering Department	Local Government Engineering Department
Bangladesh Inland Water Transport Authority	
Bangladesh Climate Change Trust	

Sub-programme 3.2.2

Support the operation and maintenance of water management systems

The improved management of water management structures in coastal areas and low-lying vulnerable areas can help minimize the negative impacts of climate change, such as increases in storm surges, cyclones and floods.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 3.2.2
1. Adaptation and implementation of integrated water resource management (IWRM) and implementation of the National Water Management Plan through the development of a water allocation plan and hydrological and environmental prediction models to support decision-making, and the monitoring of water quantity
2. Supporting the preparation, planning and design of other required water management plans, such as those mentioned in the BCCSAP and other water-related policies
3. Strengthening the capacity of policymakers to deal with the impacts of climate change through training and sensitization on flood levels, salinization and waterlogging, and adaptation measures (including health aspects)
4. Strengthening the capacity of farmers in sustainable water management in polders through the training of extension officers on sustainable water management
5. Assessing future water-supply options for industry in view of rapid groundwater depletion

Investments in this sub-programme should complement those specified in sub-output 1 of programme 2 of the FS CIP, which deals with improving water resource management in water distribution systems and at the farm level.

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.27.

Table 6.27 Agencies for implementing sub-programme 3.2.2

Main agency	Supporting agencies
Ministry of Water Resources	Bangladesh Bank
Bangladesh Water Development Board	Agriculture, Water Resources and Rural Institution Division, Planning Commission
Water Resources Planning Organization	Ministry of Industries
Department of Agriculture Extension	Barind Multipurpose Development Authority
Local Government Engineering Department	

Sub-programme 3.2.3

Support the development of irrigation schemes (drought-prone areas)

An effect of climate change is an increase in the severity and length of dry periods. To address the negative impacts of this, investments should be encouraged in the development of irrigation schemes (e.g. "flood control and drainage"). Public–private partnerships should be explored, following a similar approach to that proposed in the FS CIP (programme 2, sub-output 1). The GoB is encouraging a reduction of dry-season boro rice production in drought-prone areas, the increase of boro production in more favoured areas, and the introduction of water-saving techniques. The Bangladesh Agricultural Development Corporation and the Barind Multipurpose Development Authority have introduced prepaid cards for pumped irrigation to limit water use.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 3.2.3
1. Feasibility studies and assessments on water accounting, water productivity gaps and data collection systems
2. Development of a database of satellite data to help in monitoring crop water productivity in selected drought-prone areas and assessing the effectiveness of irrigation by calculating water productivity gaps
3. Providing equipment for monitoring water flows in the main irrigation canals and groundwater wells and developing a database for monitoring irrigation water use
4. Providing training on water accounting and monitoring
5. Carrying out alternate wet and dry irrigation and low-irrigation systems (e.g. excavation of ponds and lakes and other small reservoirs) for water storage
6. Developing water-efficient crops and cropping systems and new cropping patterns to make best use of rainwater and reduce dependency on groundwater extraction

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.28.

Table 6.28 Agencies for implementing sub-programme 3.2.3

Main agency	Supporting agencies
Water Resources Planning Organization	Bangladesh Bank
Department of Agriculture Extension	Agriculture, Water Resources and Rural Institution Division, Planning Commission
Barind Multipurpose Development Authority	Ministry of Industries
Local Government Engineering Department	Bangladesh Water Development Board
	Bangladesh Agricultural Development Corporation
	Bangladesh Agriculture Research Institute
	Space Research and Remote Sensing Organization

Programme 3.3 Mitigation and low-carbon development

Bangladesh signed the Paris Agreement on climate change on 22 April 2016. According to the Bangladesh Nationally Determined Contribution (NDC), the country will reduce its greenhouse gas (GHG) emissions in the power, transport and industry sectors by 5 percent below BAU as an unconditional contribution and 15 percent below BAU level as the conditional contribution by 2030. The conditional target of a 15 percent reduction in GHG emissions compared with BAU levels by 2030 should be supported with technology development and transfer, finance and capacity building.

A package of mitigation actions is required to reach these targets.

In addition to the power, transport and industry sectors, investments could be directed at energy conservation at the household level as well as REDD+.[38] Suggested investments for reducing GHG emissions in the forest sector are included in programme 1.1 of this CIP. Research and Development (R&D) are also acknowledged priority investment areas for mitigation and low-carbon development. R&D activities are explicitly mentioned under programme 4.3.

The investment areas proposed in this programme are in line with the NDC and the BCCSAP. The programme comprises the two sub-programmes listed below.

3.3.1:	Support climate-smart technologies for industry and power generation
3.3.2:	Promote low-cost public transport models and low-emission vehicles

Implementation of the priority investment areas under these sub-programmes might be conditional upon receiving additional international support to reduce GHG emissions by more than 5 percent above BAU (12 MtCO2e) by 2030. The sub-programmes are described below.

[38] REDD+ stands for reducing emissions from deforestation and forest degradation, plus conservation, sustainable management of forests and enhancement of forest stocks in developing countries.

Sub-programme 3.3.1

Support climate-smart technologies for industry and power generation

Bangladesh's commitment to reducing emissions from the power, transport and industry sectors is reflected in the NDC submitted to the UNFCCC. This sub-programme addresses technologies and measures in power generation, industries, communities and households, in line with the activities listed in the NDC, that will help reduce GHG emissions and increase the share of renewable energy in the total energy mix.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 3.3.1
1. Developing a market system (subsidy scheme) to stimulate market developments in climate-friendly products, such as improved cooking stoves, solar lanterns, solar water heaters, solar cookers and micro wind turbines. In building Bangladesh's capacity in this area, women will be targeted with the aim of reducing their workloads, increasing the health benefits, and stimulating income generation
2. Conducting a study on techniques for achieving energy-neutral and water-neutral buildings in Bangladesh, as well as on green building ratings
3. Providing solar home systems to rural households and solar mini-grids in growth centres that are disconnected from electricity grids
4. Reviewing and updating the tax and tariff system to develop incentives for energy-saving in the power, cement, steel and dairy sectors
5. Conducting feasibility studies and developing an action plan for developing a wind-power park[39], tidal and wave energy, ocean renewable energy, green hospitals and biogas plants
6. Supporting a study on the country's future energy needs, including for smallholders, and providing options for a least-cost energy path
7. Encouraging energy efficiency and conservation measures in the construction of buildings for various purposes (e.g. residential and health care facilities)
8. Supporting solar-powered groundwater extraction technologies, particularly for irrigation
9. Promoting the use of energy-efficient and low-emission household electronic appliances and equipment (e.g. light-emitting-diode televisions instead of cathode-ray-tube televisions)

[39] The Power Division conducted one such study to identify appropriate locations for wind turbines. New studies should build on existing work.

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.29.

Table 6.29 Agencies for implementing sub-programme 3.3.1

Main agency	Supporting agencies
Ministry of Industries	Bangladesh Bank
Bangladesh Rural Electrification Board	Infrastructure Development Company Limited
Power Division	Bangladesh Council of Scientific and Industrial Research
Energy and Mineral Resources Division	National Board of Revenue
Department of Environment	Bangladesh Agricultural Development Corporation
Bangladesh Climate Change Trust	Climate Change and Health Promotion Unit
Local Government Engineering Department	Sustainable and Renewable Energy Development Authority

Sub-programme. 3.3.2

Promote low-cost public transport models and low-emission vehicles

Transport is one of the three main sectors that the country has chosen for reducing emissions, according to the NDC submitted to the UNFCCC. Possible mitigation measures suggested in the NDC include a modal shift to rail from road, building metros and expressways and reducing traffic congestion. Significant improvements in the transport sector would help Bangladesh achieve its climate-change mitigation targets while also reducing air pollution and increasing economic growth. The following priority investment areas under this sub-programme will help Bangladesh realize the approaches proposed in the NDC.

Priority investment areas under sub-programme 3.3.1	
1.	Developing and implementing clean-fuel and higher transport standards
2.	Conducting a study on the tax and tariff system to rationalize the use of cars in cities
3.	Conducting a feasibility study for coordinated/seamless public transportation systems in Dhaka and Chittagong
4.	Supporting the installation of solar/electric charging stations for electric motor vehicles (e.g. three wheelers)
5.	Developing additional rail lines (e.g. for electric trains between major cities) to reduce the need for road transport for people and goods

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.30.

Table 6.30 Agencies for implementing sub-programme 3.3.2

Main agency	Supporting agencies
Power Division	Bangladesh Bank
Road Transport and Highway Division	Department of Environment
Dhaka Transport Coordination Authority	National Board of Revenue
Ministry of Railways	

Programme 3.4 Increased resilience at the community level

About two-thirds of Bangladesh's population (i.e. over 100 million people) lives in rural areas (World Development Indicators, 2016), including most of the people living below the poverty line in the country.[40] The people living in rural areas in general and below poverty line in particular are the most vulnerable to climate change. This signifies the need for enhancing community-based resilience.

Resilient local communities are more likely to be able to rebuild livelihoods after natural disasters such as cyclones and floods, which are more likely in the face of climate change. Investments in increasing resilience will help communities in restarting agricultural and other economic activities as soon as possible after natural disasters, for the benefit of millions of people living in disaster-prone regions.

This programme consists of the two sub-programmes listed below.

3.4.1: Develop community adaptation through community-based and ecosystem-based adaptation
3.4.2: Scale up local innovations on adaptation

The sub-programmes are described below.

Sub-programme 3.4.1

Develop community adaptation through community-based and ecosystem-based adaptation

Investment in community-based and ecosystem-based adaptation is important for increasing the resilience of communities in the face of climate change.

[40] About 31.5 percent of Bangladesh's population lives below the national poverty line (World Development Indicators, 2016).

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 3.4.1
1. Supporting and maintaining action research to continuously improve the adaptation of communities (including various stakeholders within communities, such as women and men, the young and old, and exploring alternative livelihood options) to natural disasters such as floods, drought, cyclones and rising sea levels
2. Supporting and building the capacity of communities and extension officers (e.g. through conferences and workshops) to manage ecosystems so as to prevent degradation and enhance carbon sequestration
3. Supporting the integration of ecosystem-based management practices into national and regional strategies and action plans, such as the disaster management plan
4. Developing a gender-sensitive mechanism or plan for the participation of communities in forest development
5. Supporting and building community resilience to climate-attributable diseases

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.31.

Table 6.31 Agencies for implementing sub-programme 3.4.1

Main agency	Supporting agencies
Forest Department	Ministry of Social Welfare
Department of Environment	Ministry of Women and Children Affairs
Department of Disaster Management	Department of Agricultural Extension
Department of Fisheries	Bangladesh Centre for Advanced Studies
	International Centre for Climate Change and Development at Independent University, Bangladesh
	Climate Change and Health Promotion Unit

Sub-programme 3.4.2

Scale up local innovations on adaptation

Local practices – particularly in the agriculture sector – undergo a constant process of innovation and adaptation as new ideas are introduced by extension, the private sector, research and NGOs.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 3.4.2
1. Providing support for, and building capacity in, political leadership, visioning and commitment across political cycles to create an environment in which innovation at the national and local levels can thrive
2. Strengthening national–local linkages, both vertically and horizontally
3. Supporting studies on economic and climate-change-related effects of local innovations and their possible contributions to national strategies and action plans
4. Provision of financial resources to individuals through a micro-credit system, targeting women and the vulnerable and marginalized, for innovation development
5. Creating a platform for people to share ideas
6. Reviewing and updating institutional arrangements for patents
7. Popularizing floating-agriculture-based vegetable production technologies

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.32.

Table 6.32 Agencies for implementing sub-programme 3.4.2

Main agency	Supporting agencies
Cabinet Division	Local Government Engineering Department
Department of Environment	Agriculture, Water Resources & Rural Institution Division, Planning Commission
Bank and Financial Institutions Divisions, Ministry of Finance	Department of Agricultural Extension
Department of Patent Design and Trademark	Bangladesh Centre for Advanced Studies
Bangladesh Climate Change Trust	International Centre for Climate Change and Development
	Climate Change and Health Promotion Unit

6.4 PILLAR 4: ENVIRONMENTAL GOVERNANCE, GENDER, AND HUMAN AND INSTITUTIONAL CAPACITY DEVELOPMENT

Pillar objective

The 7FYP lists issues that indicate a need to improve environmental governance.[41] In particular, it notes that, "Policies to combat pollution are largely ineffective because of loose regulatory practices. Governance elements such as information access, transparency, accountable decision-making, management tools all need improvement. The GoB realizes that environmental policies need to instil market-based incentives to firms to encourage good environmental performance. Access to information and knowledge about risks could greatly reduce the harmful impacts of environmental factors."

This pillar aims to improve environmental governance through improvements in the legal and regulatory frameworks, updating them where necessary and making greater use of market-based instruments and incentives. It also aims to strengthen the capacity of the GoB to implement and enforce such frameworks with better tools and technologies, information management, collaboration with multiple stakeholders, and monitoring.

In Bangladesh, a large number of ministries, divisions, departments and organizations have mandates pertaining to the management of the EFCC sectors. Effective environmental management, therefore, requires coordination. This pillar aims to improve environmental governance by strengthening mechanisms for coordination and collaboration, as well as by enhancing gender equity and knowledge management. Institutional capacities will be strengthened with a view to improving education, research and extension services, which will be important for increasing the effectiveness and coordination of service delivery, improving management, and reducing the duplication of efforts. Cross-cutting issues with a bearing on governance and stewardship, such as gender and ethnic minorities, are addressed in this pillar.

The pillar consists of three interrelated programmes:	
Programme 4.1	Improved legislative, regulatory and policy framework
Programme 4.2	Improved stakeholder participation and gender equity
Programme 4.3	Improved organizational capacity and processes for evidence-based decision-making

Programme 4.1 Improved legislative, regulatory and policy framework

There are about 200 laws and bylaws that have a bearing on the EFCC sectors and specify measures to protect forests and environment. However, the level of enforcement of many of these laws and bylaws has been inadequate. Moreover, a lack of awareness among implementers and the general public about the existence and scope of the many laws means that they are functionally ineffective.

To overcome this, measures have been taken to strengthen the capacity of the judiciary system. One such measure was the adoption of the Environment Court Act (2000, amended in 2010). Despite being a milestone in the journey of environmental protection and conservation in Bangladesh, this law fails to ensure effective environmental protection because of latent defects.

[41] See the chapter in the 7FYP dedicated to environment and climate change.

Environmental issues are closely connected to land management practices in Bangladesh. The offices of the Deputy Commissioners administer revenue collection and approve the settlement of khas lands, make changes in land classification, and acquire land for development. Although the Department of Fisheries has responsibility for fisheries and the Forest Department for forests, the Ministry of Land and the Deputy Commissioners control many of the water bodies, forests and lands, which they lease in order to collect revenue. The revenue collected is only a small component of the national budget, but the system creates significant perverse incentives, corruption, and difficulties and disputes in the management of natural resources.

Responsibility for the control and abatement of air, water and soil pollution lies with the Department of Environment, which has the mandate to set standards, define environmental impact assessment and its procedures, issue clearance certificates for all forms of pollution, and declare and protect degraded ecosystems. There are overlapping mandates, however, notably in the case of water-related policies and regulation, for which the Ministry of Water Resources and its departments hold primary responsibility. The overlapping mandates make the law enforcement challenging.

Bangladesh has created an enabling policy regime to improve the management of its environment and natural resources, including forests. Policies and economic development strategies recognize the concept of sustainable development and the importance of environmental pollution control and ecological balance but generally do not back them up with necessary actions. Bangladesh's Gender Action Plan in the BCCSAP has been cited globally as an example of good practice, but its uptake in Bangladesh has been modest. There is a need to systematically mainstream gender dimensions and priorities into sectoral policies, such as those of forestry and the environment. Investments should be designed to target the poor, marginalized and vulnerable, who often depend heavily on natural resources. The vulnerability to climate change is greater for women because their access to and control over resources and decision-making is lower than for men. Therefore, the EFCC CIP includes gender as a specific programme and emphasizes gender mainstreaming in its other programmes.

This programme is designed to support the government in building a cohesive and congenial policy and legislative environment appropriate for the conservation and protection of natural resources (e.g. protected areas, ecologically critical areas and wetlands) with a view to bringing the country closer to national and international targets.

It comprises the four sub-programmes listed below.

4.1.1:	Strengthen the regulatory framework for the EFCC sectors (including pollution prevention and control)
4.1.2:	Improve the application and enforcement of the regulatory framework
4.1.3:	Support rational arbitration among users of ecosystem services
4.1.4:	Improve the knowledge base for the formulation, coordination and implementation of EFCC policies

Each sub-programme is described below, along with the respective priority investment areas and implementing agencies.

Sub-programme 4.1.1

Strengthen the regulatory framework for the EFCC sectors (including pollution prevention and control)

This sub-programme focuses on streamlining EFCC-related laws and bylaws and harmonizing them with relevant international conventions and treaties. It will also help strengthen the capacities of line ministries and departments, and of lawmakers and law enforcers.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 4.1.1
1. Examining, developing and implementing instruments[42] that can provide economic incentives for better environmental management and the provision of ecosystem services
2. Reviewing and updating selected (based on an assessment) EFCC-related laws and harmonizing them with relevant international convention and treaties
3. Setting up capacity-building programmes to enhance the capacity of legislators to deal effectively with EFCC issues
4. Establishing a biodiversity cell, a chemical management cell and a 3R [reduce, reuse and recycle] cell in the Department of Environment
5. Piloting the promotion of ISO 14000 environmental management principles in selected industrial companies

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.33.

Table 6.33 Agencies for implementing sub-programme 4.1.1

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.33.

Main agency	Supporting agencies
Legislative and Parliamentary Affairs Division	Ministry of Water Resources
Parliament Secretariat	Forest Department
Agriculture, Water Resources & Rural Institution Division, Planning Commission	Ministry of Industries
Department of Environment	National Board of Revenue
	Ministry of Shipping
	Ministry of Disaster Management and Relief
	Bangladesh Standards and Testing Institution

Sub-programme 4.1.2

Improve the application and enforcement of the regulatory framework

Although regulations exist for managing natural resources and controlling pollution, their full-fledged implementation is lacking. There is a need to strengthen the capacity of the relevant institutions at the national and local levels, supported by sufficient legal power. The inconsistent and unequal application and enforcement of regulatory frameworks was a persistent concern in all consultations held from June to November 2015. Ineffective coordination among line ministries and departments was also mentioned as an issue.

[42] These instruments may include a licensing and fee-collection system for (ground) water use in industrial production processes, an incentive system based on the polluter pays principle to reduce industrial pollution; promotion of corporate social responsibility initiatives; reward or compensation-based systems for farmers that adopt practices that increase ecosystem service provision; the public "shaming" of the worst polluters by publicizing environmental performance information; "green labelling" for environmentally friendly products and production processes; and an action plan to phase out traditional brick kiln factories.

Because many environmental issues in Bangladesh are due partly to the lack of enforcement of existing laws, the legal system needs to be strengthened and applied fairly. Institutional capacity is inadequate for applying the various actions identified in EFCC-related policies. Coordination between line ministries/departments is limited. Most relevant ministries and departments, including the MoEF (see also Annex 7 for budget), lack the capacity needed – in terms of human, technological and financial resources – to properly implement existing legal provisions and policies; they also lack essential baseline data on resources and areas of environmental concern.

This sub-programme will focus on strengthening the application and enforcement of existing laws and bylaws and the implementation of sectoral policies, especially by investing in an environmental justice system. A study will be commissioned to determine the main issues in enforcement and to make proposals for improvement, including staffing and capacity development; investment proposals will be developed accordingly. Gender dimensions will be addressed, for example on the extent to which women and men can make use of the environmental justice system. The sub-programme will also support institutional strengthening for industrial and marine-related pollution management and control.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 4.1.2
1. Identifying the main concerns on the enforcement of EFCC related laws, rules and regulations and making proposals to improve the environmental justice system, including staffing and capacity development
2. Piloting community-based pollution control enforcement at seven demonstration sites (one in each division)
3. Adopting the measures to strengthen the application of environmental impact assessment (e.g. engaging an independent panel of experts[43] to review environmental impact assessments for large projects)
4. Adopting the measures to enhance the enforcement, monitoring and surveillance capacity of the Forest Department and the Department of Environment
5. Establishment of criteria for assessing losses and damage due to effluent discharge and air pollution
6. Supporting for the implementation of the vehicular emission enforcement programme
7. Protection of floodplain foreshore areas from illegal encroachment
8. Providing support for the organization of public hearings on EFCC issues

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.34.

Table 6.34 Agencies for implementing sub-programme 4.1.2

Main agency	Supporting agencies
Ministry of Environment and Forests	Ministry of Home Affairs
Department of Environment	
Forest Department	
Bangladesh Road Transport Authority	
Law and Justice Division	
Environmental Courts	
Law-enforcement agencies	

[43] Consultations highlighted that most experts employed to conduct environmental impact assessments are not independent. This is a significant issue.

Sub-programme 4.1.3

Support rational arbitration among users of ecosystem services

The state has a legal obligation to protect natural resources and ecosystem services to the benefit of the public, as well as to ensure fairness in terms of access. It is difficult to regulate property rights to ecosystem services, however, and conflicts may arise between parties over the distribution of benefits. Environmental disputes differ from other individual and social disputes in that the impacts of environmental losses may go well beyond the disputing parties. Environmental policies and the extent to which environmental laws are enforced can have far-reaching impacts. Therefore, regulating the relationships among the users of ecosystem services – whether they are individuals or groups – is an area that demands attention for the sake of environmental governance.

The priority investment areas under this sub-programme are below.

Priority investment areas under sub-programme 4.1.3
1. Establishing an integrated framework to protect common property resources (e.g. ponds and beels) in rural areas and ensuring that poor communities have access to these resources
2. Formulating a long-term strategy for rationalizing the supply of water to new development areas and consumers
3. Developing an action plan for completing the land-zoning and land-use plan for the entire country
4. Reviewing and enhancing the performance of the environmental court with regard to arbitration among the users of ecosystem services

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.35.

Table 6.35 Agencies for implementing sub-programme 4.1.3

Main agency	Supporting agencies
Department of Environment	Rural Development and Co-operatives Division
Ministry of Land	Ministry of Water Resources;
Water Resources Planning Organization	Law and Justice Division
Local Government Division	Department of Public Health Engineering
Department of Fisheries	Water Supply and Sewerage Authority
	Village courts
	Forest Department

Sub-programme 4.1.4

Improve the knowledge base for the formulation, coordination and implementation of EFCC policies

There are many top-level coordination councils for dealing with environmental policies but also a "log-jam" in environmental decision-making and no effective "go to" problem-solving body.

Inter-sectoral coordination in dealing with cross-cutting issues such as the environment and climate change is a major issue in Bangladesh, as in many countries, and the natural resource sectors suffer particularly in this regard. Policies are often criticized for their lack of direction, cooperation, coherence and coordination among interested parties and stakeholders.

Responsibility for various EFCC components is spread across sectors and ministries; although it is positive that EFCC issues are integrated into all sectoral policies and organizations, this poses a challenge for the smooth implementation of sustainable management.

This sub-programme aims to ensure that environment-related public policy bodies are functional and promote stakeholder collaboration with a view to improving EFCC policy formulation, coherence, coordination and implementation.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 4.1.4
1. Organizing knowledge-sharing events on issues related to capacity development in EFCC-relevant institutions
2. Supporting the EFCC CIP coordination and monitoring and the dissemination of the monitoring results
3. Conducting analytical studies at the national or subnational level to identify the strengths and weaknesses of EFCC-relevant institutions (e.g. NEC) and provide technical support to enhance capacity and institutional adaptation
4. The systematic analysis of critical EFCC issues (e.g. policy development/conflict management in participatory forestry and financing) and the potential contribution of marine ecosystems and the blue economy to sustainable economic growth
5. Assessment and critical valuation of the blue capital in Bangladesh
6. Development of tools, guidelines, methodologies and approaches on selected management issues (e.g. inter-sectoral collaboration, improved stakeholder participation, and indicators of effective governance)

The agency for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.36.

Table 6.36 Agencies for implementing sub-programme 4.1.4

Main agency	Supporting agencies
Ministry of Environment and Forests	Ministry of Fisheries and Livestock
Agriculture, Water Resources and Rural Institutions Division, Planning Commission	

Programme 4.2 Improved stakeholder participation and gender equity

The participation of stakeholders (including women) helps in identifying problems, understanding different perspectives, customizing activities, increasing "ownership", building support, and ensuring sustainable implementation. This programme will encourage gender equity and wide participation in ecosystem governance to ensure that all people have access to the benefits of ecosystem services and are well-informed about sustainable natural resource management.

It consists of three sub-programmes, which are listed below:

4.2.1:	Develop and strengthen mechanisms for stakeholder participation in EFCC policy development and implementation
4.2.2:	Encourage gender equity and empowerment and increase the inclusion of minorities in the EFCC sectors
4.2.3:	Support producer organizations and other rural groups.

Each sub-programme is described below, along with the respective priority investment areas and implementing agencies.

Sub-programme 4.2.1

Develop and strengthen mechanisms for stakeholder participation in EFCC policy development and implementation

The aim of this sub-programme is to support national and local NGOs, women's and other associations, development partners and the private sector – as well as government agencies across sectors – to increase their participation in the development and implementation of EFCC policies.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 4.2.1	
1.	Supporting existing networks and platforms in the EFCC sectors in conducting studies and implementing policy advocacy[44]
2.	Arranging training on facilitation skills, participation planning, negotiation, and communication strategies
3.	Facilitating dialogue to help reflect the views of stakeholders in the design and preparation of future CIP projects, policies, programmes and implementation processes
4.	Developing processes to increase public participation in environmental hotspots
5.	Improving the websites of the MoEF and its agencies to better inform the public
6.	Developing partnerships with NGOs and CBOs to increase awareness of environmental issues

[44] An example of an existing multi-agency platform is the National Environment Committee (NEC). Other mechanisms may need to be established or strengthened, such as a national environment ombudsman.

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.37.

Table 6.37 Agencies for implementing sub-programme 4.2.1

Main agency	Supporting agencies
Ministry of Environment and Forests	Ministry of Women and Children Affairs
Department of Environment	Ministry of Information
Agriculture, Water Resources and Rural Institution Division, Planning Commission	Ministry of Social Welfare
	Forest Department
	Local government institutions and field offices;
	The offices of UN organizations
	Other stakeholder agencies of the EFCC CIP

Sub-programme: 4.2.2

Encourage gender equity and empowerment and increase the inclusion of minorities in the EFCC sectors

The aim of this sub-programme is to stimulate gender equity and increase the inclusion of marginalized groups in environmental management. The focus is on increasing the capacity, participation and influence of women and marginalized groups in environmental decision-making. This sub-programme complements the focus on gender in selected programmes and gender as a design principle. See Chapter 11 for in-depth discussion on these dimensions.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 4.2.2
1. Strengthening the capacity of rural women, including in women's organizations and mixed-gender rural organizations to better engage in environmental management by raising awareness of their rights in an EFCC context and providing training in leadership, lobbying and negotiation
2. Promoting the participation of women and marginalized groups (e.g., persons with disabilities) at all levels in decision-making processes on EFCC-related issues
3. Building capacity in gender-sensitive policy and programming in the MoEF and its agencies, including by promoting the advancement of women in those agencies

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.38.

Table 6.38 Agencies for implementing sub-programme 4.2.2

Main agency	Supporting agencies
Ministry of Women and Children Affairs	All relevant EFCC CIP stakeholder agencies
Ministry of Chittagong Hill Tracts Affairs	
Ministry of Social Welfare	
Ministry of Environment and Forests, and its agencies	

Sub-programme 4.2.3

Support producer organizations and other rural groups

Stakeholder participation is an enshrined principle of good governance; it contributes to better governance when suitable mechanisms exist for the sharing of voices and concerns and when stakeholders are capable of contributing to policy dialogues and prepared to do so. Strengthening the capacity of producer organizations, rural communities, CSOs, NGOs and other local groups is important, therefore, for improving environmental governance and management.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 4.2.3
1. Assessing the specific capacity needs of EFCC-related rural organizations
2. Supporting the establishment and strengthening of EFCC-related grassroots groups, communities and CBOs
3. Conducting training to build skills in advocacy, negotiation, business development, resource and watershed management and other related areas
4. Setting up financial schemes (e.g. micro credit) for producer organizations and other rural groups

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.39.

Table 6.39 Agencies for implementing sub-programme 4.2.3

Main agencies	Supporting agencies
Ministry of Social Welfare	Bangladesh Small and Cottage Industries Corporation
Rural Development and Co-operatives Division	BRAC (Aarong and other artisan groups)
Bangladesh Rural Development Board	
Ministry of Chittagong Hill Tracts Affairs	
Ministry of Women and Children Affairs	

Programme 4.3 Improved organizational capacity and processes for evidence-based decision-making

The MoEF and its agencies have only limited mechanisms in place for the systematic monitoring, analysis, documentation and sharing of environmental information. Basic data for making informed decisions and learning from past experiences are missing or not readily available. Mapping, databases and inventories are needed on topics ranging from ecosystem types and species to industries and pollutants.

The objective of this programme is to develop and institutionalize a comprehensive database and information management system and to increase the knowledge and operational capacities of people within the relevant organizations. It is envisioned that this will help stakeholders make informed decisions, which, in turn, will contribute to the conservation and development of ecosystem services.

The programme consists of four sub-programmes, which are listed below.

4.3.1:	Support the development of systems for data collection, use and dissemination as an aid for improving budget planning, implementation, monitoring and evaluation
4.3.2:	Support EFCC training and extension
4.3.3:	Establish a centre for knowledge management and training on EFCC
4.3.4:	Support knowledge systems, including the implementation of the Research Master Plan and strengthening research organizations, and extension and educational NGOs

The sub-programmes are described below.

Sub-programme 4.3.1

Support the development of systems for data collection, use and dissemination as an aid for improving budget planning, implementation, monitoring and evaluation

Information plays a vital role in public awareness about environmental problems and in governmental interventions. Proper environmental information management is essential, therefore, for planning, monitoring, learning and resource mobilization. This sub-programme is designed to help build a coherent and comprehensive information management and monitoring system to facilitate interagency collaboration and cooperation and for assessing the impacts of investment in the EFCC sectors.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 4.3.1	
1.	Setting up air-quality monitoring systems in major cities
2.	Developing a monitoring and information system on the most polluting industrial activities (e.g. textile and leather)
3.	Establishing a national drought monitoring system
4.	Strengthening the ambient environment monitoring network for information sharing

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.40.

Table 6.40 Agencies for implementing sub-programme 4.3.1

Main agencies	Supporting agencies
Department of Environment	Forest Department
Ministry of Industries	Ministry of Commerce
Ministry of Textiles and Jute	Department of Disaster Management
Bangladesh Meteorological Department	Bangladesh Bureau of Statistics
Bangladesh Space Research and Remote Sensing Organization	Finance Division, Ministry of Finance

Sub-programme 4.3.2

Support training and extension in the EFCC sectors

Capacities for training and extension are essential to strengthen organizational capacities. The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 4.3.2
1. Supporting the updating and implementation of the EFCC training plan
2. Supporting the rehabilitation and re-equipping of relevant training centres
3. Training and other capacity-building programmes for staff (e.g. on climate change), extension workers, nursery managers and high-level and mid-level government officers (including in agencies such as the National Herbarium)
4. Supporting the creation of an effective and functional extension system responsive to stakeholder needs and to global change and development
5. Providing diploma-level training for new extension workers
6. Development of curricula and promotion of courses on EFCC in universities

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.41.

Table 6.41 Agencies for implementing sub-programme 4.3.2

Main agencies	Supporting agencies
Ministry of Environment and Forests	All relevant CIP stakeholder agencies
Department of Environment	
Forest Department	
Bangladesh Forest Research Institute	
Bangladesh National Herbarium	
Bangladesh Forest Industries Development Corporation	
Department of Agriculture Extension	
National Curriculum and Textbook Board	

Sub-programme 4.3.3

Establish a centre for knowledge management and training on EFCC

Significant knowledge on climate change has been gained in Bangladesh by a wide range of organizations, including government, research and academic institutions, CSOs and the private sector. Yet most of these organizations lack standardized methods for organizing, refining, sharing and disseminating their knowledge capital, thus limiting its uptake. It is necessary, therefore, to develop a common, centralized institutional framework for ensuring the formal integration and optimal sharing of climate-change information and knowledge across the government, the private sector, CSOs, research institutions and individual researchers. This sub-programme will support the development of a centralized knowledge management centre to be used as a means for gathering and disseminating knowledge and training on climate change and other environmental and forestry issues.

The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 4.3.3
1. Establishing a knowledge management and training centre on EFCC

The agencies for pursuing the priority investment area identified under this sub-programme are listed in Table 6.42.

Table 6.42 Agencies for implementing sub-programme 4.3.3

Main agency	Supporting agencies
Ministry of Environment and Forests	National Agriculture Training Academy under the
Ministry of Public Administration	Ministry of Agriculture

Sub-programme 4.3.4

Support knowledge systems, including the implementation of the Research Master Plan and strengthening research organizations, and extension and educational NGOs

Research, education and extension are the basis for the transformation of functional EFCC sectors, but they are largely underfinanced in Bangladesh. The priority of the GoB is to enhance the capacity of research institutes, universities and extension agencies so they can provide innovative solutions to climate-change challenges. The focus is to develop human and technical capacities and increase the extent to which the relevant agencies cooperate, both nationally and internationally. The priority investment areas under this sub-programme are given below.

Priority investment areas under sub-programme 4.3.4
1. Supporting the implementation of the EFCC Research Master Plan[45]
2. Establishing a competitive research grant fund financed by the GoB, development partners, and the private sector
3. Supporting research facilities, vehicles and equipment
4. Forming and maintaining international and regional research partnerships
5. Supporting the development of partnerships among regulatory institutions to strengthen the monitoring of environmental quality nationwide
6. Providing support to relevant knowledge products or events (e.g. publishing newsletters and environmental outlooks, organizing debates and competitions and seminars, and conducting behavioural-change campaigns)
7. Generate evidence on health issues induced by climate change

The agencies for pursuing the priority investment areas identified under this sub-programme are listed in Table 6.43.

Table 6.43 Agencies for implementing sub-programme 4.3.4

Main agencies	Supporting agencies
Ministry of Environment and Forests	NARS institutions
Department of Environment	International Centre for Climate Change and Development
Forest Department	Related university departments, such as Forestry and Environment Science-Shahjalal University of Science and Technology and Forestry and Wood Technology-Khulna University
Bangladesh Forest Research Institute	
Ministry of Science and Technology	
Climate Change and Health Promotion Unit	
University Grants Commission	
Department of Agriculture Extension	
Bangladesh Space Research and Remote Sensing Organization	
Bangladesh Climate Change Trust	
Ministry of Finance	

[45] Activities to be implemented as part of the Research Master Plan may include: 1) supporting research (e.g. by universities and NGOs) on technologies such as bio-remediation, innovative and eco-friendly strategies, medicinal plants for traditional health care, multi-layered fruit gardens and the restoration of degraded ecosystems, impact assessment of climate change on agriculture, industry, poverty, people living in vulnerable areas, out-migration, tourism, health, transport and financial services; 2) translating research outcomes into appropriate policy recommendations; 3) campaigning to mobilize finance from the private sector and banks for research and innovation; and 4) conducting periodic updates of research needs and the impact of research.

7.Agencies responsible for implementing programmes and sub-programmes

Table 7.1 presents the main agencies responsible for implementing the various programmes and sub-programmes of the EFCC CIP. Supporting agencies are not listed here but are shown by sub-programmes in Chapter 6.

Table 7.1 Agencies responsible for implementing the different programmes and sub-programmes of the EFCC CIP

Ministries	Concerned sub-programmes	Agencies	Concerned sub-programmes
Cabinet Division	3.4.2		
Ministry of Public Administration	4.3.3		
Planning Commission		Agriculture, Water Resources & Rural Institution Division	4.1.1, 4.1.4, 4.2.1,
Statistics and Informatics Division		Bangladesh Bureau of Statistics	1.1.2
Ministry of Environment and Forests	2.3.2; 4.1.2, 4.1.4, 4.2.1, 4.2.2, 4.3.2, 4.3.3, 4.3.4	Forest Department	1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.4.2, 3.4.1, 4.1.2, , 4.2.2, 4.3.2, 4.3.4
		BFIDC	1.1.3, 4.2.2, 4.3.2
		Department of Environment	1.2.1, 1.2.2, 1.2.3, 2.1.1, 2.1.2, 2.2.1, 2.3.2, 3.1.1, 3.3.1, 3.4.1, 3.4.2, 4.1.1, 4.1.2, 4.1.3, 4.2.1, 4.2.2, 4.3.1, 4.3.2, 4.3.4
		Bangladesh National Herbarium	1.2.2, 4.2.2, 4.3.2
		Bangladesh Forest Research Institute	1.1.1; 1.2.3, 4.2.2, 4.3.2, 4.3.4
		Bangladesh Climate Change Trust	3.1.2; 3.1.3; 3.2.1; 3.3.1; 3.4.2; 4.2.2; 4.3.4
		Department of Agriculture Extension	1.4.1, 1.4.2, 1.4.3; 2.3.1,2.3.2; 3.2.2, 3.2.3, 3.3.3, 4.3.2, 4.3.4
Ministry of Agriculture	2.3.2	Soil Resource Development Institute	1.4.1, 1.4.2, 2.3.1; 1.4.3
		Barind Multipurpose Development Authority	1.4.1, 3.2.3
		Bangladesh Agriculture Development Corporation	2.3.1
		Bangladesh Agriculture Research Institute	3.3.3

Ministries	Concerned sub-programmes	Agencies	Concerned sub-programmes
Ministry of Industries	2.1.1, 2.1.2, 2.2.1, 2.3.2; 3.3.1, 4.3.1	Department of Patent Design and Trademark	3.4.2
		Bangladesh Chemical Industries Corporation	2.3.2
Ministry of Textiles and Jute	2.1.1, 4.3.1		
Finance Division (M/o Finance)	4.3.4		
Internal Resources Division(M/o Finance)	3.3.1, 3.3.3		
Bank and Financial Institutions Divisions (M/o Finance)	3.1.3, 3.4.2		
Energy and Mineral Resources Division (MoPE&MR)	3.3.1		
Ministry of Chittagong Hill Tracts Affairs	4.2.2, 4.2.3	Chittagong Hill Tracts Development Board	1.1.1, 1.1.4
		Hill District councils (Rangamati, Bandarban, Khagrachori)	1.1.4; 1.4.2
Local Government Division	4.1.3	Local Government Engineering Department	1.4.3, 2.2.1; 2.2.3, 2.2.4; 3.1.2, 3.2.1; 3.2.2; 3.2.3
		City corporations and municipalities	1.3.3, 2.2.1, 2.2.2, 2.2.3, 2.2.4
		Department of Public Health Engineering	2.2.2, 2.2.3, 2.2.4, 3.1.2
		Water supply and sewerage authorities	2.2.2, 2.2.3
Rural Development and Co-operatives Division	4.2.3	Bangladesh Rural Development Board	4.2.3
Road Transport and Highways Division	3.1.2, 3.3.2	Roads and Highways Department	3.1.2
		Dhaka Transport Coordination Authority	3.3.2
		Bangladesh Road Transport Authority;	4.1.2
Ministry of Railways Ministry of Water Resources	1.4.1; 3.2.2	Bangladesh Water Development Board	1.3.3, 1.4.3, 3.2.1, 3.2.2
		Directorate of Bangladesh Haor and Wetland Development	1.3.1
		Water Resource Planning Organization	2.2.2, 3.2.2, 3.2.3, 4.1.3
		River Research Institute	1.3.3

Ministries	Concerned sub-programmes	Agencies	Concerned sub-programmes
Ministry of Defence		Bangladesh Space Research and Remote Sensing Organization	1.1.2, 3.1.1, 4.3.1; 4.3.4
		Bangladesh Meteorological Department	3.1.1, 3.1.3, 4.3.1
Ministry of Land	4.1.3	Department of Land Records and Survey	1.1.4
		Survey of Bangladesh	1.1.4
Ministry of Civil Aviation and Tourism		Bangladesh Parjatan Corporation	1.1.3
		Bangladesh Tourism Board	1 .1.3
Ministry of Fisheries and Livestock	1.3.2	Department of Fisheries	1.2.1, 1.2.3, 1.3.2, 1.4.3
		Bangladesh Fisheries Research Institute	1.3.2
		Department of Livestock Services	1.2.3
Ministry of Shipping	2.1.2	Bangladesh Inland Water Transport Authority	1.3.3, 1.4.3, 2.1.2, 3.2.1
		Port authorities (Chittagong, Mongla, Payra)	2.1.2
Power Division (MoPE&MR)	3.3.1; 3.3.2	Bangladesh Rural Electrification Board	
Ministry of Health and Family Welfare	2.2.1, 2.2.4, 2.3.2	Directorate General of Health Services	3.1.1; 3.1.2
		Climate Change and Health Promotion Unit	3.1.2; 4.3.4
Ministry of Disaster Management and Relief	3.1.1	Department of Disaster Management	3.1.1, 3.1.2, 3.1.3, 3.4.1
Ministry of Food	3.1.2		
Ministry of Science and Technology	4.3.4	Bangladesh Council for Science and Industrial Research	2.3.2
Legislative and Parliamentary Affairs Division	4.1.1	Parliament Secretariat	4.1.1
Law and Justice Division	4.1.2		
Ministry of Women and Children Affairs	4.2.2, 4.2.3		
Ministry of Social Welfare	4.2.2, 4.2.3		

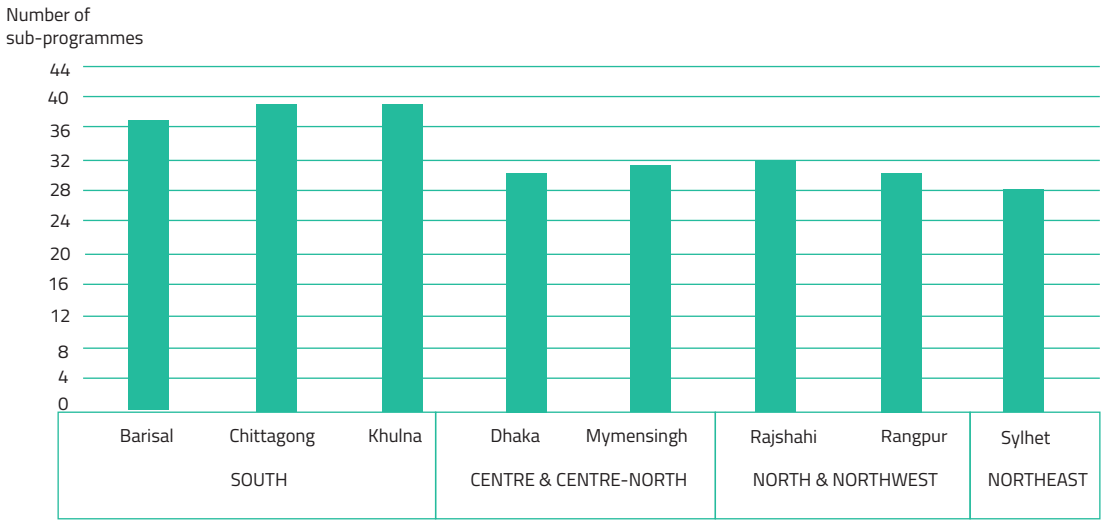
Ministries	Concerned sub-programmes	Agencies	Concerned sub-programmes
Secondary and Higher Education Division		University Grants Commission	4.3.4
		National Curriculum and Textbook Board	4.3.2
Bangladesh Bank			
Ministry of Housing and Public Works		Public Works Department	3.1.2

8. Geographical scope of the EFCC CIP

The EFCC CIP identifies the priority investment areas in the EFCC sectors in Bangladesh, and its overall geographical scope is the entire country. The programmes and sub-programmes included in the EFCC CIP are designed to cover the entire country, either individually or in combination. The EFCC CIP has 43 sub-programmes in 14 programmes under 4 pillars. Some sub-programmes are specific to some divisions (e.g. the Sundarbans), and others cover the whole country.[46] Twenty-six sub-programmes cover all eight divisions. Annex 8 shows the geographical extent of individual sub-programmes.

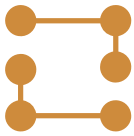
As shown in Figure 8.1, the majority of sub-programmes are in administrative divisions in the south of Bangladesh, which is the most vulnerable region to the adverse impacts of climate change. Chittagong and Khulna are the geographical focus of 39 sub-programmes, and Barisal is the focus of 37. Most of the sub-programmes addressing the priority areas in climate-change adaptation and mitigation (particularly under Pillar 3) exclusively target southern Bangladesh. Sub-programmes addressing issues related to coastal areas also logically target the south of the country. Sylhet division, in northeastern Bangladesh, is targeted in the fewest (i.e. 28) sub-programmes, largely because Sylhet is not addressed in programmes and sub-programmes on climate change because the region is not considered most vulnerable to this phenomenon (see Annex 8 for details).

Figure 8.1 Geographical distribution of the EFCC CIP sub-programmes



[46] Sub-programme 1.2.4 (support integrated resource management in the Sundarbans) covers only the Khulna division. Likewise, sub-programme 1.4.2 (manage soil erosion in hilly areas) targets only the Chittagong division.

9.Results framework



The results framework defines what Bangladesh wants to achieve through the EFCC CIP in terms of development and the management of the environment, forestry and climate change. It is an essential component of the CIP because it enables the monitoring not only of investment flows but also of the impacts of those investments.[47]

The results framework consists of a three-level results chain that links the contributions of sub-programmes (outputs) to programme-level outcomes and pillar-level impacts. The identified results are consistent with key national strategic documents, the GoB's own targets (as defined in the annual performance agreements of each ministry), the recently approved SDGs, and other commitments made by the GoB in international conventions such the nationally determined contribution submitted to the UNFCCC. Indicators should be relevant (i.e. they should measure progress in specific programmes and sub-programmes); available at least on an annual basis; measurable with a relatively sound methodology; derived from credible sources; SMART (i.e. specific, measurable, achievable, relevant and time-bound); and, wherever possible, disaggregated by age, gender, and rural/urban. Table 9.1 sets out the proposed CIP and pillar-level indicators. The full set of indicators at the programme and sub-programme levels are given in **Annex 1.**

The first cycle of monitoring plans to review and refine the type and sources of indicators for baselines and targets, and for monitoring CIP implementation.

[47] The focus on results has grown significantly since the mid-1990s, following endorsement of the Millennium Development Goals. More recently, United Nations member states agreed at the Rio+20 Summit in June 2012 to create a set of universal and integrated sustainable development goals; the UN subsequently adopted the Sustainable Development Goals in 2015.

Table 9.1 Suggested results framework for the EFCC CIP[48]

Overall goal	To increase the contribution of the EFCC sectors to national sustainable development through the enhanced provision of ecosystem services, thereby helping to reduce poverty, improve environmental and human health benefits, and increase resilience to climate change				
Expected results (statements)	**Indicators (proxies)**	**Unit(s) of measure-ment**	**Baseline**	**End target**[49]	**Information sources**
Expected Impact: Sustainable management of environ-mental and natural resources and climate change adaptation & mitigation contribute to sustainable development	Environmental Performance Index (EPI)	Index (composite)	41.77	By end of 2021, the Environment Performance Index improved to 60.00 in Bangladesh	Yale University data on Bangladesh (http://epi.yale.edu)
	Direct economic loss attributed to disasters in relation to global gross domestic product (GDP) (SDG 1.5.2)	Percentage	0.86% (annual 1995-2014 average)	GDP losses decreased by 20% between 2017 and 2021 (annual average)	GoB, http://germanwatch.org/fr/download/13503.pdf
	Number of deaths, missing persons and directly affected persons attributed to disasters per 100 000 population (SDG 1.5.1)	Numbers disaggregated by age and gender	725 (annual 1995-2014 average)	Reduction in average number of deaths, missing persons at least by half between 2017 and 2021	GoB, Germanwatch Report and SDG http://germanwatch.org/fr/download/13503.pdf
	Total GHG emissions	MtCO2e	Total: 190 MtCO2e (2012)[50]: Energy: 62 Industry: 3 Agriculture: 75 Waste: 18 LUCF: 31 Bunker fuels: 1	5% (unconditional) to 15% (conditional) below BAU by 2030 for the power, industry (energy) and transport sectors	DoE (Through upcoming 3rd national communication to UNFCCC) FAO: http://faostat3.fao.org/browse/G1/*/E; http://faostat3.fao.org/download/G1/GT/E (up to 2012); UNFCCC national communications; http://cait.wri.org/profile/Bangladesh

[48] This results framework suggests a collection of potential indicators to track the progress of the programmatic framework of the CIP (the pillars, programmes, sub-programmes and priority investment areas). However, the structures, values and processes of many indicators may need some degree of adjustment and refinement. In fact, the results framework should be considered as a living part of the CIP, which needs to be refined, modified and improved during the annual CIP monitoring cycles.

[49] Target values for indicators by 2021 have usually been collected from national policy and planning documents. However, if a national target has not been mentioned in any such document, target values have been assumed either based on a trend of performances over the last five years; or by expert judgement by the team of consultants.

[50] 2012 is the date of the Second National Communication (SNC) to the UNFCCC. The SNC reports data up to 2005.

Expected results (statements)	Indicators (proxies)	Unit(s) of measure-ment	Baseline	End target[49]	Information sources
Outcome 1: Natural resources are sustainably managed	Maple Croft's climate change vulnerability index	Index	0.25 (2016), 2nd most vulnerable country globally	>1 by the end of 2021	https://maplecroft.com/themes/cc/
	Other vulnerability indexes (UNDP, FSMP)	Index	tbd	tbd	As and where available
	Financial resources spent by government and development partners (DPs) in the EFCC sectors Contributing to SDG 13.a.1 (mobilized amount per year between 2020 and 2025 accountable towards the USD100 billion commitment)	USD	5.5 billion USD	10 billion USD allocated/ invested in the EFCC sectors by 2021	GoB (ADP and IMED, BCCT, DPs)
	Forest area as a proportion of total land area (SDG 15.1.1)	13.2%	Percentage	Increased to 15% by 2021	Forest Department
	Percentage of forests that are protected	percentage	1.81	5% by 2021	Forest Department
	Area of new protected areas [APA 1.9.1]	Hectares	578 hectares (in 2013-2014)	3 000 hectares protected per year to 2021	Forest Department APA 1.9.1
Outcome 2: Environmental pollution growth is slowed and maintained at lower rates	Decreased probability of dying between the age of 30 and 70 from any of cardiovascular disease, cancer, diabetes, chronic respiratory disease	Percentage	18% (2012)	16% (2021) based on extrapolation of current trend (disaggregated by sex)	Measured by WHO http://www.who.int/nmh/countries/bgd_en.pdf
	Air Quality Index (AQI) for Dhaka City and other urbanized areas	Index	25 – 500 (depending on season)	Values higher than 300 (extremely unhealthy conditions) do not occur (project identified)	Measured by DoE http://case.doe.gov.bd/
Outcome 3: Climate-change adaptation and mitigation measures are implemented and resilience increased	SDG 9.4.1: CO2 emissions per unit of value added	Metric tonnes	59.56 (2013)	65 and halt the increase (Project identified)	Sustainable Development Goals
	Average yield of a) total rice, b) wheat, c) potato, d) maize, e) pulses, f) oil seeds	Tonnes per hectare	a) 2.80, b) 2.32, c) 16.68, d) 4.97, e) 0.89, f) 1.69 (2012)	5% increase (project identified)	Bangladesh Bureau of Statistics http://www.yieldgap.org/bangladesh
	Climate change vulnerability index (Maplecroft)	Index	Extreme risk (2011)	High risk (project identified)	Maplecroft: https://maplecroft.com/about/news/ccvi.html
	Early-warning information enhanced through Regional and Global Initiatives	MoU/LoA	4	20 (4 per year)	APA Ministry of Disaster Management and Relief

Expected results (statements)	Indicators (proxies)	Unit(s) of measure-ment	Baseline	End target[49]	Information sources
Outcome 4: Human and institutional capacities are improved to enhance stewardship in the EFCC	Government effectiveness index	Score (from -2.5 to +2.5)	-0.77 (2014)	-0.75 for 2021 (trend value -0.768)	Worldwide Governance Indicators by The World Bank Group
	Regulatory quality	Score (from -2.5 to +2.5)	-0.94 (2014)	-0.74 for 2021 (trend value -0.7713)	DoE
	Rule of law	Score (from -2.5 to +2.5)	-0.72 (2014)	-0.45 for 2021 (trend value -0.494)	DoE
	1st pillar (Institutions) of Global Competitive Index	Scale 1-7 (best)	2.9 (2015)	4 by 2021 (project identified)	The Global Competitiveness Report by the World Economic Forum
	Environment and Gender Index (IUCN' s EGI)	Scale 0-100 (100 most favourable)	43 (2013)	50 by 2021 (project identified as an average at least)	The Environment and Gender Index (EGI) 2013
	Annual budget of MoEF	% of total government expenditure	0.30% (2016-17)	0.25% for 2020-21 (trend value; GoB target is 0.27% for 2018-19)	MoEF and Finance Division of Ministry of Finance, GoB
	HR Strength of MoEF ▪ 1st class ▪ Others	% of total government expenditure	6.35% (2014),	10.59% (trend value for 2021)	CPEIR (Climate Public Expenditure and Institutional Review) Country database Governance of Climate Change Finance for Asia-Pacific
	Climate expenditure (CPEIR)	% of GDP	1.19% (2014)	2.17% (trend value for 2021)	Budget 6 Wing of Finance Division

10. Cost and financing

10.1 BACKGROUND

The EFCC CIP can be considered a strategic communication tool addressed to government policymakers and development partners. Besides having a strong monitoring function, it can assist in attracting (additional) investments and leveraging funds. It provides information on priority areas for interventions and financing gaps, and can be used strategically to inform policy changes and investment decisions. The costing of the CIP was a key stage in the CIP preparation process and should be considered as "strategic-level" to differentiate it from project-level costing that takes place during the preparation of projects and programmes (FAO, 2015).

The EFCC CIP includes only public investments: that is, investments channelled through the GoB as well as most investments from development partners. Investments by development partners through CSOs were not included in the CIP costing exercise, and neither were investments made through private-sector channels in the EFCC sectors because reliable information was not readily or systematically available.[51] It was also decided not to include recurrent costs (e.g. government salaries), price support, subsidies or other interventions covered by the revenue budget.

10.2 CIP COSTING

Costing method

The costs of the EFCC CIP were estimated by determining the priority investment areas (see Chapter 6) needed to reach the established targets.

The budget for each investment area was calculated using an output-based budgeting methodology (FAO, 2015), in which an intervention's target is multiplied by its unit cost to give a total result for each intervention and, by aggregation, for each programme and pillar. The specific targets set for each intervention refer to the indicators of the result framework. Existing projects (e.g. those of the World Bank, the Asian Development Bank, USAID, the Japan International Cooperation Agency, GIZ, the Canadian International Development Agency and the United Kingdom's Department for International Development, as well as GoB) were analysed and evaluated to estimate unit costs.

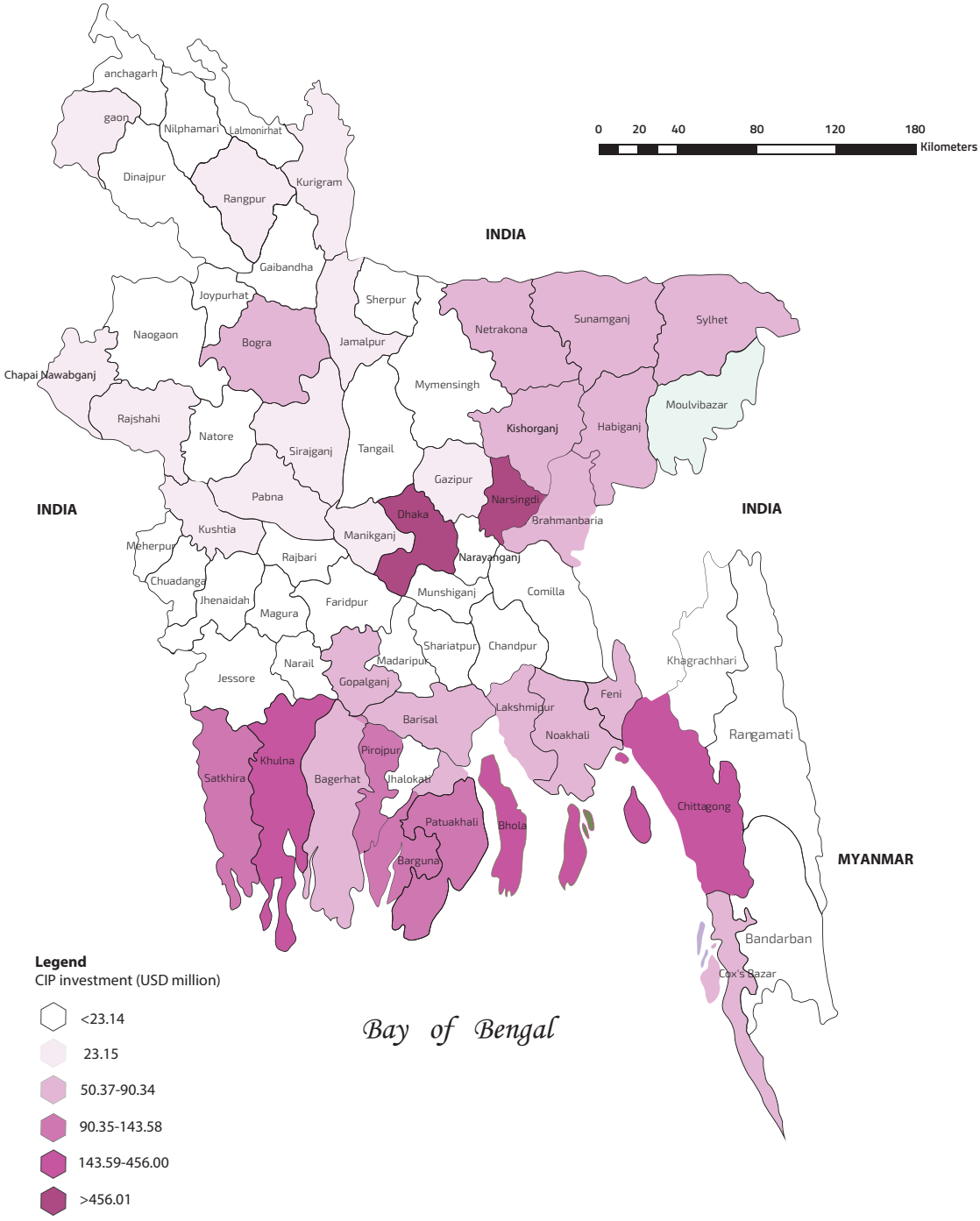
Following the above methodology, the estimated amount needed to meet the established targets by 2021 is about USD 11.7 billion (Table 10.1). While the costing should be accurate, it should be noted that the EFCC CIP provides an estimated costing for a realistic order of magnitude. Costing will need to be further detailed and actualized when formulating projects and programmes.

Additionally, it has at times proved difficult to allocate existing project funding to specific EFCC CIP sub-programmes or programmes in a detailed way. This is because project designs and their logframes include objectives that relate to different programmes in the CIP. An additional exercise consisted of estimating the amount of financing already available to advance the objectives of the CIP. One hundred and seventy projects (see Annex 9) were found to be related to EFCC. Many of these projects have been operational for some time. The amount available (unspent) for the period 2016–2021 was estimated at USD 4.7 billion, with the GoB's contribution (USD 2.3 billion) being slightly less than that of the development partners (USD 2.4 billion).[52] Figure 10.1 illustrates the distribution of district-wise investment projects in the current ADP (2016-2017).

[51] The FS CIP similarly excluded investments from NGOs/CSOs and the private sector.

[52] In addition to USD 4.7 billion, the development partners are providing USD 700 million and the Bangladesh Climate Change Trust USD 80 million in the EFCC sectors in Bangladesh in 2016 - 2021.

Figure 10.1 District-wise distribution of existing EFCC investments (ADP 2016-2017)



Source: MOEF Support Project

Table 10.1 presents a summary of the costing estimates, the amount of investments already in the ADP 2016-2017, and the financing gap, calculated as the difference between the cost of the EFCC CIP and existing investments. The financing gap is estimated at USD 7 billion.

Table 10.1 Estimated financing required to achieve the objectives of the EFCC CIP, existing financing, and the financing gap (USD million)

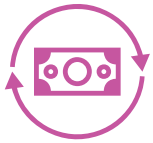
No	Programme title	CIP total	Financing in USD million		
			Existing	Gap	Gap (%)
Pillar 1: Sustainable development and management of natural resources					
1.1	Sustainable forest management and enhanced socioeconomic benefits from forests	885.0	54.2	830.8	94
1.2	Biodiversity conservation	538.5	44.9	493.6	92
1.3	Sustainable management of wetlands, rivers and marine ecosystems	693.1	490.5	202.6	29
1.4	Soil and groundwater management	343.5	52.8	290.7	85
	Total (Pillar 1)	**2 460.1**	**642.3**	**1 817.8**	**74**
Pillar 2: Environmental pollution reduction and control					
2.1	Reduced industrial pollution	651.6	65.0	586.6	90
2.2	Reduced municipal and household pollution	2 869.2	1 040.5	1 828.7	64
2.3	Reduced pollution from agriculture and other sources	198.6	3.3	195.3	98
	Total (Pillar 2)	**3 719.4**	**1 108.8**	**2 610.6**	**70**
Pillar 3: Adaption and resilience to, and mitigation of, climate change					
3.1	Disaster risk reduction	1 654.7	724.1	930.6	56
3.2	Sustainable infrastructure development	2 202.4	1 705.5	496.9	23
3.3	Mitigation and low-carbon development	783.3	455.6	327.7	42
3.4	Increased resilience at the community level	251.6	36.2	215.4	86
	Total (Pillar 3)	**4 892.0**	**2 921.4**	**1 970.6**	**40**
Pillar 4: Environmental governance, gender, and human and institutional capacity development					
4.1	Improved legislative, regulatory and policy framework	82.5	6.5	76.0	92
4.2	Improved stakeholder participation and gender equity	416.5	4.3	412.2	99
4.3	Improved organizationnal capacity and processes for evidence-based decision-making	109.0	29.6	79.4	73
	Total (Pillar 4)	**608.0**	**40.4**	**567.6**	**93**
	Total cost of EFCC CIP	**11 679.5**	**4 713.0**	**6 966.5**	**60**

Preliminary estimates

Overall, the analysis suggests a funding gap of about USD 7 billion for the next five years (2016 – 2021), which is 60 percent of the total CIP costs. The largest gaps are in the programmes dealing with pollution control, disaster risk reduction and climate-change adaptation, and sustainable forest management and biodiversity conservation. In percentage terms, the programmes with the largest funding gaps deal with environmental governance (particularly enhancing stakeholder participation and gender equity), controlling pollution from agriculture, and sustainable forest management and biodiversity conservation.

10.3 CIP FINANCING

Background



The EFCC CIP is a strategic framework that can act as a guiding document for stakeholder government agencies to improve the selection, coordination, and implementation of their projects under the ADPs. This implies that the EFCC CIP can help achieve the objectives of the policies that these agencies are responsible for. In addition, the results framework, which includes indicators, baseline and targets (see Annex 1), can be used to monitor progress in the implementation of not only the CIP but also of the policies on which it is based.

It should be noted that the EFCC CIP is not a "fund". In other words, it does not have dedicated financing sources or mechanisms of its own to finance the priority areas. While the CIP can help government agencies to identify and develop new projects, the agencies themselves will still have to secure their own financing from government, development partners, and other sources. Nonetheless, the CIP has the potential to attract financing for the EFCC sectors. In other countries, FS CIPs have helped mobilize additional financial resources, and this has also been the case for the FS CIP in Bangladesh.

Strategies for attracting financing, and potential sources of external funding, are discussed next.

EFCC CIP features for attracting investment

As a resource mobilization tool, the EFCC CIP may help attract more investments through the following features:

- The CIP identifies prioritized investment portfolios and thus demonstrates their clear linkages to achieving certain policy objectives with specific targets to attain. It may help the agencies to identify and develop additional projects with more solid rationales and thus secure more funding from the government exchequer.
- The CIP identifies areas of investments not previously explored by government agencies. This can create scope for taking up new projects and thus trigger the search for funding.
- Better plans with achievable targets always attract more investors. The CIP provides a better planning framework with clear linkages with policy objectives and specified targets. Thus, it creates greater scope for attracting the interest of development partners in investing in the EFCC sectors.
- The CIP contributes to 10 of the 17 SDGs. GoB can utilize the linkage between the CIP results framework and the SDGs (Annex 7) to monitor progress towards Agenda 2030 and attract more international finance to help achieve the SDGs.
- MoEF and other stakeholder agencies can utilize the CIP to showcase their commitment to achieving environmental sustainability to external funding sources and development partners and justify the need for more funds.

The EFCC CIP implementation process involves regular monitoring. This, coupled with the insightful analysis and efficient communication of monitoring results, encourages funding agencies to adjust their focus and priority sectors. Indeed, it is observed that the FS CIP, which is currently being implemented, and CIPs in other countries, have been able to help greatly in channelling funding into the sector. The concerned agencies, however, have to play a proactive role to tap the interest and resources.

Resource mobilization strategies

From domestic sources

In light of the above discussion, the following strategies can be suggested to channel more funding into the EFCC sectors:

- Establish a direct linkage between the EFCC CIP and the 7FYP by strengthening engagement with the GED, the Programming Divisions of the Planning Commission, and the relevant sectors. Indeed, properly implemented, the CIP will help realize the objectives of the 7FYP and other key national policies, strategies and documents.
- Carry out a strong, valid and reliable process of CIP monitoring, possibly through the Policy Support and Investment Monitoring Unit of MoEF. A strong monitoring framework is needed to give credibility to the monitoring results, improve the process of investment planning by the GoB, and attract funding from various other sources.
- Continue regular communication with the Ministry of Finance, especially with the results of the CIP monitoring reports, in order to validate the claim for enhanced fund requirement for the EFCC sectors.
- Continue dialogue and negotiation with development partners to engage them as important financing sources for the CIP programmes.
- Utilize the CIP and its monitoring reports in various international fora (like the UNFCCC) to showcase the strong commitment and preparedness of Bangladesh to mitigate environmental threats and climate change. This would enhance the competitiveness of the country to get more international funding.
- Explore sources of financing that are linked to economic activities that are either damaging the environment or leading to excessive resource use. Other countries have successfully implemented schemes (gasoline taxes, fees on groundwater extraction for industries, for example) that have the potential to be both an incentive for the more rational use of natural resources and a a source of financing for better environmental management.

From international sources

The following multilateral sources should be explored regularly to secure more funding for implementing the programmes of the EFCC CIP.

1. Green Climate Fund
2. Global Environment Facility
   a. Adaptation Fund
   b. Least Developed Country Fund
   c. Special Climate Change Fund
3. Global Climate Change Alliance
4. Forest Carbon Partnership Facility
5. Forest Investment Program
6. Pilot Program for Climate Resilience
7. Other multilateral sources (World Bank, Asian Development Bank, International Monetary Fund and others)

In addition to the above, there are numerous bilateral sources, some of which are already providing funding to the EFCC sectors in Bangladesh and which have the potential to provide even more funding for the EFCC CIP. Some of the important bilateral sources are listed below.

1. UK International Climate Fund
2. German International Climate Initiative
3. Japanese Fast Start Finance
4. Norwegian Climate and Forest Initiative

Private-sector investments and the EFCC CIP

The investment programmes in the EFCC CIP will be implemented mainly by government agencies through their ADPs. Therefore, the scope for direct participation by the private sector in EFCC CIP implementation is limited. Furthermore, the potential to systematically monitor private-sector investments is limited by the fact that private-sector investment data are not easily accessible and are often confidential.

On the other hand, the status of ecosystem services is greatly influenced by economic activities carried out by agents in agriculture and industry. In other words, many of the indicators suggested for tracking the impact of investments on environmental protection, sustainable forest management and climate-change mitigation and adaptation will be affected by activities carried out by the private sector. For example, the textile and leather industry of Bangladesh is bound to grow rapidly. It is estimated that the export value of textile and garment products will reach to USD 82.5 billion per year by 2030 and the export value of leather products will reach USD 6 billion per year by 2020 (ARUP, 2014). The growth in these two industries will have severe repercussions for water demand and quality in Bangladesh. Therefore, to advance the goals of the EFCC CIP it is important to consider private-sector activities and trends. A number of initiatives have been taken over the past two decades, some as the result of government environmental regulations. Many initiatives are also taking place due to international pressure on manufacturers of textiles, ready-made garments, and leather that produce primarily for the export market. Sometimes, pressure to improve environmental management comes more from international buyers than from the government. International pressure for increased corporate social and environmental responsibility is pushing companies to improve production processes and reduce the environmental footprint of their products.

As Bangladesh moves closer to its target to become a high-middle-income country by 2021, the EFCC CIP provides an opportunity to help Bangladesh companies become more "fit" for global competition by raising their environmental standards in the most cost-effective ways.

The private sector is addressed in the EFCC CIP in the following ways:

- Promotion in the CIP of enabling investments that encourage and motivate private investments in EFCC management (e.g. development and implementation of regulatory instruments that can provide economic incentives for better environmental management; promotion of corporate social responsibility initiatives, development of tourism facilities, etc.)
- The financial framework includes the mapping of investments by development partners that target improvements in environmental management by the private sector
- The results framework includes indicators that closely track activities by the private sector (e.g. number of small and medium-sized forest enterprises; number of industries covered by effluent treatment plants or air treatment plants; number of organic farmer organizations)
- The monitoring exercise will include the searching and tracking of additional key indicators, for example adoption of corporate social responsibility standards, number of factories that track their product footprint, number of factories that invest in better environmental management. The identification and tracking of such additional indicators will be carried out in partnership with the private sector and relevant development partners[53]
- Research and training may be broadened to include representatives of the private sector
- Forums for discussion can be established where opportunities for private-sector involvement in government projects can be created if better environmental services are envisaged

[53] Many initiatives exist in Bangladesh that aim at improving environment management of industries. The GIZ project Promotion of Social and Environmental Standards in the Industry is supporting factories in improving their environmental standards. The International Monetary Fund, through its Partnership for Cleaner Textile Program, is promoting cleaner production and resource efficiency in the textiles and apparel sector. The Bangladesh Garment Manufacturers and Exporters Association is supporting its members in improving their environmental performance and recognizing outstanding practices. The Sustainable Apparel Coalition has developed a suite of tools, for example to assess their product footprint. The CSR Center is another organization that is promoting responsible business practices.

11. Institutional arrangements

11.1 BACKGROUND

The EFCC CIP is necessarily a multi-stakeholder planning framework and in order to translate it into improved investment planning and implementation it is essential that a mechanism and process be set in place to properly coordinate and monitor it with the participation of all the relevant ministries/agencies. In fact, the implementation, coordination and monitoring of the EFCC CIP will require continuous communication among at least 32 ministries/divisions and 52 agencies. Such communication will involve sharing project information and data to be used in monitoring indicators, analyses and discussions related to policy implementation, and exploring ways in which the results of the monitoring exercise can be used by ministries and agencies to develop better and more effective projects. To that end, the Policy Support and Investment Monitoring Unit (PSIMU) is being established in the MoEF (see Annex 7 for its budget). It is envisioned that this institutional arrangement will be compatible with linking the EFCC CIP to other MEAs.

11.2 RATIONALE FOR THE PSIMU

In order to define the mechanism and process for CIP monitoring, coordination and implementation, the MoEF set up the Committee on CIP Monitoring Unit on 31 December 2015. The Committee was tasked with defining the key functions that will be required to coordinate and monitor the EFCC CIP, assess the set-up and functioning of existing entities within the GoB with similar functions, and provide recommendations on the most suitable course of action. On the basis of the analysis, the Committee recommended the establishment of the PSIMU under the direct responsibility of the MoEF[54] with an organogram and governance structure that is mostly in line with the one set up to monitor the FS CIP (i.e. the Food Planning and Monitoring Unit under the Ministry of Food).[55]

Along with an organizational and governance structure, the Committee also recommended the key functions, working processes and transition mechanisms of the PSIMU. For example, it was noted that the scope of the PSIMU should be broader than CIP monitoring and include policy analysis functions and supporting the GoB in analysing and negotiating various environmental issues of national and/or international importance.

The GoB has procedures to follow in approving the PSIMU, which will necessarily require a certain amount of time. Therefore, the Committee recommended an interim arrangement to ensure that monitoring and coordination will start as soon as the CIP is approved and will continue until the PSIMU is fully functional.

[54] Directly connected to the ministry/division and proclaimed by the GoB as an attached department (Instruction No. 2(A) (34), page 3). Departments are generally responsible for discharging executive functions while implementing the policy directives of the ministry/division. Attached departments will also function as databases and provide ministries/divisions with suggestions/advice on related technical issues (Instruction No. 6(2), page 4). Secretarial Instruction, 2014, Ministry of Public Administration, Government of Bangladesh.

[55] See also: http://fpmu.gov.bd/agridrupal/

11.3 FUNCTIONS, STRUCTURE AND GOVERNANCE OF THE PSIMU

FUNCTIONS OF THE PSIMU

The PSIMU will be designated and mandated to perform activities within the broad areas outlined below.

Policy advice, analysis and research

- Conduct review, analysis and research of EFCC-related policies.
- Assist relevant negotiation teams, including at conferences of the parties to the MEAs.
- Prepare briefs and working papers for high-level officials, as and when required, for use in policy discussions.
- Provide inputs/research findings to support the formulation of national EFCC policies and programmes.

CIP coordination and information management

- Sensitize ministries/divisions/agencies associated with specific CIP-related functions and coordinate among them in implementing specific programmes and sub-programmes.
- Help ministries/divisions align ADP portfolios with CIP and EFCC policy objectives.
- Act as an EFCC data hub and conduct information management activities.
- Coordinate EFCC data-sharing and information exchange among parties relevant to EFCC issues.

CIP monitoring

- Collect and organize data from relevant ministries, divisions and agencies on the basis of the results-based monitoring framework.
- Analyse data and prepare detailed annual monitoring reports, highlighting performance, progress, challenges and recommendations for all the pillars, programmes and sub-programmes.
- Disseminate annual monitoring reports and monitor feedback. Process and analyse collected data and feedback, and suggest improvements for future plans, if relevant.

Assistance with other national or international negotiations and agreements

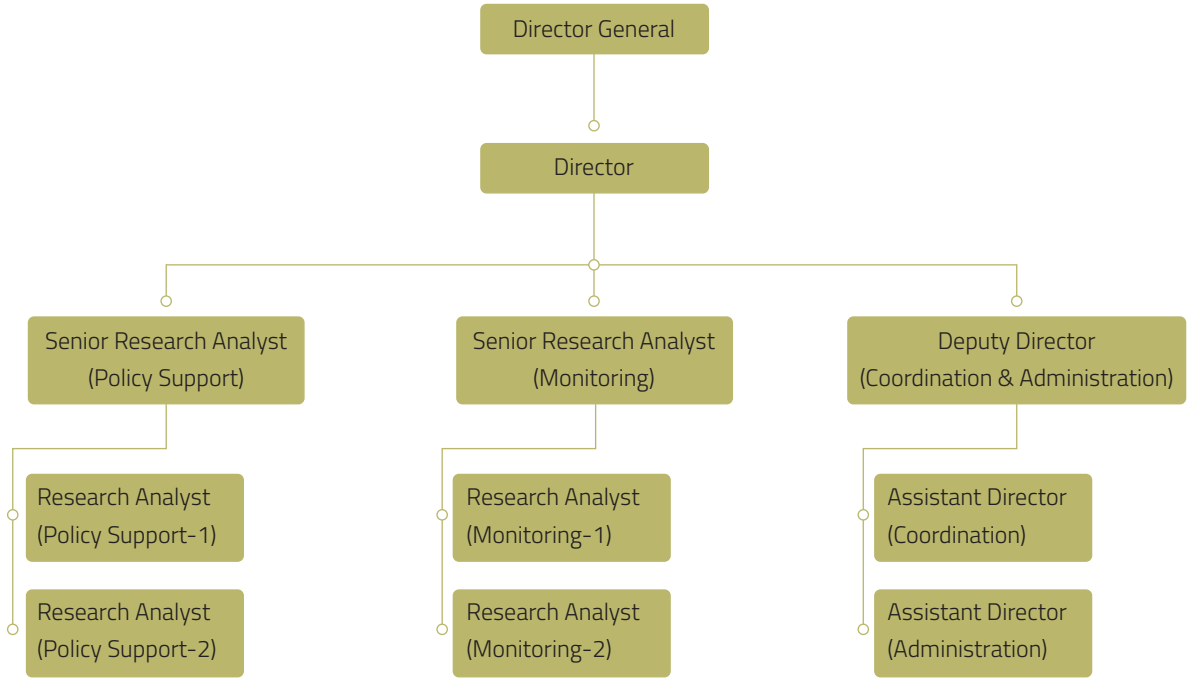
The proposed PSIMU could be entrusted with other national or international activities in order to make most effective use of the information made available to it. Such additional purposes would also help ensure acceptance of the PSIMU by the MoEF, as well by the Ministry of Public Administration and the Ministry of Finance. Other activities may include assistance on:

- Implementing the nationally determined contribution and its road map.
- Integrating the nationally determined contribution (NDC) with the CIP.
- Overseeing monitoring, reporting and verification under REDD+.
- Monitoring the implementation of multilateral agreements in the EFCC sectors, such as the SDGs, Climate Change Finance Tracking, the BCCSAP, the CBD, the UNCCD and the UNFCCC.

STRUCTURE OF THE PSIMU

The proposed PSIMU structure is aimed at ensuring coordination among relevant institutions. It will be headed by a Director General, with one Director, two Senior Research Analysts, one Deputy Director, four Research Analysts, two Assistant Directors, and other supporting staff (Figure 11.1) This structure is mostly in line with other units, such as the Food Planning and Monitoring Unit (FPMU) under the Ministry of Food and the Agriculture Policy Support Unit (APSU) under the Ministry of Agriculture. There will also be provision for hiring 3–4 part-time experts to cover the technical areas of the CIP – environment, forestry, climate change and environmental stewardship – and oversee specialized research and policy analysis. An interim arrangement will be put in place during the period between the finalization of the CIP and the establishment of the PSIMU comprising an additional Secretary/Joint Secretary (Development) in a supervisory role, one Deputy Secretary/Deputy Chief, a Senior Assistant Secretary/Chief of the MoEF on a part-time basis, and a hired expert.

Figure 11.1 Structure of the PSIMU



GOVERNANCE STRUCTURE OF THE PSIMU

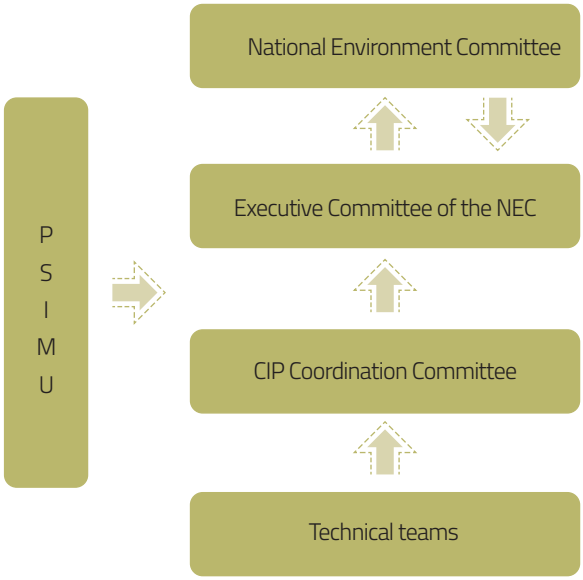
To ensure synchronization, coordination and communication, the EFCC CIP monitoring process will make use of existing institutions, such as the National Environmental Committee (NEC), the Executive Committee of the National Environmental Committee (ECNEC), customized entities such as the CIP Coordination Committee and thematic teams, and others. CIP coordination and the monitoring of results will follow the reporting chain illustrated in Figure 9.2. The institutions stated in the figure and their aspirational role in the EFCC CIP implementation, coordination and monitoring is described below.

The National Environment Committee

The NEC has been suggested as the top-most supervisory structure in the EFCC CIP implementation, coordination and monitoring chain (Figure 11.2). It is envisioned that the NEC will be useful in providing high-level guidance to CIP implementation, policies and financing arrangements as well as ensuring political buy-in at the highest level.

The NEC is a high-level committee, with the Prime Minister as chairperson and a membership comprising the ministers and secretaries of the relevant ministries and divisions. The Secretary of the MoEF is the committee's member secretary. The NEC was established to ensure effective top-level management of the environment and to integrate development and environment in national-level planning. Its terms of reference include analysis of the implementation status of the National Environmental Policy and environmental programmes; consideration of the implementation of decisions taken in United Nations conferences on environment and development; the identification of inter-ministerial conflicts; and providing necessary direction in the implementation of the government's environment-related policies. This committee meets once a year.

Figure 11.2 Reporting chain of CIP coordination and monitoring



The Executive Committee of the National Environment Committee

ECNEC is the executive body of the NEC and is chaired by the Minister for the Environment and Forests. Members of this committee include the ministers of Agriculture, Water Resources, Shipping, and Disaster Management and Relief, the Executive Chairman of the Board of Investment, secretaries of the relevant ministries and divisions, the Chief Conservator of Forests, and others.

This committee is responsible for analysing and monitoring the implementation of the National Environmental Policy and the decisions of the National Environment Committee, recommending, where necessary, amendments to the National Environmental Policy and other important environment-related issues. This committee meets twice a year.

It is envisaged that this committee, with the help of the CIP Coordination Committee and the thematic teams, will be the catalyst in materializing the CIP-related policy guidelines of the NEC. At the same time , ECNEC will place other pertinent issues and recommendation relating to the CIP before the NEC. As a specific responsibility, ECNEC will be the approving authority of the annual EFCC CIP monitoring report as well as other formal publications of the PSIMU.

A ministerial working group had been formed by the MoEF (in the context of the MoEF Support Project) to provid guidance in the EFCC CIP preparation process with high-level representatives from stakeholder ministries and agencies. It is envisioned that this ministerial working group might be restructured/expanded by including all the relevant stakeholder agencies, as reflected in the finalized CIP, and be renamed CIP Coordination Committee. This committee could support the monitoring process by facilitating general coordination among ministries and reviewing drafts of annual monitoring reports.

Technical teams

It is envisioned that pillar-based technical teams will be established to facilitate coordination and information-sharing among relevant ministries, divisions and agencies. They will be composed of representatives of relevant ministries, divisions and agencies, preferably the focal points and officials who deal with EFCC issues.

The technical teams will work as linking points in the process of collecting and exchanging information/data from ministries, divisions and agencies. Capacity-building programmes on CIP implementation and monitoring, with a focus on the result-based monitoring framework, will be arranged for members of the technical teams. Responsibility for overseeing gender and equity goals will rest with the technical team in Pillar 4.

PSIMU

The PSIMU will perform the role of secretariat for the work process of EFCC CIP implementation, coordination and monitoring. It will provide technical and operational support to this framework and facilitate communication and connection among the various entities. All the existing institutions listed in Figure 11.2 will need strengthening to effectively support the CIP monitoring process.

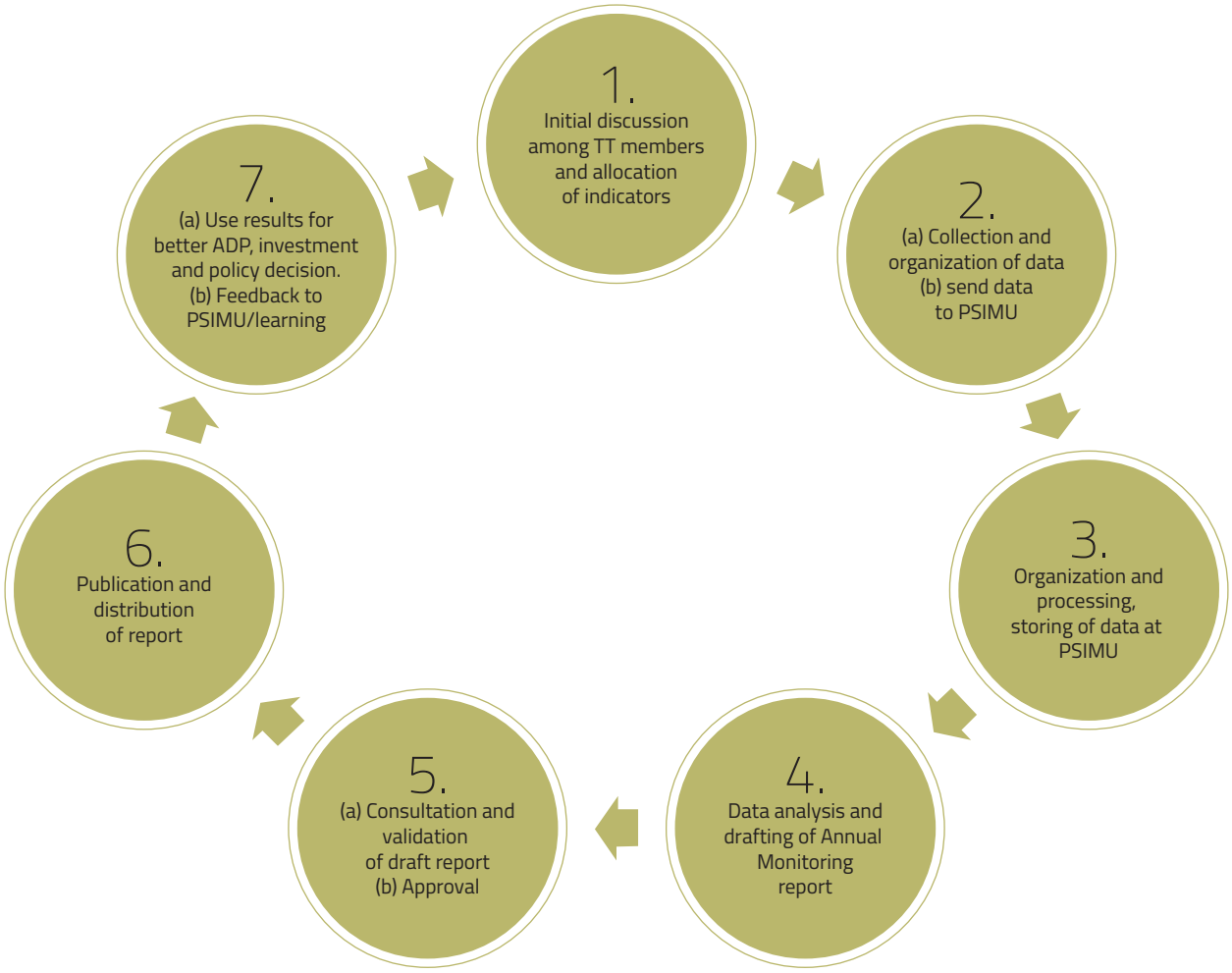
11.4 MONITORING CYCLE

A simplified monitoring process of the EFCC CIP is illustrated in Figure 11.3. This will be operationalized according to a more detailed CIP monitoring roadmap prepared at the beginning of each monitoring cycle by the PSIMU.

The cycle starts with an initial meeting arranged for distribution of the results framework and for discussion and clarification of the mode of action as well as the results framework itself. The meeting will be chaired by the Director General of the PSIMU, and discussions will take place among the members of the thematic teams. Accordingly, thematic team members will collect and organize data, fill in the results framework and send it back to the PSIMU. Data and information in the results framework will be organized, processed and analysed at the PSIMU for the production of a high-quality annual monitoring report in light of the CIP monitoring roadmap. A draft report will be finalized after necessary rounds of stakeholder consultation and the incorporation of feedback. Subsequently, the PSIMU will publish and distribute the annual monitoring report to ministries, divisions, agencies, development partners and others, with prior approval from the ministerial working group and ECNEC.

Ministries, divisions and agencies may use the report to develop better and more effective projects in their ADPs. They can also provide feedback on the annual monitoring report. Such feedback will be analysed and, where appropriate, the results framework will be modified accordingly. A similar process could be followed in providing monitoring assistance on other EFCC-related issues.

Figure 11.3 Monitoring process of the EFCC CIP



Progress towards impacts/outcomes/outputs level will be prepared at the level of technical teams, while the Implementation Monitoring and Evaluation Division, the Planning Commission and the line ministries will be the sources of information on the financial progress of EFCC-related ADP investment portfolios. Based upon these, an EFCC CIP project database containing aggregated information at programme and sub-programme levels and information on individual investments will be maintained and updated at the PSIMU. All these will form the basis of the annual monitoring reports. The results framework of the EFCC CIP will be at the centre of all monitoring processes; it is considered a living part of the EFCC CIP that might be changed, improved, fine-tuned and updated every year based on the monitoring results and feedback from the stakeholder agencies.

11.5 UTILIZATION OF MONITORING RESULTS

The main purpose of monitoring is to appraise stakeholder agencies regarding the implementation performance of their relevant CIP sub-programmes so they can produce better ADPs with better-identified/prepared projects in realizing the EFCC goal. Thus, the monitoring process will have various communication events (e.g. annual agency planning meetings and stakeholder consultations), which will serve as discussion platforms for stakeholder agencies.

12. Managing cross-cutting issues between the EFCC CIP and the FS CIP

12.1 INTRODUCTION

The cross-sectoral nature of the EFCC CIP means that its identified priorities can overlap with programmes identified in other investment plans. Of particular relevance are potential overlaps with the FS CIP, which the Ministry of Food has been coordinating and monitoring since 2011.

12.2 OVERVIEW OF the FS CIP

The FS CIP was prepared with the intention of mobilizing resources and coordinating investments in support of the implementation of the National Food Policy Plan of Action, which has the overall objective of increasing and diversifying food availability in a sustainable manner and improving access to food and nutrition security. The FS CIP, in line with the globally accepted definition of food security, has been structured to organize investment priorities in three thematic areas: 1) food availability (production); 2) food access (distribution); and 3) food utilization (nutrition). These three themes have been further articulated in 12 priority investment programmes and 40 sub-programmes. Thirteen ministries with 40 agencies are responsible for implementing the various sub-programmes of the FS CIP.

Progress in the implementation of the FS CIP has been tracked in a comprehensive annual monitoring process comprising the collection and analysis of annually updated values of around 300 indicators from various stakeholder agencies. The four annual monitoring reports published to date highlight the progress on, challenges to, and opportunities and suggestions for various issues related to food security in Bangladesh. The implementation and monitoring of the FS CIP has benefited from the institutional coordination support of the FPMU under the Ministry of Food, which reports to the multiministerial committee (the Food Planning and Monitoring Committee) overseeing the country's food security situation.

The FS CIP, in its fifth year of implementation, has been widely praised for its contribution to systematic planning and for attracting funds that ultimately have contributed to enhancing food security in Bangladesh. The FS CIP budget totalled USD 12.7 billion in 2015, of which USD 8.8 billion (64 percent) was financed by the GoB, and development partners contributed USD 3.9 billion (36 percent), representing the financial gap. The 2015 budget represented a 56 percent increase compared with the investment available in 2011.

12.3 CROSS-CUTTING AREAS BETWEEN THE EFCC CIP AND THE FS CIP

A number of cross-cutting issues – that is, overlaps within the programmatic structure – are likely to exist between the EFCC CIP and the FS CIP, especially in the first programme area of the latter, which deals with enhancing the food security situation by increasing crop, fish and livestock production. Increasing production requires the exploitation of natural resources such as land and water and the application of chemical inputs in the form of (for example) fertilizers and pesticides. Also, because about one-third of the population relies on woodfuel for cooking (the proportion is higher in rural areas), the availability of trees, and tree-planting activities, influence the availability of energy and therefore nutrition. Investments in the FS CIP may therefore have a direct influence on ecosystem services. The EFCC CIP aims to minimize the overexploitation of natural resources by all sectors, including agriculture. Therefore, although improving food security in Bangladesh remains a priority, the use of natural resources needs to be managed in a way that does not compromise – and, ideally, enhances – the

sustainable supply of ecosystem services. There is a need to harmonize the priority areas between the two CIPs, particularly in cross-cutting areas, to minimize trade-offs and enhance synergies among the activities of the various stakeholder agencies.

The EFCC CIP includes a number of programmes that may also be addressed in the FS CIP, albeit for different reasons. Table 12.1 lists the sub-programmes that could include activities that cut across both CIPs.

Table 12.1 Interlinkages between sub-programmes of the EFCC and the FS CIP

EFCC CIP	FS CIP
Sub-programme 1.3.2 Sustainable fisheries and fishing habitat management in inland and marine ecosystems	Sub-programmes under programme 4 1. Improve management of fisheries resources 2. Promote production in the South through sustainable shrimp and prawn development and community-based co-management of wetlands
Sub-programme 1.4.1 Improve soil fertility and groundwater management, with particular focus on north and northwest Bangladesh	Sub-programme under programme 2 1. Improve water resource management in water distribution systems and at farm level
Sub-programme 1.4.3 Manage coastal land and prevent and cope with waterlogging and salinity	Sub-programmes under programme 2 1. Improve and increase efficiency of surface water irrigation, in particular in the South part of the country 2. Reduce impact of saline water intrusion in the South and enhance river water flow
Sub-programme 3.2.1 Strengthen coastal and inland embankments and improve drainage capacity	
Sub-programme 3.2.3 Support the development of irrigation schemes (drought-prone areas)	
Sub-programme 2.3.1 Minimize pollution from fertilizers and pesticides	Sub-programme under programme 3 1. Improve and increase sustainability of soil fertility management
Sub-programme 2.3.2 Reduce pollution from chemical use	
Sub-programme 4.3.4 Support knowledge systems, including the implementation of the Research Master Plan and strengthening research organizations, and extension and educational NGOs	Sub-programmes under programme 1 1. Enhance research and knowledge generation and adoption to increase agricultural productivity and diversity in a sustainable manner 2. Improve extension services to propagate knowledge and practices, supported by community-based experimentation and learning and indigenous knowledge

12.4 MANAGEMENT STRATEGIES

There are two overarching questions regarding the harmonization of the programmatic structure of the EFCC CIP and the FS CIP:

1. What possible synergies exist among projects that, if better coordinated, could deliver improvements in both food security and environmental quality?

2. How should projects that are relevant to both CIPs be addressed?

There are four strategies for harmonizing the programmatic structures of the two CIPs: 1) realizing synergies through coordination; 2) interpreting and managing duplication; 3) mutual sharing in the monitoring process; and 4) facilitating institutional communication. Each of these is outlined below.

Realizing synergies through coordination

While the FS CIP emphasizes the production of food (crops, fish and livestock) by using natural resources, the EFCC CIP includes activities to enhance the conservation and sustainable management of natural resources (e.g. the sustainable management of water bodies for fish production). Almost all policies in the agriculture sector include, along with food production, some consideration of natural resource conservation and management. Thus, the activities prioritized under the two CIPs may be complementary. Coordination will enable harmonization in the implementation of agricultural investments. This will require regular communication between the implementing agencies listed in the two CIPs.

Interpreting and managing duplication

The two CIPs are not meant to be "silo" investment plans, and it is possible for investment priorities to contribute to both food security and environmental protection. As of June 2014, the FS CIP included 415 ADP projects, of which 136 had been completed and 279 projects were ongoing. In comparison, 135 ADP projects were mapped within the EFCC CIP programmatic framework, with an estimated USD 5.6 billion to be invested in the next five years. It is possible for the same projects to be listed under both CIPs.

Examples of such projects are:

- Participatory Small Scale Water Resources Sector Project (3rd phase)
- Farmer's Training at the Upazila Level for Transfer of Technology (2nd phase)
- Climate Resilient Participatory Afforestation and Reforestation
- Development and Expansion of Research and Research Infrastructure of BARI
- Strengthening Research Activities and Sub-Stations Development of BINA (2nd revision)

The implications of this duplication are manifold. First, where similar activities are included in both CIPs, or where similar indicators have been included in the results framework, the concerned stakeholder agency will be in a position to contribute to both CIPs by implementing the same investment. Second, the total financial amount needed to meet both food security and environmental management targets cannot be calculated by simply "adding" the two CIPs, because this would result in a certain amount of double counting. Third, there are areas where the objectives of one CIP may conflict with those of the other. For example, the FS CIP emphasizes increased agricultural production, which may require the use of pesticides and fertilizers, whereas the EFCC CIP aims to mitigate the pollution arising from such use.

Mutual sharing in monitoring process

Both CIPs can benefit by using data for indicators from the other's results framework and monitoring exercises. This will provide a better picture of investments in both food security and the environment, as well as possibly providing insights from the analysis of results. Tracking both food security and environmental indicators will provide an opportunity to directly quantify the environmental costs of economic activities and, conversely, the economic costs of environmental protection. Table 12.2 lists examples of indicators that, when analysed jointly, would provide a fuller picture of investment effectiveness.

Table 12.2 Synergies between indicators of the EFCC CIP and the FS CIP

Indicators in the EFCC CIP	Indicators in the FS CIP
▪ Trainings imparted to rural organizations and NGOs on EFCC issues	▪ No. of farmers trained in sustainable agricultural practices by DAE
▪ Dry-season water availability (% of total flow) ▪ Quantity of groundwater used for irrigation ▪ No. of households engaged in rainwater harvesting	▪ % of cropped area under irrigation ▪ Surface water irrigation area as % of total irrigation area ▪ Water table depth in Northern Region, average yearly change over last three years (cm/year)
▪ Amount of chemical fertilizer use on arable and permanent crops ▪ Farmers trained in the use of organic fertilizers disaggregated by gender	▪ Change in crop yields (moving average over three previous years), %
▪ Population with basic handwashing facilities with soap and water at home	▪ Prevalence of diarrhoea in children aged under five (in two-week period), %
▪ Concentration of DDT in human milk	▪ Proportion of infants under six months exclusively breastfed, %

Facilitating institutional communication

The MoEF has taken steps to establish a specialized technical unit called the PSIMU to oversee the implementation, coordination and monitoring activities of the EFCC CIP. Many of the functions and responsibilities of the proposed unit were derived from lessons learned from the existing FPMU under the Ministry of Food. Hence, the PSIMU (once established) and the FPMU are in a unique position to enhance partnerships and communication among ministries, facilitate learning, and manage any duplications and conflicts that may arise from the implementation of the two CIPs.

13. CIP gender action plan

13.1 RATIONALE AND CONTEXT

The links between gender and the EFCC sectors are well established in global processes, including the Convention on the Elimination of all forms of Discrimination against Women (CEDAW), the CBD, the SDGs, and the UNFCCC. Climate change and environmental degradation tend to exacerbate inequalities between women and men in access to productive resources and benefits as well as in well-being, including workloads. On the other hand, the differing knowledge and capacities of women and men are key to safeguarding natural resources and equitable development.

The MoEF prepared the Climate Change and Gender Action Plan (ccGAP) in 2013, based on consultations and a detailed analysis of the situation with respect to Bangladesh in the context of international frameworks. The ccGAP aims to "mainstream gender concerns into climate change-related policies, strategies and interventions ensuring access to, participation in, contributions towards and benefits for the diverse group of stakeholders for the sustainable and equitable development of Bangladesh". The ccGAP integrates gender considerations into four of the six priority sectors, as identified in the BCCSAP: 1) food security, social protection and health; 2) comprehensive disaster management; 3) infrastructure; and 4) mitigation and low-carbon development.

The GoB carries out annual gender-based budgeting, drawing on the inputs of agencies to track the effectiveness of government budgets for women and girls. In the first report by the MoEF (2011–2012), almost USD 70 million (544.23 crore Bangladesh taka)[56] of the Ministry's budget (44 percent) was considered to have benefited women and girls, compared with 2015–2016, when the figure was around USD 39 million (305 crore taka) and 29.9 percent of the Ministry's budget). The decrease does not indicate that gender was not addressed. In the Community Based Adaption to Ecologically Critical Areas through Pro-biodiversity Observation and Social Protection Project in Sylhet and Cox's Bazar, for example, 2 045 men and 1551 women members were included in village conservation groups. Other examples of attention being paid to equal participation and benefits are provided in the MoEF report on gender-based budgeting to the Ministry of Finance for 2015–2016.

Although there are good examples of investments by many actors that match the MoEF's ccGAP priorities, these are not all necessarily a result of the systematic mainstreaming of the ccGAP results framework into national policy and programming. In addition, progress towards the ccGAP objectives is yet to be systematically tracked. Consultations revealed that a major obstacle is a lack of awareness among government officials, which may partly be because the ccGAP – a substantial document – was produced four years after the BCCSAP (2009), and partly because of the mobility of key governmental and other stakeholders. Whatever the reasons, consultations[57] carried out in the development of this CIP Gender Action Plan point to a need to sensitize government officials and other actors to its provisions, as well as to promote its systematic uptake and assessment in programming and implementation.

13.2 METHODOLOGY

The EFCC CIP takes the ccGAP (2013) as the primary reference in order to identify key issues and gender gaps in the EFCC sectors. This CIP Gender Action Plan is also informed by relevant national gender, climate-change and environment policies, including the 7FYP, National Biodiversity Strategy and Action Plan (2004), the national forestry and environment policies (1994 and 1992, respectively) and the National Women Development Policy (2011). At the international level, the CIP Gender Action Plan draws on CEDAW General Recommendation No.34 (2016) and the CBD Gender Plan of Action (2014). It is aligned with the Environment and Gender Index developed by IUCN, especially the following indicators:

[56] 1 crore = ten million.

[57] During 'Gender and EFCC in Investment Planning' workshop, March 2016 (Dhaka).

- Livelihood (less poverty, food adequacy, improved water, improved sanitation, less solid fuel use).
- Gender-based rights and participation (equal legal rights, women in Conference of the Parties delegations and policymaking positions, women managers).
- Ecosystem (biodiversity preservation, critical habitat preservation, higher-quality forests).
- Country-reported activities (inclusion of gender in CBD and UNFCCC reports, inclusion of sustainable development topics in CEDAW reports).

A desk review of these and other policies and programmes was carried out in 2015 - 2016, and the approach and priorities for this CIP Gender Action Plan was developed through a participatory process so as to gain from national and international technical inputs.[58] This involved sensitizing participants to the ccGAP objectives and ensuring that these are reflected as appropriate in the EFCC CIP.

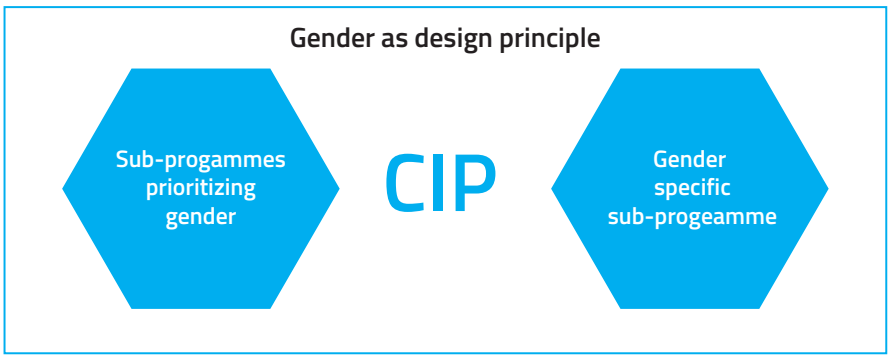
13.3 OBJECTIVES

The objective of the CIP Gender Action Plan is to narrow gender gaps and maximize the contributions of women as well as men in the EFCC sectors at all levels. This objective was developed in a participatory way.

13.4 STRATEGIES

The EFCC CIP adopts a three-strategy approach to mainstream relevant gender issues[59], as identified in the ccGAP (Figure 13.1). These strategies were validated at a workshop with the GoB and civil-society counterparts and in a consultation with women in the MoEF (March 2016). The approach is explained below.

Figure 13.1 Role of gender in the EFCC CIP



[58] Including a consultative workshop in March 2016 (Dhaka).

[59] These gender issues can be summarized as unequal access of women compared to men to (a) rights (b) resources, and (c) voice and decision making.

Strategy 1 - CIP as a design principle

This strategy highlights that all EFCC CIP programmes will be bound by gender as a design principle aiming to (a) mitigate negative impacts on the existing gender situation, and (b) set minimum standards as well as aspirational targets. Table 13.1 sets out the specific dimensions of gender as a design principle, as mentioned in section 1.4 of this document. These dimensions on gender mainstreaming principles to do with equal participation and voice, gender-disaggregated information to enable assessment of the benefits to women and men, and equitable resource allocation and gender analysis of the differential impacts on women and men. They draw on consultations with gender stakeholders in the EFCC sectors and governmental guidelines (GoB, 2014).

Table 13.1 Minimum and aspirational targets of gender issues in the EFCC CIP

Minimum standard	Aspirational target
Data on beneficiaries will be disaggregated by sex at all levels	Gender-specific programme to include qualitative data such as women's and men's relative perceptions of the extent to which they can influence local/ national decisions
At the level of the EFCC CIP, the gender balance of direct beneficiaries will not exceed 60:40 for either sex	Women to comprise at least 30 percent of decision-making structures at grassroots through to senior government levels
The selection process for all EFCC CIP projects will include two questions: ▪ Is a gender gap likely to be exacerbated without specific actions? ▪ Is women's agency as well as that of men's mobilized? All EFCC CIP projects will specify measures to mitigate potential negative impacts on women/men and gender inequalities	EFCC CIP-financed projects will specify measures to mobilize women's agency, including addressing gender gaps in underlying capacities in order to enable women to contribute equally with men
Adequate financing allocated to deliver the above minimum standards	Women's share of MoEF budget beyond the EFCC CIP reaches and remains at 50 percent

Strategy 2 - Gender in selected sub-programmes

This strategy highlights that all selected sub-programmes are identified as priorities from a gender perspective, which is reflected in the description and results framework.The EFCC CIP sub-programmes that have been identified as priorities from a gender perspective are presented in Table 13.2.

Table 13.2 EFCC CIP sub-programmes with priorities from gender perspective

Pillar 1

Sustainable development and management of natural resources

Programme
1. 1: Sustainable forest management and enhanced socioeconomic benefits from forests
1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry
1.1.2. Improve forest monitoring (to include both biophysical and socioeconomic aspects) – geographic information systems (GIS) and remote sensing-based forest management
1.1.3. Develop small and medium-sized forest enterprises and value chains for socioeconomic benefits, food security and employment creation
1.1.4. Improve security of land tenure, stakeholder awareness and capacity

Programme
1.2. Biodiversity conservation
1.2.1. Develop and enhance conservation of protected areas through joint government-community co-management
1.2.2. Improve biodiversity monitoring

Programme
1.3. Sustainable management of wetlands, rivers and marine ecosystems
1.3.1. Support implementation & scaling up of Master Plan for the Haor and Flood-prone Areas

Pillar 2

Environmental pollution reduction and control

Programme
2.3 Reduced pollution from agriculture and other sources
2.3.1. Minimize pollution from fertilizers and pesticides

Pillar 3

Adaptation and resilience to, and miigation of, climate change

Programme
3.1. Climate Change Disaster risk reduction
All systems, procedures and guidelines will reflect the needs of women as well as men
Programme
3.2: Sustainable infrastructure development
3.2.2 Support the operation and maintenance of water management systems
3.2.3 Support the development of irrigation schemes (drought-prone areas)
Programme
3.4. Increased resilience at the community level
All sub-programmes (community-based/ecosystem-based adaptation, scaling up local innovations on adaptation)

Pillar 4

Environmental governance, gender, and human and institutional capacity development

All sub-programmes except 4.1.3. Support rational arbitration among users of ecosystems services

The main document for these EFCC CIP sub-programmes includes descriptions and indicators. The gender design principle also applies to these, and extra efforts are expected in meeting aspirational targets.

Strategy 3 - Gender specific sub-programme:

The EFCC CIP sub-programme 4.2.2 ("Encourage gender equity and empowerment and increase the inclusion of minorities in the EFCC sectors") has a strong focus on closing gender gaps in participation and voice in EFCC decision making. The aim is to stimulate gender equity and increase the inclusion of groups that are marginalized in environmental management. The focus is on increasing the capacity, participation and influence of women and the marginalized in environmental decision making through various areas and related indicators, as illustrated in Table 13.3.

Table 13.3 Suggested indicators to measure EFCC CIP performance on gender issues

Action	Indicator
Strengthening the capacities of rural women, including in women's organizations/mixed-sex rural organizations to better engage in environmental management activities by raising awareness of their rights in an EFCC context and providing training in leadership, lobbying and negotiation	Proportion of women in EFCC-sector organizations at community level (water bodies, cooperatives, wetlands)
Promoting participation of women at all levels, as well as the marginalized, in decision making processes for EFCC-related issues	EFCC CIP-financed programmes to stipulate 30 percent women/marginalized peoples in decision-making positions (e.g. management committees) of all beneficiary groups, such as community forestry groups Selection of projects for financing under the EFCC CIP carried out by committees comprising at least 30 percent women Number of gender focal points in GoB and experts including from civil society mobilized
Building capacity in gender-sensitive policy and programming in the MoEF and its agencies, including by promoting the advancement of women in those agencies	Gender-responsive scorecard in EFCC developed Percentage of gender-sensitive policies in EFCC (with targets, actions and budget allocation) MoEF and agencies' institutional gender action plans developed and delivered Number of women in working groups for and delegations at global processes (e.g. CBD, UNFCCC Conferences of the Parties)

14. Implementation risks and way forward

14.1 Risks

The EFCC CIP is a strategic tool for the GoB that identifies areas of investment and provides a framework for dialogue and collaboration among a larger number of stakeholders (including government ministries and agencies, development partners, NGOs, and the private sector) under the leadership of the GoB. Table 14.1 presents the major risks associated with the implementation of the EFCC CIP, possible measures for mitigating such risks, and the ratings of each risk. Given the ambition and complexity of the EFCC CIP, all identified risks are rated as moderate, high or very high, despite the risk-mitigation measures taken at the design stage.

Table 14.1 EFCC CIP risk mitigation measures

Risk	Risk-mitigation measures	Risk rating
Insufficient political commitment and ownership from government and partners may lead to continued development of ad hoc and uncoordinated projects	▪ Keep a high political profile and the strategic focus ▪ Have the EFCC CIP (at least) endorsed by a high level authority. CIP approval by the National Environment Council, headed by the Hon'ble Prime Minister would be a good way through ▪ Strengthen the dialogue with other partners in the EFCC sectors ▪ Specify the roles and responsibilities of various actors and stakeholders ▪ Adopt the principle of "constant improvement"	High
Weak coordination: the MoEF will play a crucial role in facilitating the coherence and monitoring of the EFCC CIP. However, the capacity of the MoEF needs to be enhanced, with a focus on monitoring and evaluation (e.g. start with setting up the monitoring and evaluation systems through the PSIMU)	▪ Put in place the institutional settings and monitoring and evaluation systems as soon as possible ▪ Further develop implementation arrangements and mobilize additional resources to develop the country's capacity to coordinate investments effectively ▪ Adopt the principle of "constant improvement" by considering the CIP, particularly its results framework, as a living document	Very high
Resources mobilized (from GoB and/or donors) are insufficient to finance EFCC CIP activities, leading to limited results	▪ Mainstream the CIP into the GoB's planning and financial systems ▪ Mainstream the CIP into the Economic Relations Division's outreach to motivate new/additional funds from development partners ▪ Include monitoring of resource mobilization in the CIP's monitoring and evaluation approach	Moderate
Insufficient gender mainstreaming and inclusion of youth and minority groups in programme activities	▪ Use proactive targeting ▪ Use gender-disaggregated monitoring and evaluation indicators ▪ Conduct awareness-raising by development partners and implementing partners ▪ Incorporate gender and youth issues in all projects and training	Moderate
Although the environment affects many aspects of the economic and social life in Bangladesh, the capacity of the MoEF to support improved environmental management is limited	▪ Provide continued strategic support to strengthen the MoEF (the risk cannot be mitigated with a single project)	High

Additional work needs to be done on a number of fronts to manage the risks listed in Table 14.1 while putting the EFCC CIP into effect. This includes the development of an implementation approach/plan based on the institutional and monitoring arrangements (see Chapter 11). There may also be scope for a public-private partnership between the MoEF and the private sector, where robust evidence is gathered and used to provide transparency and improve accountability.

Based on the results-based monitoring framework, the CIP will define the coordination mechanisms to be used among the partners, by programme, and clarify responsibilities and budgeting arrangements.

14.2 Way forward

The policy, economic, social and environmental situation in Bangladesh is dynamic. The Environment Policy of 1992 and the Forest Policy of 1994 are being revised, and so too is the BCCSAP, which runs until 2018. A plan for the delta is being prepared, which will run until 2100. A forest-sector master plan will be prepared in 2016, and a forest investment plan is also being discussed. The GED is planning to develop an environmental-sector plan to help operationalize the environmental objectives of the 7FYP. Climate finance is also dynamic, and the implementation of the Paris Agreement on climate change will provide new opportunities and challenges. Climate-change concerns, such as "loss and damage", are likely to further shape national needs and opportunities. These developments are taking place as pressure on the environment continues to grow and the threat of climate change looms ever larger.

In this context, the EFCC CIP must be considered a living document in which evolving issues and emerging investment priorities can be adequately analysed and accommodated. An organizational entity that will facilitate policy analysis and investment monitoring is crucial.

In order to keep the CIP and to continuously learn from its performance, the following must be given attention to:

- Regular consultations and dialogue with the main stakeholders (including development partners) on the mobilization and use of funds are essential (to be organized through the newly established PSIMU – see Chapter 11).
- The PSIMU will be a crucial monitoring and evaluation instrument for supporting the achievements of the CIP and for reviewing and adapting the results framework based on initial findings and learning experiences.
- The strong engagement of the GED and the Planning Commission should be pursued so that the EFCC CIP and the 7FYP fully align and integrate, and so that other relevant planning and strategic documents – such as the delta plan, the forest-sector master plan, the NBSAP, and the National Adaptation Plan – are aligned.
- The Ministry of Finance should be further involved in order to increase financial resources for the priority programmes and activities of the EFCC CIP.
- Both the GoB and development partners should use the financing gap identification and prioritization exercise of the EFCC CIP as the basis for allocating additional resources for investment under the programmes and priority areas of the CIP.
- Active development partners should continue to play a facilitation role to strengthen support in the development partner community.
- As soon as the GoB and development partners have jointly identified specific projects and programmes, a more detailed project design phase should be undertaken that includes, among other things, the technical design and assessment of proposals, careful costing and financial planning, and a clear implementation plan and set of procedures.

Annexes

Annex 1: Suggested results framework for the country investment plan

Overall Goal:	*To increase the contribution of the EFCC to the sustainable development of the country, through enhanced provision of ecosystems services, thereby helping to reduce poverty, improve environmental and human health benefits and increase resilience to climate change.*

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
Expected Impact: *Sustainable management of environmental and natural resources and climate change adaptation & mitigation contribute to sustainable development.*	Environmental Performance Index (EPI)	Index (composite)	41.77	By end of 2021 the Environment Performance Index has improved to 60.00 in Bangladesh	Yale University data on Bangladesh (http://epi.yale.edu)	Stable political, economic and security situation. Conducive government policies. No increase in periodicity or severity of drought, cyclones etc.(no extreme weather events) The combined effect of different interventions under the programs will contribute to expected impact.
	Direct economic loss attributed to disasters in relation to global gross domestic product (GDP) (SDG 1.5.2)	Percentage	0.86% (annual 1995-2014 average)	GDP losses decreased by 20% between 2017 and 2021 (annual average)	GoB, http://germanwatch.org/fr/download/13503.pdf	
	Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population (SDG 1.5.1)	Numbers disaggregated by age and gender	725 (annual 1995-2014 average)	Reduction in average number of deaths, missing persons at least by half between 2017 and 2021)	GoB, Germanwatch Report and SDG http://germanwatch.org/fr/download/13503.pdf	
	Total GHG emissions (MtCO2e)	GHG emission (MtCO2e)	Total: 190 MtCO2e (2012): Energy: 62 Industry: 3	5% (unconditional) to 15% (conditional) below BAU by 2030 for the power, industry (energy) and	DoE (Through 3rd National Communication) FAO: http://faostat3.fao.org/browse/G1/*/E; http://faostat3.fao.org/download/G	

[1] Target values for indicators by 2021 have usually been collected from national policy and planning documents. However, of which a national target has not been mentioned in any such document, target values have been assumed either based on a trend of performances over the last 5 years; or by expert judgement by the team of consultants. There will, of course, be opportunities to revise/refine the target values during monitoring processes.

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
			Agriculture: 75 Waste: 18 LUCF: 31 Bunker fuels: 1	transport sectors. For the other sectors the INDC does not specify targets.	1/GT/E (up to 2012); UNFCCC National communications; http://cait.wri.org/profile/Bangladesh	
	Maple Croft's Climate change vulnerability index	Index	0.25 (2016), 2nd most vulnerable country globally	>1 by the end of 2021	https://maplecroft.com/themes/cc/	
	Other Vulnerability indexes (UNDP, FSMP)	Index	tbd	tbd	As and where available	
	Financial resources spent by Government and Development Partners (DPs) in the EFCC Contributing to SDG 13.a.1 (Mobilized amount of USD per year between 2020 and 2025 accountable towards the USD 100 billion commitment)	USD	5.5 billion USD	10 billion USD allocated/ invested to the EFCC sectors by 2021	Project mapping exercise by the MoEF Support Project, FAO	
Pillar 1: Sustainable development and management of natural resources						
Outcome 1: Natural resources are sustainably managed	Forest area as a proportion of total land area (SDG 15.1.1)	Percentage	13.2%	Increased to 15% by 2021	Forest Department	Conducive government policies and political stability. Sufficient allocation of financial resources and availability of
	Percentage of forests that are protected	percentage	1.81	5.00	Forest Department	
	Area of new protected areas [APA 1.9.1]	Hectares	578 Hectares (in 2013-2014)	3 000 Hectares protected per year till 2021	Forest Department APA 1.9.1	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type (SDG 15.1.2, Aichi Biodiversity target 11)		6.8% (terrestrial and inland water); 6% (coastal and marine)	17% (terrestrial and inland water); 10% (coastal and marine) by 2020; NBSAP sets 5% and 10% improvement targets over baseline by 2021	Forest Department	human resources to implement programmes. Government's continued and enhanced commitment to social forestry programmes
Output 1.1: Sustainable management of and socio-economic benefits from forests enhanced	Sustainable forest management Index computed as composite index of (1) Annual average percent change in forest area over most recent available 5 year period (2) Annual average percent change in stock of carbon in above ground biomass over most recent available 5 year period, (3) Share of forest area whose primary designated function is biodiversity conservation, most recent period (4) Share of forest that is under independent forest management certification scheme in total forest area that is under a forest management plan scheme, most recent period Contributing to SDG 15.2.1 (Progress towards sustainable forest management)	Index (Methodology for calculating this index is yet to be agreed upon internationally)	(1) -2600 ha/year (2010 – 2015) (2) 1% (2010 – 2015) (3) 19% (2015) (4) 0% (2015)	(1) 0 ha/year (2021) (2) 5% (2010 – 2015) (3) tbd (4) 1% (2021)	FAO, UNEP/ Forest Department	
	Socioeconomic benefits to local communities (selected areas)	Million USD	Tbd	Tbd	Tbd	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	Total employment in forestry (of which female %)	Number (%)	1 500 000 (40%) (2010 data)	10% increase every year (2% increase every year)	Forest Department and FAO-FRA	
	Amount of plantations created in forests which have been degraded measured in hectares	Hectares	5851 ha (2013-14)	19700 ha (by 2017)	MoEF APA 2013-14 (BFD), Indi-2.1.1, P-15	
	Number of operations conducted against forest related offences.	Hectares	105 nos (FY 2013-14)	390 nos (by 2017)	MoEF APA 2013-14 (BFD) Indi 2.4.1, P-15	
Sub Output 1.1.1. Social forestry, reforestation, afforestation, coastal green belt development, landscape restoration, and agro-forestry	Area under coastal afforestation	Hectares	4 103	14,900 by 2021	Forest Department APA 5.5.1	
	Afforestation/Reforestation in hilly areas (aggregate or by ecosystem type)	Hectares	474312 (2015)	TBD	Ministry of Chittagong Hill Tracks	
	Annual budget allocation for Social Forestry Programmes in Bangladesh	USD		Annual budget allocation increased by 10 %	Forest Department	
	Increase in women's participation in social forestry programmes	%	40%	Gender & socioeconomic aspects are explicitly included in national guidelines/ field manuals	Forest Department	
	Amount of plantation created newly on fellow land besides roads/rails/embankments	km	859 km (2013-14)	3 350 km (by 2017)	MoEF APA 2013-14 (BFD) Indi 2.1.2, P-15	
	Area of coastal forest land declared under the Article 20 of the Forest law (to formally assign an area as a forest).	ha	578 ha (2013-14)	10 000 ha (by 2017)	MoEF APA 2013-14 (BFD) Indi 1.9.1, P-14	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	Number of persons trained on social forestry awareness raising activities for beneficiaries and local leaders.		10 173 nos (FY 2013-14)	9 250 nos (by 2017)	MoEF APA 2013-14 (BFD) Indi 2.8.1, P-15	
Sub Output 1.1.2. Forest monitoring improved	Satellite Forest Monitoring System is established and operational	Implementation progress rate (%)	As of 2016, Bangladesh does not count on a SFMS	National Forest Monitoring System is in place (100%) by 2021	National Forest Inventory Project, FAO; Forest Department	
	Digitization of land records	% of forest land records digitized	No digitization	All land records (including gazettes, ownership deeds) digitized	MoEF Support Project, FAO; Forest Department	
Sub Output 1.1.3: Small and Medium Forest Enterprises and value chains developed	Number of SMFE, disaggregated by mixed and women-/ men- only groups	Number	TBD	The outreach of SMFE to be increased	MoEF	
	Forestry value chains developed, by type (production, transformation, commercialization, etc.)	Number of forestry value chains, by type	Not specified	3 value chains strengthened and functional by 2021	MoEF	
	Gross value added in forestry	% contribution in the overall GDP	1.69	1.86	Annual Economic Review, Ministry of Finance	
	Forestry value chain enterprises by type and size (i.e. Small, medium, large)	Number by size and type	Not specified	The number of small and medium enterprises is increased	MoEF	
	Amount of forests related products produced measured in tonnes (timber, honey, wild-berries, etc.)	Depends on the product	Timber: 29 88 166 cft		Forest Department	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
			Fuelwood: 22 19 582 cft Honey: 1924 maund Bamboo: 41660 pcs Nypa palm: 3105.71 maund			
Sub Output 1.1.4: Security of land tenure and stakeholder awareness and capacity improved	Area encroached	Hectares	104 110	Decreased by 20% by 2021	FD (MoEF)	
	Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure (SDG 1.4.2)	Not specified (* only for non-state forests)	Not specified	Women's access to secure tenure is improved by 20% than the base year value (*only for non-state forests)	World Bank (Similar data available) Rights and Resources Initiative	
	SDG 5.a.1 (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners	Not specified (* only for non-state forests)	Not specified	Not Specified		
	rights-bearers of agricultural land, by type of tenure	Not specified (* only for non-state forests)	Not specified	Not Specified		
Output 1.2. Biodiversity	Red List Index (SDG 15.5.1)	Index		Target for red list index	IUCN	Government and community

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
conservation and management is enhanced	City Biodiversity Index	Index	1.45 (2008)	City Biodiversity Index is higher in 2021 Target set at 1.58 (2005 levels)	IUCN	commitment to conserve biodiversity
Sub Output: 1.2.1 Co-management of conservation and protected areas developed and enhanced	Area of land classified as moderately or severely degraded OR Proportion of land that is degraded over total land area (From UNCCD; SDG 15.3.1)	Hectares %	Not specified	Hectares of land as degraded is halted/reduced 2021 (SDG strives for neutrality by 2030)	MoEF	People participation in co-management schemes is sufficiently significant / Conflict is not preventing people's participation Peoples participation in data collection and monitoring activities
	% of forest area with <70% tree cover	%	63% (2005 figure)	50% (by 2021)	Forest Depertment; FAO FRA	
	Number of co-management schemes and participants disaggregated by sex	Number	31 (2015)	The outreach of co-management schemes and women's participation is increased	MoEF/ CREL Project	
	HH income from alternative livelihood opportunities (could be made area specific, e.g., in disaster-prone areas, in the vicinity of protected areas)	% increase	tbd	tbd		
	Ecological Critical Areas (ECA) covered for conservation	Nos.	3 Nos (FY 2013-14)	5 nos (by 2017)	APA of DoE, MoEF (Indi-1.4.1, P-14)	
	Area extended as new protected area	Hectares	578 ha (FY 2013-14)	4 000 ha (by 2017)	APA of DoE, MoEF (Indi-1.9.1, P-14)	
	People participated in ECA management	Nos.	3800 Nos (FY 2013-14)	4 300 nos (by 2017)	APA of DoE, MoEF (Indi-1.5.1, P-14)	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
Sub Output: 1.2.2. Improved biodiversity monitoring	Participatory monitoring systems in place (percentage of women out of total participants)	Yes/No and %	N/A	Biodiversity monitoring systems in place in all divisions and women participation increased by 20%	MoEF	
Sub Output: 1.2.3. Endangered species conservation and management improved	Endangered animal species	Number	133 species	Number of endangered species protected in 2021 increased (or maintained)	MoEF	Government commitment to protection of wildlife (fauna & flora) Enforcement in place
	Endangered species preserved		0 Nos (FY 2013-14)	150 nos (by 2017)	MoEF APA (2014-15) Indi-1.7.1, P-14	
	SDG 15.c.1 Proportion of traded wildlife that was poached or illicitly trafficked	%	tbd	tbd		
	Endangered plant species identified according to IUCN Red List Criteria [APA of MoEF; Indicator 5.3.2, P-19)	Number	70 (2013-14)	100 (by 2017)	MoEF APA Indicator 5.3.2, P-19 [APA 2.9.1]	
Sub Output: 1.2.4 Integrated Resource Management in the Sundarbans improved	IRMP in place and number of activities implemented	Yes/no and Number	N/A	IRMP in place by 2021 and at least 5 projects under conservation objective initiated	Forest Department	
Output 1.3 Sustainable management of wetlands and rivers enhanced	Haor management in place and operational	Yes/no	0 (Wetland inventory to be completed within 2019)	By 2021 Hoar management improved	Bangladesh Haor and Wetland Development Department	Management Teams should be willing to cooperate to scale up certain activities
	Number of priority projects under Haor Master Plan implemented/ initiated	Number	0	5	Bangladesh Haor and Wetland Development Department	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	Protection of wetlands and the Sundarbans from salinity	PPT	20 PPT (FY 2013-14)	17 PPT (by 2017) Number (?) of PPT reduced by 2021	BWDB (APA of Ministry of Water Resources)indi-3.31, p-11	
	Dry season water availability (% of total flow)	%	15	25 (7FYP)	BWDB, BMD	
	Average flood extent (% of total area)	%	30	25 (Delta Plan and 7FYP)	BWDB, BMD	
	Number of flood vulnerable people (millions)	Millions of people	88	60 (Delta Plan and 7FYP)	BWDB, BMD	
	Cyclone damage extent (% of total area)	%	10	4 (Delta Plan and 7FYP)	BWDB, BMD	
Sub Output 1.3.1. Master Plan for the Haor and Flood-prone areas implemented and scaled up	Bangladesh Haor and Wetland Development Board (BHWDB) made operational and activities scaled up	Yes/No and Number	0	Bangladesh Haor and Wetland Development Board (BHWDB) established and operational and	MoWR	
Sub Output: 1.3.2 Sustainable fisheries and fishing habitat management enhanced in inland and marine ecosystems	Aquaculture plan in place and number of activities implemented	Yes/no and Number	N/A	Aquaculture plan in place by 2021 and at least 5 projects under conservation objective initiated	Department of Fisheries	
Sub Output: 1.3.3. River water quality improved	Waste removal from rivers	Thousand cubic metre	200	tbd	Bangladesh Inland Water Transport Authority	Availability of funds in the annual budget of BIWTA
	Recovery of encroached land	Acre	56	100	Bangladesh Inland Water Transport Authority	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	Data compilation and updating system for Joint River Commission	No. of system	Not existing	System established and operational by 2021	MOWR: Need to write a short note on the progress	Proactive cooperation from law enforcing authorities
Output 1.4 Sustainable management of soil and groundwater enhanced	Water logging extent (% of total coastal area)	%	2.5	0.5 (Delta Plan and 7FYP)	DAE, MOWR	Government commitment and private sector and local communities commitment/ involvement in natural resources management
	Area of land and water under sustainable management	Hectares	366 770 (2017)	Not specified	DAE, MOL, DoE, IWM	
Sub Output 1.4.1Soil fertility and groundwater management on north and northwest Bangladesh improved	Farmers trained on use of organic fertilizer (disaggregated by gender)	Number	727 000	2400,000 Increased number of farmers using organic fertilizers by end 2021	MoA APA Indi 3.3.1, P-12	
	Number of soil samples analysed to Upazila and Union levels	Number	76 000 (FY 2013-14)	292,000 (by 2017) Soil samples to show improved quality of soils	APA of MoAg Indi 3.2.1, P-12, SRDI	
	Quantity of ground water used for irrigation Or HH engaged in rainwater harvesting	Kilo litres Number	TBD	Use of groundwater needs to be reduced by 20% by 2021	MoA	
Sub Output 1.4.2 Soil erosion in Hilly areas better managed	Adoption rate of multi-layered perennial crops	Percentage	Tbd	Tbd	DAE	
	Area under improved cultivation practices	Hectares	Tbd	Reduction of erosion in Hilly areas and improved cultivation practices	MoA	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
Sub Output 1.4.3. Management of coastal land and waterlogging improved	Length of embankment constructed	Km	205 Km (FY 2013-14)	990 Km (by 2017)	MOWR APA (BWDB) indicator 2.1.1, P-11	
	Embankment repaired	Km	2500 Km (FY 2013-14)	8270 Km (by 2017)	MOWR APA (BWDB) indicator 2.1.2, P-11	
	Flood control and Number Drainage infrastructures constructed and repaired	Number	470 Nos (FY 2013-14)	2630 Nos (by 2017)	MOWR APA (BWDB) indicator 2.3.1, P-11	
	Number of tidal river Management Schemes	Number	Tbd	4 additional TRM developed by 2021	Bangladesh Water Development Board (BWDB)	
Pillar 2: Environmental pollution reduction and control						
Outcome 2: Environmental pollution growth is slowed down and maintained at lower rates	Decreased probability of dying between the age of 30 and 70 from any of cardiovascular disease, cancer, diabetes, chronic respiratory disease	Percentage	18% (2012)	16% (2021) based on extrapolation of current trend (disaggregated by sex)	Measured by WHO http://www.who.int/nmh/countries/bgd_en.pdf	Government commitment and private sector involvement/commitment to slow environmental pollution and adopt measures and new technologies Financial and human resources available, infrastructure availability
	Air Quality Index (AQI) for Dhaka City and other urbanized areas	Index	25 – 500 (depending on season)	Values higher than 300 (extremely unhealthy conditions) do not occur. Project identified indicator.	Measured by DoE http://case.doe.gov.bd/	
Output 2.1: Pollution caused by industrial and shipwreck is reduced	SDG 11.6.2: Annual mean levels of fine particulate matter (PM2.5). Measurement station Gazipur could be selected as main industrial hot-spot area.	µg /m3 (24 hour average)	15 (wet season) up to 300 (dry season) in 2015 and 2016	10% decline of concentrations in Gazipur (Project identified). Bangladesh standard is 65 µg /m3 for 24 hour average.	Measured by DoE. http://case.doe.gov.bd/	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	Concentration of Chemical Oxygen Demand (COD) in Buriganga River	mg / L	10 (wet season) up to 80 (dry season) in 2011	10% decline of concentrations in Buriganga River (Project identified). Bangladesh standard is 4 m/L.	Results from Rahman and Al Bakri, 2010. Water standards set by DoE.	
	Consumption of ozone depleting H-CFCx (Ozone Depleting Potential) in tons/year	Tons/year	65,3	47.2 (reduced to this level in 2021)	APA of DoE.	
	Legal status for ship breaking yards in *number of regulations* in place (specific rules for ship breaking, cargo free certification, gas free certification, waste disposal facility, labour insurance)	Number of regulations	1 of 5	4 of 5	EU - India Action Plan Support Facility http://www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2013/07/ship_dismantling_en.pdf	
	National Water Security Index (household water security, economic water security, urban water security, environmental water security, resilience to water-related disasters)	Index	1.4 (2013)	2.0 (2021) Project identified indicator	Asian Development Bank, http://adb.org/sites/default/files/pub/2013/asian-water-development-outlook-2013.pdf	
Sub Output 2.1.1: Adoption of cleaner production and end of pipe technologies supported	industries covered with effluent treatment plants	Percentage	69% (2014)	90% (2020) extrapolated from APA MoEF	APA of MoEF (DoE)	
	industries with Zero discharge system/policy covered for introduction of new improved technologies	Number	8 (2014)	38 (2020) extrapolated from APA MoEF	APA of MoEF (DoE)	
	industries that use Air Treatment Plants (ATPs)	Number	14 (2014)	38 (2020) extrapolated from APA MoEF	APA of MoEF (DoE)	
Sub Output 2.1.2. Measures taken to	Compensation schemes for oil spills in place	Number	1	1 by 2021 Bangladesh will have an oil	DoE	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
prevent and mitigate damages to ecosystems from oil spills, ship breaking and drilling				recovery compensation policy/programme (project identified indicators)		Government and private sector commitment and incentives to adopting clean technologies Waste collection and disposal have a direct (positive) effect on human health Political commitment, private sector involvement and community involvement Community involvement in waste collection and participation in awareness campaigns
	planning documents for ship breaking and offshore gas/oil drilling in place	Number	0	2 planning documents aligned with International treaties (International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage)		
Output 2.2. Municipal and household pollution is reduced	Percentage of produced waste disposed in environmentally friendly land-fills or controlled disposal sites in Dhaka	Percentage	44% (2008)	64% (2021)	Methodology in Whiteman et al., 2008 in Solid Waste Management in the World Cities.	
	SDG 3.9.1 Mortality rate attributed to household and ambient air pollution	Unit per 100,000 population	68 (2012)	10% reduction (project identified)	SDG data Bangladesh: http://unstats.un.org/	
	SDG 3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)	Unit per 100,000 population	5.96 (2012)	10% reduction (project identified)	SDG data Bangladesh: http://unstats.un.org/	
Sub Output 2.2.1.Collection and treatment of solid waste including	Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities (SDG 11.6.1)	Percentage of total	55% (2012)	75% (2021)	http://www.lgd.gov.bd/LGD_FILES/lg-apa-16-17.pdf	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
household, medical and e-waste at the community and cross community level improved	Waste (a) composted (b) recycled , (c) dumped along road sites Contributing to SDG 12.5.1 (National recycling rate, tons of material recycled)	Percentage	(a)0.19% (composted) (b)11% recycled (c)Dumped (11%) (2012)	5% of total waste composted 25% more recycled 5% (less waste dumped in 2021) Project identified targets	a.Whiteman et al., 2008 in Solid Waste Management in the World's Cities b. data from DoE c. Bahauddin and Uddin, 2012 (DoE). Prospect of solid waste situation ... case study of Dhaka City	
Sub Output 2.2.2. Supply of safe drinking water in semi-urban and rural communities improved	Proportion of population using safely managed drinking water services (SDG 6.1.1) Segregated for urban Population	Percentage	86.5%	100% (in 2016 all urban population has access to clean drinking water). 7FYP talks about access to "improved" water source, not "safe"	UNEP, WHO (SDG 6.1.1) https://knoema.com/atlas/Bangladesh/topics/Water/Water-Supply-Urban-Population/Improved-Water-x1000	
	Proportion of population using safely managed drinking water services (SDG 6.1.1) Segregated for rural Population	Percentage	87%	100% of rural population (GoB Targets)	UNEP, WHO (SDG 6.1.1) https://knoema.com/atlas/Bangladesh/topics/Water/Water-Supply-Rural-Population/Improved-Water-x1000	
Sub Output 2.2.3. Collection and treatment of household sewage and drainage water increased	Wastewater flow treated to national standards in Dhaka Contributing to SDG 6.3.1 (Proportion of wastewater safely treated)	Percentage	30%	40% (project identified target)	UNEP, WHO (http://unstats.un.org/sdgs/files/metadata-compilation/Metadata-Goal-6.pdf) Dhaka WASA Annual Report 2014-15, page 34 http://dwasa.org.bd/wp-content/uploads/2016/08/Annual-Report0001.pdf	Adequate fund and human resources are made available
	Wastewater flow treated to national standards in other Urban areas Contributing to SDG 6.3.1	Percentage	0%	5% (project identified target)	UNEP, WHO	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	(Proportion of wastewater safely treated)					
Sub Output 2.2.4. Sanitation at community level improved	Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water (SDG 6.2.1) To be collected as three separate national indicator: (a) Urban population with improved sanitary facilities (SDG 6.2.1) – Sanitation facilities for city dwellers (7FYP)	Percentage	60% - ind. 25; (57% according to indicator 38 of 7FYP)	80% (7FYP, indicator 25) (100%, according to indicator 38)	BBS, SVRS, MICS_DPHE, (LGD, MoLGRDC) KNOEMA.comwater statistics WHO and UNICEF https://knoema.com/atlas/Bangladesh/topics/Water/Sanitation-Urban-Population/Improved-Sanitation-x1000	Availability of funding, government commitment
	(b) rural communities with improved sanitary facilities (SDG 6.2.1)	percentage	84%	100% (7FYP, ind. 39)	BBS, SVRS, MICS_DPHE, (LGD, MoLGRDC KNOEMA.comwater statistics WHO and UNICEF https://knoema.com/atlas/Bangladesh/topics/Water/Sanitation-Rural-Population/Improved-Sanitation-x1000	
	(c) Population with basic handwashing facilities with soap and water at home (SDG 6.2.1)	percentage	30%	40 % project identified	UNEP/WHO SDGs, Indicator 6.2, data source Rabbi and Dey, 2013	
Output: 2.3. Pollution from agriculture and	Pesticide use as active ingredient on arable land and permanent crops for fungicides bactericides, herbicides and pesticides	1000 Tons of active ingredients for	12,874,220 fungi-bacterio cides	3% reduction for all pesticides. (Project identified target)	FAO Statistics, http://faostat3.fao.org/browse/R/RP/E	Farmers, forest communities participation and

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
other sources reduced		entire Bangladesh	699,230 herbicides 1,747,400 insecticides (2013)			adoption of organic farming techniques (organic farming viable/beneficial for communities)
	Chemical fertilizer use on arable and permanent crops	kg/hectare	250 kg/ha (2012)	240 (3% less fertilizer use in 2021 on arable and permanent crops)	FAO Statistics, http://faostat3.fao.org/home/E	
	Concentration of DDT in human milk	ng/g lipid	2000 (2002)	100 (project identified indicator)	Bergkvist et al., 2012. Study also provides concentrations in developed countries which could be used as target.	
	Amount of waste products contaminated with PCB's released.	Mega Tons(MT)	4,712 (2007)	0 (2025)	National Implementation Plan POPs.	
Sub Output 2.3.1 Pollution from fertilizer and pesticides from agricultural sector minimized	Farmers organisations established in organic farming disaggregated by gender (mixed, women-, men-only)	Number	0	500 organic farmers organisations including women only FOs	Implementing Agency to be defined. Most likely Ministry of Agriculture.	Farmers adopt new organic farming techniques and support structure is in place to deliver extension services
	Farmers trained in the use of organic fertilizers disaggregated by gender	Number	700,000 (2013-14)	800,000 farmers are trained annually by 2021 in use of organic fertilizers (gender balance 60:40 either sex)	Ministry of Agriculture, APA Indicator 3.3.1	
	Farmers trained to popularize the use of organic fertilizer, green fertilizer and microbial fertilizer		700,000 (2015)	1,200,000 (2020)	MoA APA Indicator 3.3.1	
	Total agricultural land under organic cultivation	Percentage	2%, or 177,700	5% (project identified)	Baseline data from Hoque, 2012 with a study on organic farming in Bangladesh.	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
			hectares (2002)			
Sub Output 2.3.2. Pollution from chemical used reduced	Amount of financial resources allocated to NIP of POPs	Amount in USD	TBD	65,000,000 (total by 2020)	National Implementation Plan POP. The MoEF should know current allocation of financial resources to NIP of POPs (baseline).	
	Chemical inventory established in DoE	Nos.	Does not exist	Inventory established	DoE	
	National Chemical profile prepared and published	Nos.	Does not exist	Profile prepared and published	DoE	
	Relevant Stakeholder's (DoE and DAE officials and Others) capacity strengthened	No of trainees	Not available	500 people trained	DoE	
	A Guidance of occupational health and environmental impact assessment in chemicals handling developed and disseminate.	Nos.	Does not exist	Guidance developed and disseminated	DoE	
Pillar 3: Adaptation and resilience to, and mitigation of, climate change						
Outcome 3: Climate change adaptation and mitigation measures are implemented and resilience increased	SDG 9.4.1: CO_2 emission per unit of value added	Metric Tonnes	59.56 (2013)	65 and halt the increase (Project identified)	Sustainable Development Goals	Political commitment, private sector involvement and community involvement to implement Climate Change measures
	Average yield of a) total rice, b) wheat, c) potato, d) maize, e) pulses, f) oil seeds	Tonnes per hectare	a 2.80, b 2.32, c 16.68, d 4.97, e 0.89, f. 1.69 (2012)	5% increase (project identified)	Bangladesh Bureau of Statistics http://www.yieldgap.org/bangladesh	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	Climate change vulnerability index (Maplecroft)	Index	Extreme risk (2011)	High risk (project identified)	Maplecroft: https://maplecroft.com/about/news/ccvi.html	Farmers, forest communities participation and adoption of new technologies that are viable/beneficial for communities
	Early warning information enhanced through Regional and Global Initiatives	MoU/LoA	4	20 (4 per year)	APA Ministry of Disaster Management and Relief	
Output 3.1: Resilience towards climate change related disasters enhanced	Readiness/Preparedness to reduce risks of natural disasters	Index	0.275 (2014)	Index to increase to 0.35 in 2021	Notre Dame ND-GAIN Country Index: http://Index.gain.org/country/Bangladesh	
	Gender-sensitive Mandatory Guidelines for DRR developed and enforced	Number	4	12 guidelines (project identified)	APA of Ministry of Disaster Management and Relief	Availability of funding and human resources
	Amount of resources allocated for gender and DRR in specific sectors				Project Mapping exercise by MoEF Support Project	
	SDG 11.5.2 Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters	No data for Bangladesh yet				Public and private sector are able to work together
	Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030 Contributing to SDG 11.b.1 (Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030)	No data for Bangladesh yet				Cooperation between the different ministries (Health, Agric.) is functioning - Commitment from government and other stakeholders to address underlying

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	Disaster risk reduction progress score	1-5 scale	4 (2011)	5	Indicator from the World Bank: http://data.worldbank.org/indicator	causes of climate change, pollution etc.
	Training Course for Disaster Management Introduced	Number of Course Modules	22 (2013-2014)	74 (2016-2017)	MoDMR APA	
	Planning Capacity of DMCs at all levels raised	Number of Planning Documents	20 (2013-2014)	65 (2015-2016)	MoDMR APA	
	Emergency response plans developed and established	No. of Documents		700 (2014-2015)	MoDMR APA	
Sub Output 3.1.1. Early warning systems strengthened	New climate change related early warning system developed	Number	0	1 early warning system by 2020 (Project identified)	BMD; BWDB	
	Early warning information enhanced through Regional and Global Initiatives	MoU/LoA	4	20 (4 per year)	APA Ministry of Disaster Management and Relief BMD; BWDB	
Sub Output 3.1.2. Climate resilient buildings, roads and storage facilities strengthened	Beneficiaries of rural infrastructure developed	Number of beneficiaries in Lakhs	11.5	37.5	APA Ministry of Disaster Management and Relief	Cooperation between the different ministries is functioning Commitment from government and other stakeholders especially the private sector to address underlying causes and adopt measures to address climate
	Construction of multiple flood/cyclone shelters	Thousands of Sq. meter	18.5 (2013-14)	100 (project identified)	APA Ministry of Disaster Management and Relief; and LGED	
	Maintenance and construction of health care facilities at vulnerable areas	No of health facilities (community clinics)	1500 CCs	1700 CCs	Ministry of Health and Family Welfare	
	Cyclone/Flood resistant Houses constructed and the ground raised	number	1955 (2013-2014)	1860 (2016-2017)	APA Ministry of Disaster Management and Relief	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	Climate resilient rural road	km	tbd	tbd	LGED	change and environmental issues
Sub Output 3.1.3: Risk against loss of income and property are better managed	Weather prediction models updated	Number of updates	0	1 per year (total 5) (Project identified)	BMD	Timely availability of funding and availability of human resources
	Public-private partnership on climate-related insurance schemes	Number	0	15 different partnership (project identified)	PMO PPP Authority	
Output 3.2: Climate change proof infrastructures improved	Total area of land annually flooded	Hectares	25-30% normal conditions and in extreme: 50-70%	5 % reduction by the end of 2021 of area flooded by rivers (Project identified)	Baseline data from World Meteo Organization	Support from private sector investors - Support of all stakeholders acquired -Proper functioning of technical services management
	Total area of land annually flooded				BWDB, BMD	
	Degree of integrated water resources management implementation (SDG6.5.1)	Percentage	1.00 in 2012 (need to be further assessed)	100	Sustainable Development Goal 6.5.1 on integrated water resources management	
Sub Output 3.2.1. Coastal and inland embankments and drainage capacity strengthened	Embankments constructed/maintained	Kilometer	2500	8270 Km of embankments has improved by 2021	APA of Ministry of Water Resources, indicator 2.1	
	Drainage canals excavated	Kilometers	400 (2013-14)	1500 (extrapolated from APA)	APA of Ministry of Water Resources, indicator 2.2	
	Construction, repair and rehabilitation of flood control and drainage infrastructure	Number	470 (2013-14)	1500 (extrapolated from APA)	APA of Ministry of Water Resources, indicator 2.3	Active involvement of Government Extension Services, NGO's and International Organizations
	Strip plantation created (amount of plantation created newly on the fellow lands besides Roads/ Rails/ Embankment in km)		859 (2013-2014)	3350 (2016-2017)	MoEF APA	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
Sub Output 3.2.2 Support for operation and maintenance of water management systems available	Water Management Groups formed	Number	7,480	22,020 (GoB Target) By 2021 the number of women in water management groups should be at least 30% s at national and Divisional level (Subset of 4.2.2)	APA of Ministry of Water Resources	Participation of rural communities and individual households Awareness on climate change related issues
	Plans for CC strategy (IWRM)	Number	0	5 (project identified)	Project identified indicator	
Sub Output 3.2.3 Development of irrigation schemes supported	Assessments related to water accounting and identification of water productivity gaps in drought-prone areas	Number of studies	0	At least 10 studies by 2021 (Project identified)	Existing studies on water productivity mainly focus on rice water productivity. Other cropping systems can be considered.	
	Gender sensitive monitoring system on water use	Number	0	At least 1 system evolved by 2021 (Project identified)		
	Rice water productivity in Bangladesh	Kg rice per m^3 water	0.306 – 0.459	0.600 – 1.600	Target based on global standards on rice water productivity (Alauddin and Sharma, 2013). http://www.uq.edu.au/economics/abstract/517.pdf	
	Irrigation structures constructed (Number)		25 (2013-2014)	87 (2016-2017	MoWR APA	
Output 3.3. Emission of green-house gases reduced	Reduced GHG emission from Business as Usual	MtCO2e	64 MtCO2e (2011, power, transport and industry)	5%/15% below BAU by 2030 (unconditional/conditional)	Bangladesh's Intended Nationally Determined Contributors (MoEF) 3rd National Communication to UNFCCC by DoE	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	SDG 7.1.2: Proportion of population with primary reliance on clean fuels and technology	Percentage	0.10 (2014)	0.25 (project identified)	Sustainable Development Goals	
Sub Output 3.3.1 Support provided for adopting climate smart technologies for industry and power generation	SDG 7.2.1: Renewable energy share in the total final energy consumption	Percentage	38.3 (2012)	38.0	Sustainable Development Goal. Target is set to halt the decreasing share of renewable energy sources.	
	Production of energy from a. solar and b. wind	MegaWatt	a <10; b 2 (2015)	a 500; b 15	Bangladesh Power Development Board data. http://www.bpdb.gov.bd/.	
	Projected emissions reduction in the a. power and b. energy sector	MtCO2e	a 21; b 26 (2011)	5 – 18% reduction from BAU (2030)	BAU for power sector is 91; for energy sector 106. Source: INDC for Bangladesh.	
	Improved cooking stoves used by households	Number (millions)	1.5	8.0	A target of 20 million household in 2030 is set by the INDC for Bangladesh. The target mentioned (8.0 million) is interpolated based on this data.	
Sub Output 3.3.2 Promotion of low cost transport and low emission vehicles supported	Feasibility studies on tax tariffs to discourage cars usage in cities, support underground metro, bus usage, railway development	Number	0 (2015)	4 studies on tax tariffs to discourage cars usage in cities support underground metro, bus railway development	Finance Division	
	Construction of Mass Rapid Transit (MRT) / Underground metro	Kilometers	0 (2015)	25 (project identified)	Based on APA Road Transport and Highways Division.	
	Construction of new rail line	Kilometers	77 (2013-14)	150 (extrapolated from APA)	APA Ministry of Railways, indicator 1.1.	
Output 3.4 community resilience	Degree of climate change awareness by the public	Percentage	85 (2009)	95 (project identified)	Survey World Bank (2009). http://www.academia.edu/	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
towards climate-change driven changes in environment and livelihoods increased					9337624/Determinants_of_public_awareness…	
	Inclusion/use of traditional and women's knowledge in environmental decision making	Number of strategies/policies	0	2 in each Division (Project identified)	(indicator not specified in UN statistics)	
Sub Output 3.4.1 Community based adaptation (CBA) and Ecosystems based (EBA) adaptation enhanced	Amount of gender-sensitive projects on CBA/EBA funded and implemented by BCCTF / BCC Resilience Fund	Number	41 (2015)	125 (Project identified) GoB allocated additional 400 million USD	INDC 3.4	
	Plans on People's Participation	Number	0	1 in each division and 1 gender sensitive national plan (project identified)		
	Amount of money invested by GoB to adopt to climate change to secure live and livelihoods			400 million dollar	ADP and BCCT Project Mapping by MoEF Support Project, FAO	
	Climate sensitive disease surveillance established		None	HNAP developed Monthly reports available on climate sensitive diseases	Ministry of Health and Family Welfare	
Sub Output 3.4.2 Local innovations on adaptation scaled up	Innovations in high yielding varieties of different crops, and technologies including, tolerant to salinity, drought and water submergence	Number of varieties & technologies innovated	59 (2013-14)	130	Target extrapolated from APA Ministry of Agriculture indicator 1.1	
	Micro-credit system on climate change related innovations, including women specific ones.	Number of a) systems and b) borrowers	a. 0; b. 0	a. 1; b. 200,000 (project identified)	Indicator based on existing micro-credit systems in Bangladesh. http://www.mra.gov.bd/images/mra_files/News/mcinbd17082015.pdf	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	The number of patent applications through national patent office or treaty	Residents per capita	0.002	0.200 (based on score of a middle income country)	Notre Dame Global Adaptation Index. http://index.gain.org/country/bangladesh	
Pillar 4: Environmental governance, gender, and human and Institutional capacity development						
Outcome 4: Human and institutional capacity are improved to enhance stewardship in the EFCC	Government effectiveness index	Score (from -2.5 to +2.5)	-0.77 (2014)	-0.75 for 2021 (trend value -0.768)	Worldwide Governance Indicators by The World Bank Group	Cooperation between the different ministries is effective Transparency and accountability in policy, planning and implementation Budget allocation to be supported by evidence-based planning Political Commitment from government and legislative bodies in the country. Cooperation between involved ministries Access to financial services
	Regulatory Quality	Score (from -2.5 to +2.5)	-0.94 (2014)	-0.74 for 2021 (trend value -0.7713)	Do	
	Rule of Law	Score (from -2.5 to +2.5)	-0.72 (2014)	-0.45 for 2021 (trend value -0.494) by 2021	Do	
	1st Pillar (Institutions) of Global Competitive Index	Scale 1-7 (best)	2.9 (2015)	4 by 2021 (Project Identified)	The Global Competitiveness Report by the World Economic Forum	
	Environment and Gender Index (IUCN' s EGI)	Score in scale 0-100 (100 most favourable)	43 (2013)	50 by 2021 (Project identified as an average level at least)	The Environment and Gender Index (EGI) 2013	
	Annual budget of MoEF	% of Total Government Expenditure	0.30% (2016-17)	0.25% for 2020-21 (trend value; GoB target is 0.27% for 2018-19	MoEF and Finance Division of Ministry of Finance, GoB	
	HR Strength of MoEF 1st class Others	% of total government expenditure, and	6.35% (2014),	10.59% (trend value for 2021)	CPEIR (Climate Public Expenditure and Institutional Review) Country database Governance of Climate Change Finance for Asia-Pacific	
	Climate Expenditure (CPEIR)	% of GDP	1.19% (2014)	2.17% (trend value for 2021)	Budget 6 Wing of Finance Division	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
Output 4.1: Legislative and Regulatory framework for EFCC is improved and implemented	Country implements and reports on System of environment – Economic Accounting (SEEA)	Implementing Economic Accounting (SEEA)	0	By 2021, Bangladesh reports through SEEA on legislative, regulations and international agreements in the EFCC	MoEF, BBS	Participation of rural communities and individual households No major conflicts in the villages that inhibit legal decision making Communities agree to resolution mechanisms Political Commitment from government and other stakeholders to address underlying causes of pollution, environmental degradation, climate change Continued commitment and participation from rural communities, households, women and minority groups in Bangladesh Availability of funding, political commitment from the Government to gender equity and
Sub Output 4.1.1. Regulatory framework in EFCC areas strengthened	No of updated/ newly formulated rules/guidelines/laws in EFCC in place	Number	100	20% of laws are formulated/reviewed/updated by 2021 (Project Identified based on MoEF's NIS)	MoEF (National Integrity Strategy NIS) DoE APA	
	No of updated/ newly formulated rules/guidelines/laws in EFCC in place	Number	100	20% of laws are formulated/reviewed/updated by 2021 (Project Identified based on MoEF's NIS)	DoE APA	
	Environmental clearances issued	Number	4800 (2015-16)	6100 for 2021 based on target of 5900 set by GoB for 2019))	APA of DoE with MoEF	
	Number of enforcement actions, including legal actions against polluters				DoE	
Sub Output 4.1.2. Enforcement of regulatory frameworks in	Enforcement actions are implemented (incl. pollution control and prevention)	Number	245 (2015-16)	250 in 2021 (project identified based on GoB target of 240 for 2018-19)	APA, MoEF	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
the EFCC improved	Number of disposed complaints received in DoE from civilians (disaggregated by sex), companies and Government	Number	581 (2015-16)	660 (project identified based on GoB target of 630 for 2018-19)	APA, MoEF	empowerment of women
	Brick klins with improved technology	Number	3450 (2014-15)	9530 (project identified based on GoB target of 7500 for 2018-19)	Medium Term Budget Framework of MoEF (www.mof.gov.bd)	
	Mobile courts conducted against production and use of harmful polythene	Number	337 (2014-15)	487 (project identified based on GoB target of 450 for 2018-19)	DoE APA	
	Motor vehicles brought under enforcement action against pollution	Number of vehicles	157 (2014-15)	950 (project identified based on GoB target of 700 for 2018-19)	DoE APA	
Sub Output 4.1.3. Rational arbitration among ecosystems users promoted	Mitigated Divisional cases	Number	TBD	More cases are solved in a rational arbitrary way	Foreset Department	
	Number of legislative cases resolved on rural communities	Number	Not specified	tbd	Department of Environment; Forest Depertment	
Sub Output 4.1.4. Knowledge base for policy formulation, capacities and processes improved	Number of gender-sensitive policies reviewed /approved polices for sustainable EFCC programs in EFCC that are mainstreamed in all relevant Ministries	Number	Forest Policy, Forest Act, Environmental Policies, Agriculture, Fisheries and Water Resources reviewed (GoB)	25 policy documents related to Climate Change Adaptation, National Adaptation Action Plan, National Appropriate Mitigation Actions (NAMA) identified	MoEF	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
Output 4.2: Stakeholder participation in decision making and programs is ensured/ enhanced and gender equity mainstreamed	Number of people (women and men) involved in decision making structures and implementation of programs as related to the EFCC	Number (disaggregated by sex)	TBD	30 000 people in rural communities involved by 2021 (cumulative)	MoEF	
	Gender mainstreamed in projects	percentage	Tbd	By 2021 Gender is mainstreamed in at least 50% of the projects implemented	All stakeholder agencies	
Sub Output 4.2.1 Mechanisms for stakeholder participation enhanced	Number of people (disaggregated by sex) engaged in groups/ networks for ECA and Forest management	Number of people	3900 for ECA mgt 500000 for forest co-management	100 000 for ECA mgt 700000 for forest co-management	MoEF (FD and DoE) MoFL (Depertment of Fisheries)	
	Number of people participated in ECA management (Number of beneficiaries) (frequency monthly)	Number of people	3950 (2015-16)	4100 (2018-19)	DoE APA	
	Number of people participated in Alternative Income Generation (AIG) activity in ECAs (frequency Monthly)	Number of people	Not known	tbd	DoE APA	
Sub Output 4.2.2. Gender equity and empowerment encouraged and inclusion of minorities in EFCC enhanced	Percentage of gender-sensitive policies in EFCC (with targets, actions and budget allocation)	Percentage	TBD	75% of policies in EFCC address gender issues by 2021	All stakeholder agencies	
	Gender responsive score card in EFCC developed	Number	0 (base)	By 2021 Bangladesh will develop a Gender-responsive score card	MoEF and MoWCA	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
	Proportion of women in EFCC organizations at community level (water bodies, cooperatives, wetlands)	Percentage	n/a	By 2021 the % of women in EFCC organizations should have increased to 30% at national and Divisional level	All stakeholder agencies	
	MoEF and agencies' institutional gender action plans developed and delivered	Y/N		By 2021 the plans will have been prepared and implemented including leadership training (men and women, gender balance on CoP delegations)	MoEF and its agencies	
Sub Output 4.2.3 Support to producer organizations and other rural groups extended	Establishment and strengthening of EFCC related grassroot groups	Number of groups	TBD		All stakeholder agencies	
	Trainings imparted to rural organizations and NGOs on EFCC issues	Number of training hour on EFCC	TBD		NGO Affairs Bureau	
	Community Clinic groups are strengthened		13500 community groups	17500 community groups at community clinics	Ministry fo Health & family welfare	
Output 4.3: Capacity for evidence-based decision making is increased and applied to policy	Impart training to officers, public representatives and NGO workers involved in rural development and EFCC (Number of training recipients, disaggregated by sex)	Number	TBD	Target for 2015 (32 170) Target 50,000 officers Gender balance men: women at the ratio 60:40 achieved	MoEF	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
and program implementation	Annual Budget of FD	Thousand BDT	2 756 705	3 645 550 (2019-20)	FD	
	HR Strength of FD › 1st class › Others	Number of people	› 178 › 7766	› 295 › 9929	FD	
	Annual Budget of DoE	Thousand BDT	795 931	2 215 100 (2019-20)	DoE	
	HR Strength of DoE › 1st class › Others	Number of people	› 112 › 317	› 205 › 515	DoE	
	Annual Budget of BFRI	Thousand BDT	295 660	628 000 (2019-20)	BFRI	
	HR Strength of BFRI › 1st class › Others	Number of people	› 54 › 470	› 103 › 689	BFRI	
	Annual Budget of BNH	Thousand BDT	59 080	231 000 (2019-20)	BNH	
	HR Strength of BNH › 1st class › Others	Number of people	› 8 › 28	› 19 › 33	BNH	
	Annual Budget of BFIDC	Thousand BDT			BFIDC	
	HR Strength of BFIDC › 1st class › Others	Number of people	› 91 › 4870	› 228 › 6360	BFIDC	
	Annual Budget of BCCT	Million BDT	1 000		BCCT	
	HR Strength of BCCT › 1st class › Others	Number of people	› 19 › 48	› 25 › 57	BCCT	
Sub Output 4.3.1: Support to information management systems provided	Development, operation and maintenance of Information & management systems 1. Air quality monitoring system in major cities 2. Industrial pollution monitoring system 3. Drought monitoring system 4. Ambient environment monitoring system	Number	IMS 1. 11 units feeding into a common database 2. None 3. None 4. None	IMS 1. Major cities and 64 districts feeding into the common database 2. 1 IPMS 3. 1 DMS 4. 1 AEMS	1. MoEF (DoE) 2. MoI 3. MoA 4. MoEF	Capacity developed is retained for managing information systems, human resources

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
Sub Output 4.3.2. EFCC training and extension increased	Implementation of EFCC training plan	Number of training events	Base (0)	Training Plan fully implemented by 2021	MoEF, FAO (MoEF Support Project)	Participants are willing for training, especially to achieve the gender balance Funding is enough for recurrent costs of data collection, management and analysis
	Gender balance of trainees	Ration	Not known	60:40 (male:female)	Capacity Building database of MoEF Support Project, FAO	
	Training programmes for NGOs, private associations, researchers of EFCC affiliated agencies and universities/training center	Number of training events segregated to professions./agency	0 (base)	10% annual increment than the previous year	NGO Affaires Bureau	
	Universities offer courses on EFCC	Number of Univ	TBD	10 universities	All stakeholder agencies MoE (UGC), BSMMU	
	People participated in ECA management & AIG	No of beneficiaries	3800	100000	APA of MoEF and DoE	
Sub Output 4.3.3. A centre for knowledge management and training on climate change established	Establishment of a Knowledge centre	yes/no	0	By the end of 2021 Bangladesh has a new knowledge centre on Climate Change and environment and forestry related issues	MoEF	
Sub Output 4.3.4. Support to the Knowledge Systems including Research organizations, universities, Extension and	Implementation of the Research Master Plan	No. of researches carried out	72 (by BFRI)	Full implementation of RMP by 2021	MoEF	Human resource constraints for research in EFCC are addressed as planned Collaborative linkages with other national and international research institutions
	Research Grant Fund made operational	Grant amount awarded	0 (base)	3% of MoEF annual budget	MoEF	
	Expansion of research infrastructure and improvement of research facilities of BFRI and other agencies	Investment amount	Allocation in 2015-16 budget	50% increase over 2015-16 allocation by 2021	All selected research agencies under RMP	

Expected Results (Statements)	Indicators (proxies)	Unit(s) of Measurement	Baseline	End Target[1]	Information Sources	Key Assumptions
Education extended	Capacity to conduct applied and adaptive research	Capacity assessment index (need to be custom prepared)	0 (base)	Within 80% of assessment rank	FAO (MoEF support project)	are established as planned Applied and adaptive research and linkages between research and extension are considered as planned New, low-cost approaches to extension are adopted
	Number of research/study/guideline conducted/prepared on climate change and EFCC issues	Number	Not known	tbd	DoE	
	Research articles published in international journals by public research agency researchers	No. of articles	20 (by BFRI)	30 per year (20 National + 10 International)	All selected research agencies under RMP International Centre for Climate Change and Development	
	SDG 9.5.1 Research and development expenditure as a proportion of GDP (by sector?)	Expense as percent of total EFCC budget	Allocation in 2015-16 budget	50% increase over 2015-16 allocation by 2021	All selected research agencies under RMP MoEF	

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Annex 3: List of policies, plans, acts, rules and other similar documents consulted during EFCC CIP preparation

1. পারমাণবিক বিদ্যুৎ কেন্দ্র আইন, ২০১৫ (Nuclear Power Plant Act 2015)
2. ফরমালিন নিয়ন্ত্রণ আইন, ২০১৫ (Formalin Control Act 2015)
3. বাংলাদেশ হোটেল ও রেস্তোরা আইন, ২০১৪ (Bangladesh Hotel and Restaurant Act 2014)
4. ভোজ্য তেলে ভিটামিন এ সমৃদ্ধকরণ আইন, ২০১৩ (Edible Oil Fortification with Vitamin 'A' Act 2013)
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7. মাতৃদুগ্ধ বিকল্প, শিশু খাদ্য, বাণিজ্যিকভাবে প্রস্তুতকৃত শিশুর বাড়তি খাদ্য ও উহা ব্যবহারের সরঞ্জামাদি (বিপনন নিয়ন্ত্রণ) আইন, ২০১৩ (Breast Milk Substitutes (Regulation of Marketing) Act 2013)
8. জাতীয় নদী রক্ষা কমিশন আইন, ২০১৩ (National River Protection Commission Act 2013)
9. পশুখাদ্য বিধিমালা, ২০১৩ (Animal Feed Rules 2013)
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14. বিজ্ঞান ও প্রযুক্তি উন্নয়ন ট্রাস্ট আইন, ২০১১ (Science and Technology Trust Law 2011)
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16. উদ্ভিদ সংগনিরোধ আইন, ২০১১ (Plant Quarantine Act 2011)
17. বিপজ্জনক বর্জ্য ও জাহাজ ভাঙ্গার বর্জ্য ব্যবস্থাপনা বিধিমালা, ২০১১ (Hazardous Waste and Shipbreaking Waste Management Rules 2011)
18. বর্ডার গার্ড বাংলাদেশ আইন, ২০১০ (Border Guard Bangladesh Act 2010)
19. বালু মহাল ও মাটি ব্যবস্থাপনা আইন, ২০১০ (Sand Quarry and Soil Management Act 2010)
20. জলবায়ু পরিবর্তন ট্রাস্ট আইন, ২০১০ (Climate Change Trust Act 2010)
21. পরিবেশ আদালত আইন, ২০১০ (Environmental Court Act 2010)
22. বিদ্যুৎ ও জ্বালানীর দ্রুত সরবরাহ আইন, ২০১০ (Speedy Supply of Power and Energy Act 2010)
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24. অর্থনৈতিক অঞ্চল আইন, ২০১০ (Economic Zones Act 2010)
25. বাংলাদেশ গ্যাস আইন, ২০১০ (Bangladesh Gas Act 2010)
26. বাংলাদেশ পর্যটন সংরক্ষিত এলাকা ও বিশেষ পর্যটন অঞ্চল আইন, ২০১০ (Bangladesh Protected Tourism Area and Special Toursim Zone Act 2010)
27. ক্ষুদ্র নৃগোষ্ঠী সাংস্কৃতিক প্রতিষ্ঠান আইন, ২০১০ (Small Ethnic Community Cultural Institution Act 2010)
28. মৎস্য হ্যাচারি আইন, ২০১০ (Fisheries Hatchery Act 2010)
29. ন্যাশনাল ইনস্টিটিউট অব বায়োটেকনলজি আইন, ২০১০ (National Institute of Biotechnology Act 2010)
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33. ভোক্তা অধিকার সংরক্ষণ আইন, ২০০৯ (Consumer Rights Protection Act 2009)
34. ধুমপান ও তামাকজাত দ্রব্য ব্যবহার (নিয়ন্ত্রণ) আইন, ২০০৯ (Smoking and Tobacco Products Usage (Control) Act 2009)
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36. The Pesticides (Amendment) Ordinance, 2007 and Amend Act, 2009
37. সার ব্যবস্থাপনা আইন, ২০০৬ (Fertilizer Management Act 2006)
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39. পশুরোগ আইন, ২০০৫ (Animal Disease Act 2005)
40. The Seeds (Amendment) Act, 2005

41. বাংলাদেশ এনার্জি রেগুলেটরী কমিশন আইন, ২০০৩ (Bangladesh Energy Regulatory Commission Act 2003)
42. অগ্নি প্রতিরোধ ও নির্বাপন আইন, ২০০৩ (Fire Prevention and Extinguishing Act 2003)
43. ভ্রমণ কর আইন, ২০০৩ (Travel Tax Act 2003)
44. নিরাপদ রক্ত পরিসঞ্চালন আইন, ২০০২ (Safe Blood Transfusion Act 2002)
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141. The Food (Special Courts) Act, 1956
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158. The Vehicles Act, 1927
159. The Naturalization Act, 1926
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162. The Cotton Transport Act, 1923
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165. The Cruelty to Animals Act, 1920

166. The Cotton Cloth Act, 1918

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168. The Mining Settlement Act, 1912

169. The Explosive Substance Act, 1908

170. The Smoke Nuisance Act, 1905

171. The Public Parks Act, 1904

172. The Government Building Act, 1899

173. The Code of Criminal Procedure, 1898

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Annex 4: Stakeholder consultation process

Extensive efforts were made to obtain the first-hand opinions of stakeholders and to have all relevant parties on board. To that end, consultation workshops/events were arranged at all required stages, including two national events, seven divisional events, and a series of community-level consultations in diverse eco-zones to ensure that no important issue was unaddressed and that the voices of the main stakeholders were reflected accurately. In addition to these efforts, bilateral consultations with key ministries, divisions and agencies provided useful inputs, guidelines and suggestions in terms of contents, structure and institutional arrangements.

Throughout the formulation process, the project team consulted in depth with experts well known for their expertise, academic knowledge and experience as well as for their involvement in national and international forums. Moreover, as per the suggestion of the members of the TAG-CIP committee, each pillar of the EFCC CIP was subject to expert review. Existing plans and policies – ranging from more general perspectives and the 6th five-year plan to plans with specific focus, such as the BCCSAP, were taken into account, and more than 200 policies and plans were reviewed.

The consultation process involved 32 ministries and divisions and 52 agencies, as well as academics, private-sector representatives, NGOs, CSOs, development partners and the general public.

Consultation modalities

A variety of consultation methodologies and techniques was applied. For divisional consultations, a standardized format, the "rapid mapping method", was followed; in the case of community consultations, a participatory "picture mapping method" was applied to identify and analyse the ecosystems on which communities rely. The localities of community consultation sites were selected to ensure representation of differing eco-zones and environmental challenges.

Outcome of consultations

The first- and second-level consultations at the divisional and community levels concentrated on identifying core EFCC issues, which helped in the design of the structure of the CIP and its pillars, programmes and sub-programmes. The outcomes of consultations at the national, ministry and expert levels were used to ensure alignment with existing national plans, policies and ongoing initiatives and adequate institutional arrangements for implementation, monitoring and coordination. National-level consultations provided a kind of validation as well, but the overall outcome of the consultation process can broadly be categorized into four groups: 1) key programmatic issues; 2) the structure of the CIP; 3) policy issues; and 4) the institutional arrangement approval process. These are described below.

Key programmatic issues

Several key environmental issues were identified that have been contributing to the degradation of natural resources such as forests, wetlands, biodiversity and water. These issues refer to the most common problems countrywide, such as salinity, drought, the unplanned use of pesticides and fertilizers, the loss of cultivable land, the overuse of groundwater, the encroachment of water bodies, and river erosion. They also refer to multifaceted region- and area-specific problems, such as the adverse impact of shrimp cultivation in the Khulna region; biodiversity loss in the Sundarbans; the extraction of stones and sands from river beds in the Sylhet region; tidal surges and deforestation in the Barisal division; the siltation of haor; and overcutting in Hill Tracts districts. To address this wide range of issues, there was a strong suggestion to direct adequate resources towards increasing forest cover, conserving biodiversity and ECAs, and water resource management. Agencies such as the Forest Department and the Department of Environment were vocal about the conservation of ECAs, biodiversity and marine ecosystems, and the control of invasive alien species, among others. These concerns are addressed in pillar 1: "Sustainable management of natural resources".

Many discussions concentrated on the factors responsible for environmental pollution, leading to the loss of natural resources and ecosystem services and on the identification of suitable courses of action for combating this. Along with strong demand for industrial and agricultural pollution control, much emphasis was given to managing household, medical and electronic waste. The availability of safe drinking water and sanitation facilities was a focus. This area is covered in pillar 2: "Environmental pollution reduction and control".

Climate-change-related issues were raised indirectly in divisional and community-level consultations. Consultations at the expert and ministry/agency levels made specific reference to climate-change adaptation and mitigation, stressing the need to build infrastructure and apply advanced technologies to enhance resilience, and the alignment of CIP programmes and sub-programmes with ongoing initiatives in this field. Pillar 3 of the EFCC CIP elaborates on climate-change-related issues.

Expert consultations underscored the need for an enabling legal and policy environment and adequate research, training and extension services. Based on this feedback and opinion, specific activities were designed in pillar 4.

Structure of CIP

The pillars, programmes and sub-programmes of the EFCC CIP have been built on the basis of the first-hand views of stakeholders as well as on a literature review. Government and development partners subsequently endorsed the basic structure of the CIP and its programmes and sub-programmes; other stakeholders, including from the private sector, academia and research organizations, have expressed their support.

Policy issues

A number of policy issues arose, especially in bilateral ministry and expert-level consultations. These focused mostly on linking the EFCC CIP with other policy documents, such as the SDGs, the 7FYP, the BCCSAP and the INDC. In the bilateral consultation with the Planning Commission, the EFCC CIP was accepted as a perfect sectoral action plan for dealing with EFCC issues and to complement strategic plans like the 7FYP. Members also expressed the view that the CIP formulation process had achieved a good mapping of ADPs, FYPs and the SDGs.

Institutional arrangement approval process

Almost all stakeholder ministries and divisions, other government agencies, development partners and experts and NGOs expressed concern about the institutional arrangements for the sustainable implementation and monitoring of the EFCC CIP, preferring an institutional set-up like the FPMU in the Ministry of Food or the APSU in the Ministry of Agriculture. The view was also expressed that this kind of set-up should be assigned with multiple functions, including the monitoring of the EFCC CIP, policy analysis, and the provision of support to delegations attending the Conferences of the Parties of international conventions. It was also suggested that, for effective monitoring and coordination, a rearrangement in the institutional set-up and capacity development would be needed in other ministries and divisions.

The information and feedback received via the consultation process was organized and synthesized to obtain a relatively representative sample. The incorporation and reflection of this feedback in the preparation process ensured that the document was comprehensive and representative.

Annex 5: Main linkages/synergies between the 7th Five Year Plan (2016-2021) and the EFCC CIP

7th Five Year Plan Sustainable Development: Environment and Climate Change (chapter 8)	EFCC CIP
Activity 1: Climate Change Adaptation	
Issue 1. Promote a whole-of government approach for climate change readiness	The CIP can contribute to this objective
Issue 2. Enhance understanding, knowledge, capacity and coordination (trainings, institutional capacity strengthening, enhance local government)	3.4.1. Develop community adaptation through community-based and ecosystem-based adaptation
Issue 3. Prioritize programmes and projects (including budget framework)	The CIP contributes to this objective
Issue 4. Improved implementation, monitoring and shared learning (including community participation)	3.4.1. Develop community adaptation through community-based and ecosystem-based adaptation
Issue 5. Enhance CCA financing (emphasis on international financial support, increase funds to BCCTF)	The CIP can contribute to this objective
Issue 6. Integrate gender sensitivity in project design	4.2.2. Encourage gender equity and empowerment and increase the inclusion of minorities in the EFCC sectors
Issue 8. Managing hazards and disasters (strengthen early warning systems on cyclones, storm surges and floods and weather forecasting)	3.1.1. Strengthen early-warning systems
Issue 9. Infrastructural functioning and maintenance (river embankments, drainage systems)	3.1.2. Strengthen climate-change-resilient buildings, roads and storage facilities
Issue 10. Curbing internal migration and displacement (focussed on plan development of channelization of rivers)	3.2.1. Strengthen coastal and inland embankments and improve drainage capacity 3.2.2. Support for operation and maintenance of water management systems
Activity 2: Climate Change Mitigation	
Issue 1. Enhance understanding on Low Carbon Development (LCD) (focussed on training to enhance knowledge)	Not included in CIP
Issue 2. Improve capacity in analysing available opportunities (through training)	Support knowledge systems, including the implementation of Research Master Plan and strengthening research organizations, and extension and educational NGOs
Issue 3. Enhance capacity of energy saving sectors (reviewing tax and tariff structures)	3.3.1. Support climate-smart technologies for industry and power generation
Issue 4. Improvement in coordination and communication among institutions (focussed on identification of an anchor institution on LCD)	4.1.4. Improve the knowledge base for the formulation, coordination and implementation of EFCC policies
Issue 5. Ensuring investment in research and innovation	4.2.1. Develop and strengthen mechanisms for stakeholder participation in policy development and implementation
Issue 6. Other activities (includes reduction of greenhouse gasses from cement, steel, dairy sectors, roadmap to produce the NAMA)	4.3.2. Support training and extension in the EFCC sectors
Activity 3: Pollution Control	
Issues 1. A new approach to industrial waste management (improved enforcement, ISO 14000 and green labelling)	2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather

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Issues 2. Management of toxic & hazardous wastes (centralized treatment plants under PPP program, Lead recovery & recycling, PCB and redundant pesticides recovery and destruction, action plan on mercury pollution, improved ship breaking)	2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather 2.1.2. Prevent, reduce and mitigate damage to natural ecosystems due to oil spills, ship-breaking and drilling 2.3.2. Reduce pollution from chemical use
Issues 3. Medical waste management (training on waste separation and treatment centres for infectious waste in every district)	2.2.1. Improve collection, management and treatment of solid waste (including household and medical waste) at the municipal and cross-municipal levels
Issues 4. Solid and liquid waste management (design plans, removal dumping sites, bio-fertilizer and energy, new ideas and technologies exploration)	Improve the collection, management and treatment of solid waste (including household and medical waste) at the municipal and cross-municipal levels
Issues 5. Agrochemicals management (IPM, organic food support, use compost)	2.3.1. Minimize pollution from fertilizers and pesticides
Issues 6. Improving air quality (gross diesel polluters, strict enforcement, brick kilns, cleaner fuel and transport, mass transit options)	2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather 3.3.4. Promote low-cost public transport models and low-emission vehicles
Issues 7. E-Waste (study nature and magnitude and development of an Action Plan, implement the action plan, establish collection system)	2.2.1. Improve the collection, management and treatment of solid waste (including household and medical waste) at the municipal and cross-municipal levels
Issues 8. Noise pollution control (raise awareness, collect data and implement noise pollution control regulation 2006)	Not included in CIP
Issues 9. Environmental risk to health (includes sanitation campaign, improved cooking stove, monitoring tube well water, toxicological laboratories in each regional laboratory of DoE, renewable energy options)	2.2.3. Increase the collection and treatment of sewerage and drainage water 3.3.2. Promote low-cost public transport models and low-emission vehicles
Issues 10. Faecal sludge management (working out the Sanitation Strategy)	2.2.3 Increase the collection and treatment of sewerage and drainage water 2.2.4. Improve sanitation at the community level
Activity 4: Urban Environmental Problems	
Issues 1: Improving surface water quality of worst polluting rivers vis a vis improving environmental quality of greater Dhaka by relocating tanneries, sewage water treatment plants, textile zone, future industrial development in special zones, shifting groundwater to surface water, improve drainage of canals and protect from flooding	2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather 2.2.3. Increase the collection and treatment of sewerage and drainage water 2.2.4. Improve sanitation at the community level 3.2.2. Support the operation and maintenance of water management systems
Issues 2. Protection of wetlands including flood flow zone and low lying areas capable of water retention in and around greater Dhaka in line with the existing structure plan (legislation, forming Inter-ministerial steering committee, implement Delta Plan 2100)	1.3.1. Support implementation and scaling up of the Master Plan for the Haor and Flood-prone Areas 1.2.4. Support integrated resources management in the Sundarbans 1.4.3. Manage coastal land and prevent and cope with waterlogging and salinity

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Issues 3. Improving environmental services in divisional cities, city corporations, district town and Pourashavas (phase wise) (includes drainage plan, land filling sites, collection and treatment of sewerage water and solid waste, slums)	2.2.3 Increase the collection and treatment of sewerage and drainage water 2.2.4. Improve sanitation at the community level 3.2.2. Support for operation and maintenance of water management systems 2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather
Activity 5: Natural Resources Management	
Issues 1. Protection of rural landscape and improving environment (prohibit filling up water bodies, homestead forestry with horticulture, land-use plans, protection and ensuring access of poor communities, solar energy and biogas)	1.2.1. Develop and enhance the conservation of protected areas through government–community co-management 3.3.1. Support climate-smart technologies for industry and power generation
Issues 2. Reducing groundwater dependence (rainwater harvesting, industrial use limitations, availability study of groundwater, zero discharge policy, implement BDP 2100)	1.4.1. Improved soil fertility and groundwater management, with particular focus on north and northwest 2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather 2.2.2. Improve the supply of safe drinking water to semi-urban and rural communities
Issues 3. Reducing the water footprint of the textile sector (licensing, waste water treatment, cleaner production, monitoring system)	2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather
Issues 4. ECA & Wetland management (sustain, protect, restore ECAs, create knowledge centre)	1.2.1. Develop and enhance the conservation of protected areas through government–community co-management 1.3.1. Support the implementation and scaling up of the Master Plan for the Haor and Flood-prone Areas 1.2.4. Support integrated resource management in the Sundarbans 4.3.3. Establish a centre for knowledge management and training on EFCC
Issues 5. Protection of river and river banks (develop guidelines for dredging, buffer zone enforcement, oil recovery programmes establishment)	2.1.2. Prevent, reduce, and mitigate damage to natural ecosystems due to oil spills, ship-breaking and drilling 3.2.1. Strengthen coastal and inland embankments and improve drainage capacity
Issues 6. Land zoning & land use plan (undertake an action plan)	1.1.4. Improve security of land tenure, stakeholder awareness and capacity 4.1.3. Support rational arbitration among users of ecosystem services
Issues 7. Coastal pollution & marine resource management (develop protection strategy, ports waste facilities establishments, management plan development)	2.1.2. Prevent, reduce, and mitigate damages to natural ecosystems due to oil spills, ship-breaking and drilling
Issues 8. Management of dry land ecosystem (drought monitoring and mitigation assessment)	1.4.1. Improve soil fertility and groundwater management, with particular focus on north and northwest Bangladesh 1.4.2. Manage soil erosion in hilly areas
Activity 6: Poverty Eradication and Capacity Building	
Issue 1. Building poverty environment nexus (capacity building, develop baseline data)	Cross-cutting issue throughout the CIP

7th Five Year Plan Sustainable Development: Environment and Climate Change (chapter 8)	EFCC CIP
Activity 7: Governance - Environment	
Issue 1. Sectoral coordination on environment and natural resource management (cross sectoral coordination, CPR for forest and aquatic resource management)	4.2.1. Develop and strengthen mechanisms for stakeholder participation in EFCC policy development and implementation 4.2.3. Support producer organizations and other rural groups 1.3.2. Sustainable fisheries and fishing habitat management in inland and marine ecosystems
Issue 2. Institutional strengthening (strengthening, professionalizing, capacity building of government, improved enforcement, development strategic action plan)	4.1.1. Strengthen the regulatory framework for the EFCC sectors (including pollution prevention and control) 4.1.2. Improve the application and enforcement of the regulatory framework
Issue 3. Strengthening Environmental Impact Assessment system as environmental management tool	4.3.1. Support the development of systems for data collection, use and dissemination as an aid for improving budget planning, implementation, monitoring and evaluation 1.4.2. Manage soil erosion in hilly areas
Issue 4. Establishing accountability (public consultations, websites, functioning of the NEC)	4.2.1. Develop and strengthen mechanisms for stakeholder participation in EFCC policy development and implementation 4.2.3. Support producer organizations and other rural groups
Issue 5. Update of Environment Policy 1992 and National Environmental Management Action Plan (NEMAP)	4.1.4. Improve the knowledge base for the formulation, coordination and implementation of EFCC policies
Issue 6. Environmental education, awareness and environment watch (publication materials, seminars and symposia and campaigns, network development)	Cross-cutting issues throughout the CIP
Issue 7. Revamping functions of Environment Court	The sub-programmes under programme 4.1. contribute to this objective
Issue 8. Policy for compliance by industries (energy consumption, water consumption, cooling water, EMS, zero-discharge)	2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather
Issue 9. Financial incentives (waste water treatment facilities, tax rebates on environment friendly activities, low cost loans)	
Issue 10. Involvement of women in environment (employment, management and monitoring)	4.2.2. Encourage gender equity and empowerment and increase the inclusion of minorities in the EFCC sectors
Issue 11. GO – NGO collaboration (developing partnerships, participation)	4.2.1. Develop and strengthen mechanisms for stakeholder participation in EFCC policy development and implementation
Issue 12. Nationwide Hygiene Promotion (hygiene survey and promotion campaign)	2.2.3. Increase the collection and treatment of sewerage and drainage water 2.2.4. Improve sanitation at the community level
Activity 8: Forestry and Biodiversity	
Issue 1. Afforestation/reforestation/plantation	1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry
Issue 2. Moratorium on felling (scattered and denuded hill forests replanted, restore productivity)	1.4.2. Manage soil erosion in hilly areas

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Issue 3. Protection of Sundarbans and coastal afforestation (local community involvement, alternative livelihoods, afforestation/plantation, Coastal Green Belt development)	1.2.4. Support integrated resource management in the Sundarbans 1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry
Issue 4. Restoration of Sal Forest	1.2.1. Develop and enhance the conservation of protected areas through government–community co-management
Issue 5. Reed lands of Sylhet (execute program and extend to new areas)	1.3.1. Support the implementation and scaling up of the Master Plan for the Haor and Flood-prone Areas (includes programmes on reed land, but reed lands on Sylhet not specifically mentioned)
Issue 6. Eco-park/botanical garden (development ecoparks and regional botanical gardens for biodiversity conservation)	1.2.1. Develop and enhance the conservation of protected areas through government–community co-management
Issue 7. Social forestry (local people inclusion, development along roads, embankments and fellow lands)	1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry
Issue 8. Non-wood forest (emphasis on non-wood forest products)	1.1.3. Develop small and medium-sized forest enterprises and value chains for socioeconomic benefits, food security and employment creation
Issue 9. Survey and land records (complete forest land survey, update land record, monitoring)	1.1.2. Improve forest monitoring
Issue 10. Protected areas (increase area)	1.2.1. Develop and enhance the conservation of protected areas through government–community co-management
Issue 11. Watershed management (in haor regions and hills districts)	1.3.1. Support the implementation and scaling up of the Master Plan for the Haor and Flood-prone Areas 1.4.2. Manage soil erosion in hilly areas
Issue 12. Private forests (credit facilities to encourage private sector for development of plantations)	1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry
Issue 13. Carbon Credit and REDD mechanism (certifying and approving reforestation and protection through partnerships)	1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry
Issue 14. Mainstreaming NBSAP (update plan, integration, valuation of ecosystem services, awareness raising on biodiversity)	The CIP does not specially mention the NBSAP but includes various sub-programmes in which policy development is mentioned, such as: 4.1.4. Improve the knowledge base for the formulation, coordination and implementation of EFCC policies
Issue 15. Synergies between biodiversity and multilateral environmental agreements (MEAs) (integration with NAP and NAMA)	4.1.4. Improve the knowledge base for the formulation, coordination and implementation of EFCC policies
Issue 16. Equitable sharing of biodiversity (capacity building, development policies)	4.1.4. Improve the knowledge base for the formulation, coordination and implementation of EFCC policies

7th Five Year Plan Sustainable Development: Environment and Climate Change (chapter 8)	EFCC CIP
Issue 17. The Bangladesh National Herbarium (strengthening its capacities)	4.3.4. Support knowledge systems, including the implementation of the Research Master Plan and strengthening research organizations, and extension and educational NGOs
Activity 9: Governance – Forestry and Biodiversity	
Issue 1. Enactment of laws & regulation (review related policies, develop new policies)	These activities are included throughout the CIP.
Issue 2. Institutional strengthening (recruitment, establish conservation cell, capacity development, enforcement)	4.1.2. Improve the application and enforcement of the regulatory framework Also a cross-cutting issue throughout the CIP
Issue 3. Establishing accountability (monitoring, website)	4.3.1. Support the development of systems for data collection, use and dissemination as an aid for improving budget planning, implementation, monitoring and evaluation
Issue 4. Land litigation (action plan for eviction of encroachments)	1.3.3. River water improvement (with an emphasis on river-based encroachments)
Issue 5. Protection and restoration of endangered and threatened species (identify threatened species, protection measures, involve experts and communities)	1.2.3. Endangered species conservation and management 4.2.2. Encourage gender equity and empowerment and increase the inclusion of minorities in the EFCC sectors
Activity 10: Green Growth Strategy	3.3.1. Support climate-smart technologies for industry and power generation. This sub-programme contains an activity to enhance institutional and technical capacities to develop a green growth strategy
Issue 1. Establish clear vision, targets and baselines for green growth strategy	3.3.1 Support climate-smart technologies for industry and power generation
Issue 2. Employ well-designed planning and coordination processes	3.3.1 Support climate-smart technologies for industry and power generation
Issue 3. Employ tailored strategies to mitigate market driven externalities (policy development)	3.3.1 Support climate-smart technologies for industry and power generation
Issue 4. Engage the private sector in various facets of green growth	2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather
Issue 5. Innovate financial tools that mobilize private \investment in green growth sectors	3.3.1 Support climate-smart technologies for industry and power generation
Issue 7. Promote green accounting (generate statistics, emissions accounts, calculate green GDP)	3.3.1 Support climate-smart technologies for industry and power generation

Other activities in 7th Five Year Plan relevant to the EFCC CIP

- Chapter 4, section 4.4. Goals and strategies for fisheries sub-sector during 7th Five Year Plan is linked with CIP sub-programme 1.3.2. Support implementation and scaling up of the aquaculture development strategy and action plan

- Chapter 4, section 4.5. Expanding forest resources during the 7th Five Year Plan is linked with CIP sub-programmes 1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry; 1.1.2. Improve forest monitoring; 1.4.2. Managing soil erosion in hilly areas.

- Chapter 4, section 4.6. Managing Water Resources during the 7th Five Year Plan is linked with CIP sub-programmes 1.4.1. Improved soil fertility and groundwater management, with particular focus on north and northwest Bangladesh; 1.4.3. Manage coastal landand prevent and cope with waterlogging and salinity; 2.2.2. Improve the supply of safe drinking water to urban and rural communities; 2.2.3. Increase the collection and treatment of sewerage and drainage water; 3.2.1. Strengthen coastal and inland embankments and improve drainage capacity 3.2.2. Support the operation and maintenance of water management systems; 3.2.3. Support the development of irrigation schemes (drought-prone areas).

- Chapter 14, section 14.4. Disaster management during the 7th Five Year Plan is linked with CIP programmes 3.1. Disaster risk reduction and 3.2. Sustainable infrastructure development.

Annex 6: Main linkages/synergies between the Bangladesh Climate Change Strategy and Action Plan (2009) and the EFCC CIP

Bangladesh Climate Change Strategy and Action Plan (2009)	EFCC CIP
Theme 1: Food security, social protection & health security	Corresponding Pillars /Programmes / Sub-programmes in EFCC CIP
P1. Institutional capacity and research towards climate resilient cultivars and their dissemination	Sub-programme 4.1.1. Strengthen the regulatory framework for EFCC (including pollution prevention and control) Sub-programme 4.3.2. Support training and extension in the EFCC sectors Sub-programme 4.3.3. Establish a centre for knowledge management and training on EFCC Sub-programme 4.3.4. Support knowledge systems, including the implementation of the Research Master Plan and strengthening research organizations, and extension and educational NGOs
P2. Development of climate resilient cropping systems and production technologies	Sub-programme 1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry Sub-programme 4.3.2 Support training and extension in the EFCC sectors Sub-programme 4.3.4 Support knowledge systems, including the implementation of the Research Master Plan and strengthening research organizations, and extension and educational NGOs
P3. Adaptation against drought, salinity,	Programme 3.2. Sustainable infrastructure development Programme 3.4. Increased resilience at the community level
P4. Adaptation in fisheries sector	Sub-programme 1.3.1. Support the implementation and scaling up of the Master Plan for the Haor and Flood-Prone Areas Sub-programme 1.3.2. Sustainable fisheries and fishing habitat management in inland and marine ecosystems
P5. Adaptation in livestock sector	Programme 3.4 Increased resilience at the community level
P6. Adaptation in health sector	Programme 2.2. Reduce municipal and household pollution Programme 2.3. Reduced ollution from agriculture and other sources
P7. Water and sanitation in climate vulnerable areas	Programmes 2.2 and 2.3
P8. Livelihood protection in ecologically fragile areas	Pillar 1: Sustainable development and management of natural resources Programme 3.4. Increased resilience at community level
P9. Livelihood protection of vulnerable socio-economic groups (including women)	Gender is mainstreamed in various pillars, programmes and sub-programmes throughout the CIP. The following sub-programme is particularly dedicated to gender issues: 4.2.2. Encourage gender equity and empowerment and increase the inclusion of minorities in the EFCC sectors

Bangladesh Climate Change Strategy and Action Plan (2009)	EFCC CIP
Theme 2: Comprehensive Disaster Management	Corresponding Pillars/programmes/sub-programs in EFCC CIP
P1. Improvement of flood forecasting and early warning	Sub-programme 3.1.1. Strengthen early-warning systems
P2. Improvement of cyclone and storm surge warning	Sub-programme 3.1.1. Strengthen early-warning systems
P3. Awareness raising and public education towards climate resilience	Programme 3.1. Disaster risk reduction
	Programme 3.4. Increased resilience at the community level Sub-programme 4.3.4. Support knowledge systems, including the implementation of the Research Master Plan and strengthening research organizations, and extension and educational NGOs
P4. Risk management against loss of income and property	Sub-programme 3.1.3. Manage the risk of losses of income and property
Theme 3: Infrastructure development	Corresponding pillars/programmes/sub-programmes in EFCC CIP
P1. Repair and maintenance of existing flood embankments	Sub-programme 3.2.1. Strengthen coastal and inland embankments and improve drainage capacity
P2. Repair and maintenance of cyclone shelters	Sub-programme 3.1.2. Strengthen climate-change-resilient buildings, roads and storage facilities
P3. Repair and maintenance of existing coastal polders	Programme 3.2. Sustainable infrastructure development
P4. Improvement of urban drainage	Sub-programme 2.2.3. Increase the collection and treatment of sewerage and drainage water
P5. Adaptation against floods	Programme 3.1. Disaster risk reduction Programme 3.2. Sustainable infrastructure development
P6. Adaptation against cyclones and storm surges	Programme 3.1. Disaster risk reduction Programme 3.2. Sustainable infrastructure development Programme 3.4. Increased resiliency at the community level
P7. Planning, design and construction of river training works to control river bank erosion	Not addressed
P8. Planning, design and implementation of resuscitation of rivers and khals by dredging and desiltation	Programme 3.2. Sustainable infrastructure development
Theme 4: Research and knowledge management	Corresponding pillars/programmes/sub-programmes in EFCC CIP
P1. Establish centre for research, knowledge management & training on climate change	Sub-programme 4.3.3. Establish a centre for knowledge management and training on EFCC

Bangladesh Climate Change Strategy and Action Plan (2009)	EFCC CIP
P2. Climate change modelling at national and sub-national levels	Sub-programme 4.3.2. Support training and extension in the EFCC sectors
P3. Preparatory studies for adaptation against sea level rise	Sub-programme 4.3.2. Support training and extension in the EFCC sectors
P4. Monitoring of ecosystem and biodiversity changes and their impacts	Sub-programme 1.2.2. Improve biodiversity monitoring (including by strengthening the monitoring capacity of institutions)
P5. Macroeconomic and sectoral economic impacts of climate change	Sub-programme 4.3.2. Support training and extension in the EFCC sectors
P6. Monitoring of internal and external migration of adversely impacted population	Not addressed
P7. Monitoring of impact of various issues related to management of tourism	Sub-programme 1.1.3. Develop small and medium-sized forest enterprises and value chains for socioeconomic benefits, food security and employment creation
Theme 5: Mitigation and low carbon development	Corresponding pillars/programmes/sub-programmes in EFCC CIP
P1. Improved energy efficiency in production & consumption of energy	Sub-programme 2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather Programme 3.3. Mitigation and low-carbon development
P2. Gas exploration & reservoir management	Sub-programme 2.1.2. Prevent, reduce, and mitigate damages to natural ecosystems due to oil spills, ship-breaking and drilling
P3. Development of coal mines and coal fired power stations	Not addressed
P4. Renewable energy development	Programme 3.3. Mitigation and low-carbon development Sub-programme 4.3.2. Support training and extension in the EFCC sectors
P5. Lower emission from agricultural land	
P6. Management of urban waste	Programme 2.2. Reduce municipal and household pollution
P7. Afforestation & reforestation programme	Sub-programme 1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry
P8. Expansion of energy saving devices	Sub-programme 3.3.1. Support climate-smart technologies for industry and power generation
P9. Energy and water efficiency in built environment	Not addressed
P10. Improvement in energy consumption pattern in transport sector and options for mitigation	Sub-programme 3.3.2. Promote low-cost public transport models and low-emission vehicles

Bangladesh Climate Change Strategy and Action Plan (2009)	EFCC CIP
Theme 6: Capacity building - institutional and human	Corresponding pillars/programmes/sub-programmes in EFCC CIP
P1. Revision of sectoral policies for climate resilience	Sub-programme 4.1.1. Strengthen the regulatory framework for the EFCC sectors Sub-programme 4.1.4. Improve the knowledge base for the formulation, coordination and implementation of EFCC policies
P2. Mainstreaming climate change in national, sectoral and spatial development plans	Sub-programme 4.1.1. Strengthen the regulatory framework for the EFCC sectors Sub-programme 4.1.4. Improve the knowledge base for the formulation, coordination and implementation of EFCC policies Sub-programme 4.2.1. Develop and strengthen mechanisms for stakeholder participation in EFCC policy development and implementation
P3. Strengthening human resource capacity	Strengthening the human resource capacity is mainstreamed in various pillars, programmes and sub-programmes in the EFCC-CIP
P4. Strengthening gender considerations in climate change management	Gender is mainstreamed in various pillars, programmes and sub-programmes throughout the CIP, particularly in sub-programme 4.2.2. Encourage gender equity and empowerment and increase the inclusion of minorities in the EFCC
P5. Strengthening institutional capacity for climate change management	Programme 4.1. Improved legislative, regulatory and policy framework
P6. Mainstreaming climate change in the media	Not specifically addressed

Annex 7: Main linkages/synergies between the Sustainable Development Goals and the EFCC CIP	
SDG Indicators included in the CIP Results Framework	**Corresponding Pillars/programmes /sub-programs in EFCC CIP**
SDG Goal 1: End poverty in all its forms everywhere	
Indicator 1.4.2: Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure	Sub-programme 1.1.4: Improve security of land tenure and stakeholder awareness and capacity
Indicator 1.5.1: Number of deaths, missing persons and persons affected by disaster per 100,000 people	CIP goal: To increase the contribution of the EFCC sectors to national sustainable development through the enhanced provision of ecosystem services, thereby helping to reduce poverty, improve environmental and human health benefits, and increase resilience to climate change
Indicator 1.5.2: Direct disaster economic loss in relation to global gross domestic product (GDP)	
SDG Goal 3: Ensure healthy lives and promote well-being for all at all ages	
Indicator 3.9.1 Mortality rate attributed to household and ambient air pollution	Programme 2.2: Reduced municipal and household pollution
Indicator 3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)	
SDG Goal 5: Achieve gender equality and empower all women and girls	
Indicator 5.a.1: 5.a.1 (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure	Sub-programme 1.1.4: Improve security of land tenure and stakeholder awareness and capacity
SDG Goal 6: Ensure availability and sustainable management of water and sanitation for all	
Indicator 6.1.1: Proportion of population using safely managed drinking water services	Sub-programme 2.2.2: Improve the supply of safe drinking water in semi-urban and rural communities
Indicator 6.2.1: Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water	Sub-programme 2.2.4: Improve sanitation at the community level
Indicator 6.3.1 Proportion of wastewater safely treated	Sub-programme 2.2.3: Increase the collection and treatment of sewerage and drainage water

Indicator 6.5.1 Degree of integrated water resources management implementation (0 - 100)	Sub-programme 3.2: Sustainable infrastructure development
SDG Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	
Indicator 7.1.2 Proportion of population with primary reliance on clean fuels and technology	Programme 3.3: Mitigation and low-carbon development
Indicator 7.2.1: Renewable energy share in the total final energy consumption	Sub-programme 3.3.1: Support climate-smart technologies for industry and power generation
SDG Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
Indicator 9.4.1: CO^2 emission per unit of value added	Pillar 3: Adaptation and resilience to, and mitigation of, climate change
Indicator 9.5.1: Research and development expenditure as a proportion of GDP	Sub-programme 4.3.4: Support knowledge systems, including the implementation of the Research Master Plan and strengthening research organizations and extension and educational NGO
SDG Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	
Indicator 11.5.2: Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of basic services	Programme 3.1: Disaster risk reduction
Indicator 11.b.1: Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030	
Indicator 11.6.1 :Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities	Sub-programme 2.2.1: Improve the collection, management and treatment of solid waste (e.g. household and medical waste) at the municipal and cross-municipal levels
Indicator 11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	Programme 2.1: Reduced industrial pollution
SDG Goal 12. Ensure sustainable consumption and production patterns	
Indicator 12.5.1: National recycling rate, tons of material recycled	Sub-programme 2.2.1: Improve the collection, management and treatment of solid waste (e.g. household and medical waste) at the municipal and cross-municipal levels
SDG Goal 13: Take urgent action to combat climate change and its impacts	

Indicator 13.a.1: Mobilized amount of United States dollars per year starting in 2020 accountable towards the USD 100 billion commitment	CIP goal: To increase the contribution of the EFCC sectors to national sustainable development through the enhanced provision of ecosystem services, thereby helping to reduce poverty, improve environmental and human health benefits, and increase resilience to climate change
SDG Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
Indicator 15.1.1: Forest area as a proportion of total land area	Programme 1.1: Sustainable forest management, and enhanced socioeconomic benefits from forests
Indicator 15.1.2: Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	Programme 1.2: Biodiversity conservation Programme 1.3: Sustainable management of wetlands, rivers and marine ecosystems
Indicator 15.2.1: Progress towards sustainable forest management	Programme 1.1: Sustainable forest management, and enhanced socioeconomic benefits from forests
Indicator 15.3.1: Proportion of land that is degraded over total land area	Sub-programme: 1.1.2: Improve biodiversity monitoring including by strengthening the monitoring capacity of institutions)
Indicator 15.4.1: Coverage by protected areas of important sites for mountain biodiversity	Programme 1.2: Biodiversity conservation
15.4.2 Mountain Green Cover Index	Sub-programme: 1.1.2 Improve biodiversity monitoring including by strengthening the monitoring capacity of institutions)
Indicator 15.5.1: Red List Index	Programme 1.2: Biodiversity conservation
Indicator 15.c.1: Proportion of traded wildlife that was poached or illicitly trafficked	Sub-programme 1.2.3: Endangered species conservation and management
Indicator 15.8.1: Adoption of national legislation relevant to the prevention or control of invasive alien species	Programme 4.1: Improved legislative, regulatory and policy framework
Indicator 15.9.1: Number of national development plans and processes integrating biodiversity and ecosystem services values	

Annex 8: Manpower and budget of MoEF and its agencies (as of September 30 2016)

Organization	Manpower		Annual Budget (Mill USD)			
	Sanctioned	Existing	2015-16	2016-17	2017-18 (projected)	2018-19 (projected)
MoEF	1st class: 36 2nd class: 27 3rd class: 27 4th class: 33 Total: 123	1st class:32 2nd class:16 3rd class:16 4th class:24 Total: 88	36.72	39.37	84.08	96.57
Regional offices			33.35	38.44	43.77	47.14
Forest Department	1st class: 295 2nd class: 424 3rd class: 5337 4th class: 4168 Total: 10224	1st class: 178 2nd class: 225 3rd class: 3932 4th class: 3609 Total: 7944	40.83	35.81	4.64	1.87
Department of Environment	1st class: 205 2nd class: 125 3rd class: 268 4th class: 122 Total: 720	1st class: 112 2nd class: 53 3rd class: 159 4th class: 105 Total: 429	11.11	13.52	4.81	5.07
Bangladesh Forest Research Institute	1st class:103 2nd class:43 3rd class: 433 4th class: 213 Total: 792	1st class: 54 2nd class: 28 3rd class: 299 4th class: 143 Total: 524	3.68	4.11	5.17	6.08
Bangladesh Forest Industries Development Corporation	1st class: 228 2nd class: 13 3rd class: 519 4th class: 551 labour: 5277 Total: 6588	1st class: 91 2nd class: 4 3rd class: 188 4th class: 338 labour: 4340 Total: 4961				
Bangladesh National Herbarium	1st class: 19 2nd class: 3 3rd class:18 4th class:12 Total:52	1st class:8 2nd class:3 3rd class:14 4th class:11 Total:36	0.44	1.25	0.39	0.41
Bangladesh Climate Change Trust	1st class:25 2nd class:3 3rd class:29 4th class:25 Total:82	1st class:19 2nd class:1 3rd class:23 4th class:24 Total:67				

Annex 9: Geographical distribution of the EFCC CIP sub-programmes

Programmes	Sub-programmes	Division							
		Barisal	Chittagong	Dhaka	Mymensingh	Khulna	Rajshahi	Rangpur	Sylhet
Pillar 1: Sustainable development and management of natural resources									
1. 1: Sustainable forest management, and enhanced socioeconomic benefits from forests	1.1.1. Social forestry, reforestation, afforestation, coastal greenbelt development, landscape restoration, and agroforestry								
	1.1.2. Improve forest monitoring (to include both biophysical and socioeconomic aspects) – geographic information systems (GIS) and remote sensing-based forest management								
	1.1.3. Develop small and medium-sized forest enterprises and value chains for socioeconomic benefits, food security and employment creation								
	1.1.4. Improve security of land tenure, stakeholder awareness and capacity								
1.2. Biodiversity conservation	1.2.1. Develop and enhance the conservation of protected areas through government–community co-management								
	1.2.2. Improve biodiversity monitoring (including by strengthening the monitoring capacity of institutions)								
	1.2.3. Endangered species conservation and management								
	1.2.4. Support integrated resource management in the Sundarbans								
1.3 Sustainable management of wetlands, rivers and marine ecosystems	1.3.1. Support the implementation and scaling up of the Master Plan for the Haor and Flood-prone Areas								
	1.3.2. Sustainable fisheries and fishing habitat management in inland and marine ecosystems 1.3.3. River water improvement								

Programmes	Sub-programmes	Division							
		Barisal	Chittagong	Dhaka	Mymensingh	Khulna	Rajshahi	Rangpur	Sylhet
Pillar 1: Sustainable development and management of natural resources									
1.4. Soil and groundwater management	1.4.1. Improve soil fertility and groundwater management, with particular focus on north and northwest Bangladesh								
	1.4.2. Manage soil erosion in hilly areas								
	1.4.3. Manage coastal land and prevent and cope with waterlogging and salinity								
Pillar 2: Environmental pollution reduction and control									
2.1. Reduced industrial pollution	2.1.1. Support adoption of cleaner production and end-of-pipe technologies in industrial processes like brick kilns, textiles and leather								
	2.1.2. Prevent, reduce and mitigate damage to natural ecosystems due to oil spills, ship-breaking and drilling								
2.2. Reduced municipal and household pollution	2.2.1. Improve the collection, management and treatment of solid waste (e.g. household and medical waste) at the municipal and cross-municipal levels								
	2.2.2. Improve the supply of safe drinking water to semi-urban and rural communities								
	2.2.3. Increase the collection and treatment of sewerage and drainage water								
	2.2.4. Improve sanitation at the community level								
2.3 Reduced pollution from agriculture and other sources	2.3.1. Minimize pollution from fertilizers and pesticides								
	2.3.2. Reduce pollution from chemical use								

Programmes	Sub-programmes	Division							
		Barisal	Chittagong	Dhaka	Mymensingh	Khulna	Rajshahi	Rangpur	Sylhet
Pillar 3: Adaptation and resilience to, and mitigation of climate change									
3.1. Disaster risk reduction	3.1.1. Strengthen early-warning systems								
	3.1.2. Strengthen climate-change-resilient buildings, roads and storage facilities								
	3.1.3. Manage the risk of losses of income and property								
3.2: Sustainable infrastructure development	3.2.1. Strengthen coastal and inland embankments and improve drainage capacity								
	3.2.2. Support the operation and maintenance of water management systems								
	3.2.3. Support the development of irrigation schemes (drought-prone areas)								
3.3: Mitigation and low-carbon development	3.3.1. Support climate-smart technologies for industry and power generation								
	3.3.2. Promote low-cost transport and low-emission vehicles								
3.4. Increased resilience at the community level	3.4.1. Develop community adaptation through community-based and ecosystem-based adaptation								
	3.4.2. Scale up local innovations on adaptation								

Programmes	Sub-programmes	Division							
		Barisal	Chittagong	Dhaka	Mymensingh	Khulna	Rajshahi	Rangpur	Sylhet
Pillar 4: Environmental governance, gender, and human and institutional capacity development									
4.1. Improved legislative, regulatory and policy framework	4.1.1. Strengthen the regulatory framework for the EFCC sectors (including pollution prevention and control)								
	4.1.2. Improve the application and enforcement of the regulatory framework								
	4.1.3. Support rational arbitration among users of ecosystem services								
	4.1.4. Improve the knowledge base for the formulation, coordination and implementation of EFCC policies								
4.2. Improved stakeholder participation and gender equity	4.2.1. Develop and strengthen mechanisms for stakeholder participation in EFCC policy development and implementation								
	4.2.2. Encourage gender equity and empowerment and increase the inclusion of minorities in the EFCC sectors								
	4.2.3. Support producer organizations and other rural groups								
4.3. Improved organizational capacity and processes for evidence-based decision-making	4.3.1. Support the development of systems for data collection, use and dissemination as an aid for improving budget planning, implementation, monitoring and evaluation								
	4.3.2. Support training and extension in the EFCC sectors								
	4.3.3. Establish a centre for knowledge management and training on EFCC								
	4.3.4. Support knowledge systems, including the implementation of the Research Master Plan and strengthening research organizations, and extension and educational NGOs								

Annex 10: Mapping of EFCC projects in ADP 2016-2017

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
1.1.1	Afforestation at 5 coastal districts of Bangladesh	Department of Forest	2.10	0.00	2.10	1.89	1.89	0.00
1.1.1	Climate Resilient Participatory Afforestation and Reforestation (01/07/2012-31/12/2016)	Department of Forest	36.35	35.31	1.04	12.86	1.04	11.82
1.1.2	Strengthening national forest inventory and satellite and monitoring system in support of REDD in Bangladesh	Department of Forest	6.43	6.43	0.00	6.43	0.00	6.43
1.1.2	UN REDD Bangladesh National Programme	Department of Forest	2.30	2.30	0.00	2.30	0.00	2.30
1.1.3	Eco restoration of the northern region of Bangladesh	Department of Forest	2.88	0.00	2.88	2.83	2.83	0.00
1.1.4	Strengthening of Settlement Press, Map, Printing Press and Preparation of Digital Maps (01/07/2010-30/06/2015)	Ministry of Land	2.56	0.00	2.56	0.65	0.65	0.00
1.1.4	Strengthening Governance Management Project (Component-B : Digital Land Management System (01/07/2011-31/12/2015)	Ministry of Land	19.98	16.40	3.58	12.72	2.33	10.39
1.1.4	Digitization of Land Survey Record Preparation and Preservation Project (1st Phase : Computerization of Existing Mouza Maps & Khatian) (Revised) (01/07/2012-30/06/2016)	Ministry of Land	11.89	0.00	11.89	9.80	9.80	0.00
1.1.4	National Land Zoning Project 2nd phase 1st revised	Ministry of Land	3.55	0.00	3.55	1.08	1.08	0.00
1.1.4	Improvement of Digital mapping system of Bangladesh Survey Department	Survey of Bangladesh	25.00	0.00	25.00	2.69	2.69	0.00
1.1.4	Strengthening the digital Cartiographic capacity of survey of Bangladesh	Survey of Bangladesh	1.33	0.00	1.33	0.95	0.95	0.00
1.2.1	Climate resilient ecosystem and livelihood (CREL) Forest Department Part	Department of Forest	14.12	12.76	1.36	11.14	1.04	10.10
1.2.1	Establishment of Botanical Garden at Lalmai hill area	Department of Forest	1.90	0.00	1.90	1.84	1.84	0.00
1.2.2	Survey of vascular flora of Chittagong and the Chittagong Hill tracts	Bangladesh National Herbarium	0.92	0.00	0.92	0.80	0.80	0.00

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
1.2.3	Strengthening Regional Cooperation for Wildlife Protection (01/07/2011-30/06/2016)	Department of Forest	36.41	33.58	2.83	11.81	2.83	8.98
1.2.3	Bangabondhu Sheikh Mujib Safari Park, Gazipur (2nd Revised) (01/03/2010-30/06/2016)	Department of Forest	41.74	0.00	41.74	4.60	4.60	0.00
1.2.3	Establishment of Sheikh Russel Aviary and Eco-park at Rangunia, Chittagong (2nd Revised) (01/07/2010-30/06/2015)	Department of Forest	5.13	0.00	5.13	0.23	0.23	0.00
1.2.3	Development of Extention of Bangabondhu Shiekh Mujib Safari Park, Cox's Bazar (01/07/2012-30/06/2015)	Department of Forest	4.61	0.00	4.61	0.84	0.84	0.00
1.2.3	Conservation & Improvement of Native Sheep Through Community Farming and Commercial Farming (2nd Phase) (01/07/2012-30/06/2017)	Department of Livestock Services	6.12	0.00	6.12	2.01	2.01	0.00
1.2.3	Bengal tiger conservation activity	Department of Forest	14.41	13.35	1.05	11.10	1.02	10.08
1.2.3	Conservation and development of indigenous chicken species	Bangladesh Livestock Research Institute	1.43	0.00	1.43	0.55	0.55	0.00
1.3.1	Haor Infrastructure and Livelihood Improvement Project (01/07/2012-30/06/2019)	Local Government Engineering Department	137.99	103.38	34.61	79.10	21.95	57.15
1.3.1	Haor Flood Management and Livelihood Improvement project (01/07/2014-30/06/2022)	Bangladesh Water Development Board	127.36	76.21	51.14	122.22	49.31	72.92
1.3.1	Pre-Monsoon flood Protection and Drainage Project in Haor Areas (01/07/2011-30/06/2015)	Bangladesh Water Development Board	87.81	0.00	87.81	68.71	68.71	0.00
1.3.1	Community based sustainable management of Tanguar haor 2nd revised 3rd phase	Ministry of Environment & Forests	2.12	1.96	0.17	-0.37	0.17	-0.54
1.3.1	Classification of wetlands of Bangladesh	Bangladesh Haor and Waterbody Development Board	0.24	0.00	0.24	0.15	0.15	0.00
1.3.1	Flood Management and Livelihood Increment in Hoar Region (01/07/2015-30/06/2022)	Local Government Engineering Department	112.82	76.50	36.32	102.94	32.98	69.96

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
1.3.1	Model validation on hydromorphological process of the river system in the subsiding Sylhet Haor basin	Bangladesh Haor and Waterbody Development Board	0.25	0.00	0.25	0.17	0.17	0.00
1.3.2	Fresh Water Prawn Culture Extension (2nd Phase) (01/07/2012-30/06/2017)	Department of Fisheries	7.23	0.00	7.23	3.38	3.38	0.00
1.3.2	Strengthening of Fishery and Aquaculture Food Safety and Quality Management System in Bangladesh (Better Work and Standards Program-BEST: BFQ Component) (1st Revised) (01/07/2010-31/12/2015)	Department of Fisheries	13.58	6.14	7.44	0.50	0.47	0.03
1.3.2	Enhancing Aquaculture Production for Food Security and Rural Development Through Better Seed and Feed Production and Management with Special Focal on Public Private Partnership (01/11/2014-31/10/2016)	Department of Fisheries	0.45	0.45	0.00	0.08	0.00	0.08
1.3.2	Climate Resilient Eco-System and Livelihoods (CREL) (01/07/2013-30/09/2016)	Department of Fisheries	13.17	12.76	0.41	10.40	0.34	10.06
1.3.3	Buriganga River Restoration Project (New Dhaleswari-Pungli-Bangshai- Turag- Buriganga River System) (1/4/2010-31/12/2015)	Bangladesh Water Development Board	121.04	0.00	121.04	103.18	103.18	0.00
1.4.1	Ground Water Investigation and Development of Deep Ground Water Source in Urban and Rural Areas in Bangladesh (01/07/2013-30/06/2019)	Department of Public Health Engineering	13.27	9.02	4.25	6.52	3.39	3.13
1.4.1	Barind Rain Water Conservation & Irrigation Project (2nd Phase) (1st Revised) (01/03/2011-30/06/2017)	Barendra Multipurpose Development Authority	26.17	0.00	26.17	9.20	9.20	0.00
1.4.1	Extension of Irrigation in Barind Area through conservation of water in Canal (01/01/2015-31/12/2017)	Barendra Multipurpose Development Authority	16.06	0.00	16.06	12.00	12.00	0.00
1.4.1	Integrated Agriculture improvement project in Panchagarh, Thakurgaon, Dinajpur and Jaypurhat	Department of Agricultural Extension	34.74	0.00	34.74	11.29	11.29	0.00

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
1.4.1	Action Research Project on Extension and Dissemination of Modern Water Saving Technologies and Management Practices to Increase Crop Production (01/04/2015-31/12/2019)	Rural Development Academy, Bogra	5.00	0.00	5.00	3.86	3.86	0.00
1.4.2	Mixed fruit cultivation in Chittagong Hill Tracts	Department of Agricultural Extension	4.72	0.00	4.72	4.60	4.60	0.00
1.4.3	Drain and road constructin and improvement at Patuakhali municipality to improve waterlogging and road transport (01/07/2015-30/06/2017)	Local Government Engineering Department	2.85	0.00	2.85	2.25	2.25	0.00
1.4.3	Drainage improvement at Gopalganj municipality	Local Government Engineering Department	3.11	0.00	3.11	3.05	3.05	0.00
2.1.1	Bangladesh Brick Kiln Efficiency Project (01/01/2013-31/12/2014)	Department of Environment	0.90	0.78	0.11	0.22	0.11	0.10
2.1.1	Modernization and Strengthening of Training Institute for Chemical Industries in Bangladesh (01/07/2014-30/06/2018)	Bangladesh Chemical Industries Corporation	6.43	5.13	1.30	4.51	0.77	3.74
2.1.1	Tannery Industrial Estate, Dhaka (2nd Revised) (01/01/2003-30/06/2016)	Bangladesh Small & Cottage Industries Corporation	138.30	0.00	138.30	42.55	42.55	0.00
2.1.1	Promotion of social and environmental standards in the industry PSES 2	Ministry of Commerce	6.86	6.75	0.12	4.60	0.12	4.48
2.1.3	Implementation of the National Biosafety Framework (INBF) (01/07/2013-31/12/2017)	Department of Environment	1.47	0.92	0.55	0.95	0.55	0.39
2.1.3	Safe and Environmentally Sound Ship Recycling in Bangladesh (Phase-1) (01/07/2014-31/12/2015)	Ministry of Industries	1.51	1.51	0.00	0.10	0.00	0.10
2.1.3	Clean Air and Sustainable Environment (CASE) Project (2nd Revised) (01/07/2009-30/11/2016)	Department of Environment	66.87	63.29	3.58	12.11	1.80	10.31
2.2.1	Waste management improvement of Dhaka South City Corporation	Dhaka South City Corporation	10.88	0.00	10.88	10.76	10.76	0.00

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
2.2.1	Strenthening waster management capacity of Dhaka South City Corporation through modernization of vehicles and equipments (01/07/2015-30/06/2016)	Dhaka South City Corporation	2.82	0.00	2.82	1.22	1.22	0.00
2.2.2	Sector Policy Support Project of the Water Supply and Sanitation Sub-Sector in Bangladesh Part-3 (1st Revised) (01/01/2012-31/12/2016)	Local Government Division	3.08	2.10	0.98	0.53	0.32	0.21
2.2.2	Establishment of National HRD Center at DPHE for Water Supply and Sanitation (1st Revised) (01/07/2007-30/06/2015)	Department of Public Health Engineering	4.68	0.00	4.68	1.69	1.69	0.00
2.2.2	37 District Town Water Supply Project (1st Revised) (01/06/2010-30/06/2017)	Department of Public Health Engineering	96.63	0.00	96.63	47.85	47.85	0.00
2.2.2	40 Pourashavas and Growth Centre Water Supply and Environmental Sanitation Project (Phase-II) (01/01/2014-30/06/2017)	Department of Public Health Engineering	23.61	0.00	23.61	19.37	19.37	0.00
2.2.2	The Project for Improvement of Comprehensive Management Capacity of DPHE on Water Supply (01/11/2014-31/10/2018)	Department of Public Health Engineering	4.37	4.00	0.37	3.22	0.17	3.05
2.2.2	Procurement of Saline Water Treatment Plant (01/07/2013-31/12/2015)	Department of Public Health Engineering	24.24	18.77	5.47	14.32	-4.02	18.34
2.2.2	Strengthening monitoring and enforcement in Meghna river for Dhaka sustainable water supply	Department of Environment	1.49	0.99	0.50	1.13	0.50	0.64
2.2.2	Water supply and rural areas	Department of Public Health Engineering	102.56	0.00	102.56	100.78	100.78	0.00
2.2.2	Supply of safe water and improvement of sanitation at communities of Khagrachari	Khagrachari Hilltracts District Council	3.14	0.00	3.14	3.14	3.14	0.00
2.2.2	Well Field Construction Project at Tetulzhora Bakurtha Area of Savar Uapzilla (Phase-1) (01/07/2012-30/06/2016)	Dhaka WASA	73.46	46.53	26.93	37.28	14.96	22.32
2.2.2	Bhandaljuri water supply project (01/10/2015-30/09/2020)	Chittagong WASA	132.86	96.75	36.11	130.51	36.09	94.42

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
2.2.3	Chittagong Water Supply Improvement and Sanitation Project (01/01/2011-31/12/2015)	Chittagong WASA	138.26	124.70	13.56	81.27	5.36	75.91
2.2.3	Bangladesh Rural Water Supply and Sanitation Project (BRWSSP) (01/07/2012-30/06/2016)	Department of Public Health Engineering	49.25	42.26	6.99	31.86	6.39	25.47
2.2.3	Environmental Sanitation and Water Supply with Piped Network in Thana Sadar and Growth Center Pouroshava (2nd Phase) (01/07/2012-30/06/2015)	Department of Public Health Engineering	34.43	0.00	34.43	28.36	28.36	0.00
2.2.3	Development of Gulshan-Banani-Baridhara Lakes (01/07/2010-30/06/2014)	Rajdhani Unnayon Kartripakhya	52.60	0.00	52.60	27.63	27.63	0.00
2.2.3	Development of Uttara Lake (01/07/2014-30/06/2016)	Rajdhani Unnayon Kartripakhya	4.79	0.00	4.79	3.27	3.27	0.00
2.2.3	Water Supply Sanitation and Drainage Project at Tongi Pourashava (1st Revised) (01/07/2012-31/12/2014)	Department of Public Health Engineering	13.17	0.00	13.17	4.85	4.85	0.00
2.2.3	Water supply, sanitation and health education	Department of Public Health Engineering	53.06	42.23	10.84	44.76	10.01	34.76
2.2.3	Construction of Drains to Alleviate Water Logging Problem at Rajshahi City (3rd Phase) (01/07/2013-30/06/2016)	Rajshahi City Corporation	17.53	0.00	17.53	12.64	12.64	0.00
2.2.3	Integrated development of Hatirjheel alongwith Begunbari canal 3rd revised	Rajdhani Unnayon Kartripakhya	286.67	0.00	286.67	4.56	4.56	0.00
2.2.3	Dasherkandi sewerage treatment plant	Dhaka WASA	425.36	280.00	145.36	407.09	127.09	280.00
2.2.3	Improvement of rain water drainage system in Agargaon	Dhaka WASA	3.11	0.00	3.11	2.16	2.16	0.00
2.2.3	National sanitation project 3rd phase	Department of Public Health Engineering	19.23	0.00	19.23	19.02	19.02	0.00
2.2.3	Improvement of Roads and Construction of Drainage for 55,56 no Word Kamrangir Char Area in Dhaka South City Corporation (01/03/2015-31/12/2016)	Dhaka South City Corporation	3.00	0.00	3.00	1.22	1.22	0.00

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
2.3.1	Safe crop production through integrated pest management	Department of Agricultural Extension	7.50	0.00	7.50	3.30	3.30	0.00
2.3.3	HCFC Phase Out Management Plan UNEP Component (Stage-1) (01/07/2014-30/06/2016)	Department of Environment	0.38	0.35	0.02	0.22	0.02	0.20
2.3.3	Institutional Strengthening for the Phase Out of Ozone Depleting Substance (Phase-7) (01/07/2014-30/06/2017)	Department of Environment	0.16	0.13	0.03	0.08	0.03	0.05
3.1.1	Strengthening of 1st Class 13 Inland River Prot Weather Forecasting (01/07/2014-30/06/2017)	Bangladesh Meteorological Department	6.91	0.00	6.91	5.02	5.02	0.00
3.1.1	Strengthening hydrological information services and early system component B	Bangladesh Water Development Board	0.86	0.79	0.06	0.86	0.06	0.79
3.1.1	Emergency 2007 Cyclone Recovery & Restoration Project (ECRRP): Project Co-ordination & Monitoring Unit (2nd Revised) (01/08/2008-30/06/2017)	Planning Division	17.04	16.41	0.63	10.86	0.34	10.52
3.1.2	Coastal town environmental infrastructure project	Local Government Engineering Department	112.15	90.40	21.75	97.82	19.47	78.34
3.1.2	Costal Climate Resilient Infrastructure Improvement Project (01/07/2012-30/06/2017)	Local Government Engineering Department	157.69	124.89	32.80	109.95	23.54	86.40
3.1.2	Construction of Multipurpose Disaster Shelter (01/07/2015-30/06/2020)	Local Government Engineering Department	376.28	375.00	1.28	369.96	1.24	368.72
3.1.2	Construction of Flood Shelters in the Flood-Prone and River Erosion Areas (Phase-2) (01/07/2013-30/06/2016)	Directorate of Disaster Management	22.39	0.00	22.39	7.58	7.58	0.00
3.1.2	Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP) (Revised) (01/08/2008-31/12/2017)	Local Government Engineering Department	250.22	249.20	1.02	88.51	0.45	88.06
3.1.3	Pilot Project on Weather Index-based Crop Insurance (01/07/2013-30/06/2016)	Sadharan Bima Corporation & Department of Weather	2.74	2.10	0.64	1.27	0.35	0.91
3.1.3	ECRRP Sub Component D1: Disaster Risk Reduction and Mitigation	Directorate of Disaster Management	10.11	10.06	0.05	1.55	0.00	1.55

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
3.1.3	Gucchagram- Climate Victims Rehabilitation 2nd phase	Ministry of Land	33.11	0.00	33.11	30.74	30.74	0.00
3.2.1	Charfession and Monpura Town Protection Project in Bhola District (1st Revised) (01/07/2009-30/06/2016)	Bangladesh Water Development Board	21.54	0.00	21.54	5.95	5.83	0.13
3.2.1	Protection of Shahbazpur Gas field from erosion of the Meghna River under Borhanuddin upazilla of Bhola District (Phase-II) (1st Revised) (1/3/2010-30/06/2016)	Bangladesh Water Development Board	17.19	0.00	17.19	1.38	1.38	0.00
3.2.1	Protection of Right Bank of Jamuna River at Sadar Kazipur Upazilla under Sirajganj District (01/10/2010-30/06/2015)	Bangladesh Water Development Board	53.95	0.00	53.95	14.04	14.04	0.00
3.2.1	River Bank Protective Work of Left Bank Erosion of the Padma River at Different Places in Sujanagar Upazilla and Right Bank Erosion of the Jamuna River from Nagarbari to Kazirhat in Bera Upazilla of Pabna District (01/01/2011-30/06/2016)	Bangladesh Water Development Board	28.09	0.00	28.09	8.54	8.54	0.00
3.2.1	Protection of Alatuli Area of Chapainawabgong District from the Erosion of the Padma River (01/09/2012-30/06/2017)	Bangladesh Water Development Board	35.15	0.00	35.15	28.26	28.26	0.00
3.2.1	Protection of Bhurungamari-Madargong Road from the Erosion of Dudhkumar River adjacent to Sonahat Bridge at Bhurungamaru Upazilla & Bank Revetment Work at Left Bank of Teesta River from Gunaigach to Bozra Senior Madrasha at Ulipur Upazilla in Kurigram Di	Bangladesh Water Development Board	7.03	0.00	7.03	3.29	3.29	0.00
3.2.1	Protection of Left Bank of Padma River from Komorpur to Shara-Jhaudia in Ishwardi Upazila under Pabna District and from Tilokpur to Gouripur under Natore District (01/01/2013-30/06/2015)	Bangladesh Water Development Board	28.98	0.00	28.98	19.18	19.18	0.00
3.2.1	Protection of Barhmaputra River Right Bank at Bairagirhat and Chilmari Bandar Area of Chilmari & Ulipur Upazila in Kurigram District (Phase-II) (01/11/2012-30/06/2016)	Bangladesh Water Development Board	24.53	0.00	24.53	15.33	15.33	0.00

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
3.2.1	River Bank Protective Work of different Location of Left and Right Bank of Karnaphuli river, Boalkhali, Raikhali Khal at Boalkhali & Raujan upazila under Chittagong District (01/07/2013-30/06/2016)	Bangladesh Water Development Board	9.20	0.00	9.20	6.02	6.02	0.00
3.2.1	River Bank Protection of Vulnerable Part at Lalmohon Upazila under Bhola District (2nd Phase) (1st Revised) (01/07/2013-30/06/2017)	Bangladesh Water Development Board	17.21	0.00	17.21	10.93	10.93	0.00
3.2.1	Coastal Embankment Improvement Project Phase-1 (CEIP-1) in Satkhira, Khulna, Bagerhat, Pirojpur, Barguna and Patuakhali District (01/07/2013-30/06/2020)	Bangladesh Water Development Board	420.51	420.51	0.00	237.24	0.00	237.24
3.2.1	Protection work to project Ramgoti and Kamolnagar Upazila and adjacent areas under Laxmipur District from the continous erosion of Meghna River (01/07/2014-30/06/2017)	Bangladesh Water Development Board	25.39	0.00	25.39	11.23	11.23	0.00
3.2.1	Flood and River Bank Erosion Risk Management Invesment Program (01/07/2014-30/06/2019)	Bangladesh Water Development Board	106.23	82.36	23.87	78.43	14.17	64.26
3.2.1	Bank Protection of Jamuneswary, Chickly and Charalkata River at Kishoregonj, Taragonj of Badargonj Upazila (01/01/2015-30/06/2017)	Bangladesh Water Development Board	10.71	0.00	10.71	7.75	7.75	0.00
3.2.1	Protection of Rajshahi Cadet College and other establishments from Padma erosion	Bangladesh Water Development Board	11.13	0.00	11.13	10.53	10.53	0.00
3.2.1	Embankment protection of Rajapur and East Ilisha Union from erosion of Meghna river at Sadar Upazila of bhola district	Bangladesh Water Development Board	35.82	0.00	35.82	35.82	35.82	0.00
3.2.1	Protecting Tozumudding upazila sadar of bhola district from erosion of Meghna river by riverside embankments	Bangladesh Water Development Board	57.61	0.00	57.61	57.61	57.61	0.00
3.2.1	Rehabilitation of Bhutiar Beel and Barnal-Salimpur-Kulabashukhali Flood control and Dranage Project in Khulna Districts (2nd Phase) (01/10/2013-30/06/2018)	Bangladesh Water Development Board	36.14	0.00	36.14	25.66	25.66	0.00
3.2.1	Shibpur flood control, drainage and irrigation project	Bangladesh Water Development Board	569.46	0.00	569.46	569.22	569.22	0.00

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
3.2.1	Bakkhain-Bhandangaon Flood control, drainage and irrigation project in Patia upazila of Chittagong district	Bangladesh Water Development Board	3.18	0.00	3.18	2.64	2.64	0.00
3.2.1	Protection of poulders 56/57 from erosion Meghna river at Doulotkhan and Borhanuddin upazila of Bhola district	Bangladesh Water Development Board	70.71	0.00	70.71	70.11	70.11	0.00
3.2.1	Tarail-Pachuria Flood Control, Drainage and Irrigation Project (2nd Phase) (01/03/2010-30/06/2015)	Bangladesh Water Development Board	36.08	0.00	36.08	12.87	12.87	0.00
3.2.1	Southwest area integrated water resources planning and management phase 2	Bangladesh Water Development Board	61.81	51.73	10.07	61.48	10.01	51.47
3.2.1	Protection of Bank from Bahadurabad ghat to Futani Bazar & Peigna Bazar area at Sharishabari Upazilla and from Harindhara to Hargila at Islampur Upzila from erosion of Jamuna River under Jamalpur District (1st Revised) (1/4/2010-30/06/2016)	Bangladesh Water Development Board	62.76	0.00	62.76	14.71	14.71	0.00
3.2.1	Bank protection of Sangu and Chandkhali River at Chandnaish and Satkania Upazila of Chittagong (01/04/2015-30/06/2018)	Bangladesh Water Development Board	17.69	0.00	17.69	16.74	16.74	0.00
3.2.1	Right bank protection of the Padma river to protect kuthibari of Rabindranath Tagore and closer areas (1/5/2015-30/6/2018)	Bangladesh Water Development Board	23.16	0.00	23.16	22.81	22.81	0.00
3.2.1	Left bank protection of Meghna river at Maniknagar of Nabinagar Upazila of Brahmanbaria (01/04/2015-30/6/2017)	Bangladesh Water Development Board	4.68	0.00	4.68	4.09	4.09	0.00
3.2.1	Right bank protection of the Padma river at Philipnagar, Abedirghat, and Islampur areas of Doulatpur Upazila of Kushtia district (1/5/2015-30/6/2017)	Bangladesh Water Development Board	10.71	0.00	10.71	7.15	7.15	0.00
3.2.1	Right bank protection of Jamuna river and alternate embankment construction from Kurnibari to Chandanbaisha at Sariakandi Upazila of Bogra district (01/04/2015-30/6/2018)	Bangladesh Water Development Board	38.66	0.00	38.66	36.99	36.99	0.00
3.2.1	Left bank protection of the Padma river from Doairbazar to Braha bazarghat at Dohar Upazila of Dhaka district (1/11/2015-30/6/2018)	Bangladesh Water Development Board	27.90	0.00	27.90	27.78	27.78	0.00

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
3.2.1	Strengthening of dumping zone of bank protection work and rehabilitation of embankment-cum-road of Jamalpur town protection project under Sadar upazila of Jamalpur district (01/02/2016-30/06/2018)	Bangladesh Water Development Board	2.79	0.00	2.79	2.79	2.79	0.00
3.2.2	Participatory Small Scale Water Resources Sector Project (3rd Phase) (Special Revised) (01/01/2010-30/06/2017)	Local Government Engineering Department	103.23	75.84	27.39	36.69	8.01	28.68
3.2.2	West Gopalgonj Integrated Water Resources Management (01/07/2014-30/06/2016)	Bangladesh Water Development Board	15.66	0.00	15.66	7.62	7.62	0.00
3.2.2	Removal of Drainage Congestion in the Kobadak River Basin (Phase-2) (01/07/2011-30/06/2015)	Bangladesh Water Development Board	33.53	0.00	33.53	13.70	13.70	0.00
3.2.2	Integrated Agricultural Productivity Project (1st Revised) (01/07/2011-30/06/2016)	Ministry of Agriculture	66.47	49.87	16.60	6.24	0.62	5.62
3.2.2	Blue Gold Program (BWDB Component) (01/01/2013-31/12/2018)	Bangladesh Water Development Board	72.24	62.63	9.61	50.45	7.58	42.87
3.2.2	The Bangladesh Delta Plan-2100 Formulation Project (BDP-2100) (01/07/2013-31/12/2015)	General Economic Division	11.26	9.80	1.46	2.48	1.21	1.28
3.2.2	Transfer of technology for agricultural production under blue gold programme	Department of Agricultural Extension	1.51	1.30	0.21	0.93	0.09	0.84
3.2.3	Pabna-Natore-Sirajganj Minor Irrigation Development Project (3rd Phase) (1st Revised) (01/03/2011-30/06/2016)	Bangladesh Agriculture Development Corporation	21.33	0.00	21.33	4.42	4.42	0.00
3.2.3	Water Management Improvement Project (WMIP) (2nd Revised) (1/7/2004-31/12/2015)	Bangladesh Water Development Board	125.93	113.35	12.58	103.72	5.15	98.57
3.2.3	Eastern Integrated Irrigation Area Development Project (2nd Phase) (01/01/2013-30/06/2017)	Bangladesh Agriculture Development Corporation	14.34	0.00	14.34	2.75	2.75	0.00
3.2.3	Modern Minor Irrigation Expansion Project in Greater Rangpur District (01/07/2013-30/06/2017)	Bangladesh Agriculture Development Corporation	4.39	0.00	4.39	0.97	0.97	0.00

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
3.2.3	Sylhet Division Minor Irrigation Development Project (01/10/2014-30/06/2019)	Bangladesh Agriculture Development Corporation	17.70	0.00	17.70	10.98	10.98	0.00
3.2.3	Barisal Division Minor Irrigation Development Project (01/04/2015-30/06/2019)	Bangladesh Agriculture Development Corporation	12.97	0.00	12.97	10.60	10.60	0.00
3.2.3	Enhancing crop production by improved water management at farm level	Department of Agricultural Extension	4.43	0.00	4.43	2.34	2.34	0.00
3.2.3	Expanding irrigation and removign water logging through enhanced availability of surface water in Naogaon district	Barendra Multipurpose Development Authority	10.14	0.00	10.14	8.96	8.96	0.00
3.2.3	Increasing irrigation efficiency through constructing underground irrigation canals	Barendra Multipurpose Development Authority	17.46	0.00	17.46	16.06	16.06	0.00
3.3.1	Establishment of Calibration and Verification Facilities of CNG Mass-Flow Meter for CNG Filling Station in BSTI (2nd Revised) (01/07/2011-30/06/2016)	Bangladesh Standard and Testing Institute	1.04	0.00	1.04	0.21	0.21	0.00
3.3.1	Technical Assistance project for Wind Resources Mapping (01/11/2012-31/10/2015)	Power Division	2.88	2.46	0.42	0.57	0.22	0.35
3.3.1	Installation of 70000 improved cookstoves in selected areas of Bangladesh	Department of Environment	0.81	0.80	0.01	0.45	0.01	0.44
3.3.1	Power supply at rural areas of Chittagong Hilltracts by solar panels	Ministry of Chittagong Hill Tracts	5.13	0.00	5.13	4.89	4.89	0.00
3.3.1	Solar street lighting program in city corporation	Bangladesh Power Development Board	40.59	30.33	10.26	39.14	9.06	30.08
3.3.1	Installation of a 5 MW Solar Photo Voltaic (PV) Grid Connected Power Generation Plant in Kaptai (01/03/2012-31/12/2016)	Bangladesh Power Development Board	24.69	20.17	4.52	23.13	4.52	18.61
3.3.1	Sustainable Energy for Development (SED) (01/01/2009-31/12/2013)	Power Division	15.26	14.84	0.42	0.69	0.42	0.27

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
3.3.1	Technical Assistance Project for Development of Sustainable Renewable Energy Power Generation (SREP Gen) (01/01/2014-30/06/2018)	Power Division	5.08	4.06	1.02	4.22	0.39	3.83
3.3.1	LED light (CKD) assembling plant in ETL (01/01/2016-30-06/2018)	Bangladesh Steel and Engineering Corporation	5.12	0.00	5.12	5.12	5.12	0.00
3.3.2	Construction of Railway Line from Khulna to Mongla Port (01/12/2010-30/06/2018)	Bangladesh Railway	487.39	304.02	183.37	327.24	59.73	267.51
3.3.2	Construction of Duel Gauge Doubel line to Parallel of Existing Dhaka Narayangong Section (01/07/2014-30/06/2017)	Bangladesh Railway	48.55	0.00	48.55	48.19	48.19	0.00
3.3.2	Construction of Amnura Bypass Railway Line (01/01/2015-30/06/2017)	Bangladesh Railway	2.71	0.00	2.71	1.76	1.76	0.00
3.4.1	Climate Resilient Ecosystem and Livelihood (CREL)-ECA	Department of Environment	6.71	6.38	0.33	1.99	0.27	1.71
3.4.1	Climate Change Adaptation Project (01/07/2015-30/06/2016)	Local Government Engineering Department	21.26	7.50	13.75	7.79	6.74	1.05
3.4.2	WFP Assisted Enhancing Resilience to Disaster and the Effects of Climate Change Project (01/01/2012-31/12/2016)	Local Government Engineering Department	91.71	23.85	67.86	26.44	2.59	23.85
4.1.1	Reduction of temporary environmental pollution through enhancing organizational capacity	Department of Environment	0.23	0.13	0.10	0.23	0.10	0.13
4.1.1	Promotion of climate change unit in coordinating the Bangladesh Climate Change Strategy and Action Plan	Ministry of Environment & Forests	5.51	5.13	0.38	2.49	0.37	2.13
4.1.1	Implementation of Integrated Water Resources Management (IWRM) Process in compliance with Bangladesh Water Act-2013 (01/11/2013-31/10/2016)	Water Resources Planning Organization	0.48	0.43	0.04	0.41	0.05	0.36
4.1.4	Bangladesh Third National Communication (TNC-UNFCC) (Stage-1) (01/12/2013-30/11/2017)	Department of Environment	0.49	0.45	0.03	0.26	0.03	0.22
4.1.4	Strengthening the Environment, Forestry and Climate Change Capacities of the Ministry of Environment and Forests and its Agencies (30/10/2013-30/10/2016)	Ministry of Environment & Forests	4.47	4.47	0.00	2.26	0.00	2.26

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
4.1.4	National capacity development for implementation of RIO convention through environmental governance	Department of Environment	0.86	0.86	0.00	0.86	0.00	0.86
4.2.3	Farmer's Training at the Upazila level for Transfer of Technology (2nd Phase) (2nd Revised) (01/07/2011-30/06/2017)	Department of Agricultural Extension	22.92	0.00	22.92	1.62	1.62	0.00
4.2.3	Capacity Development Project for Participatory Water Resources Management through Integrated Rural Development (01/09/2012-30/09/2017)	Local Government Engineering Department	7.29	6.45	0.84	2.71	0.84	1.87
4.3.1	Development of smart project monitoring and MIS	Bangladesh Water Development Board	0.25	0.00	0.25	0.23	0.23	0.00
4.3.2	Enhancement of facilities of Forest Department training institutes	Department of Forest	2.76	0.00	2.76	2.70	2.70	0.00
4.3.4	Impact assessment of structural innovation in Haor ecosystem and innovation for solution	Bangladesh Haor Development Board	0.39	0.00	0.39	0.39	0.39	0.00
4.3.4	Research on Digester Prevention/Mitigation Masers Against Floods and Storm Surges in Bangladesh (01/07/2014-30/06/2019)	University Grants Commission	3.64	3.64	0.00	2.81	0.00	2.81
4.3.4	Study interaction between Haor and river ecosystem including development of wetland inventory and wetland management framework	Bangladesh Haor and Waterbody Development Board	6.98	0.00	6.98	6.98	6.98	0.00
4.3.4	Study of investigation and expansion of ground water irrigation in Habiganj, Moulvibazar, Sylhet, Sunamgonj, Netrokona and Kishoreganj district	Bangladesh Haor and Waterbody Development Board	1.90	0.00	1.90	1.90	1.90	0.00
4.3.4	Infrastructural facilities for the department of industrial and production engineering in the department of architecture in DUET	University Grants Commission	2.82	0.00	2.82	0.98	0.98	0.00
4.3.4	Digitization of BBS publications and online secondary data collection	Bangladesh Bureau of Statistics	0.88	0.00	0.88	0.47	0.47	0.00

Sub-pgrm.	Project title	Implementing agency	Project cost (in million USD)			Financing available (in million USD)		
			Total	DP	GoB	Total	GoB	DP
4.3.4	Establishment of two Agricultural Training Institutes at Bancharampur Upazila of Brahmanbaria District and Saturia Upazila of Manikganj District Project (1st Revised) (01/07/2013-30/06/2016)	Department of Agricultural Extension	8.12	0.00	8.12	4.71	4.71	0.00
4.3.4	Development and Expansion of Research and Research Infrastructure of BARI (01/07/2012-30/06/2016)	Bangladesh Agricultural Research Institute	20.51	0.00	20.51	7.20	7.20	0.00
4.3.4	Strengthening Research Activities and Sub-Stations Development of BINA (2nd Revised) (01/05/2010-30/06/2016)	Bangladesh Institute of Nuclear Agriculture	16.38	0.00	16.38	0.45	0.45	0.00
4.3.4	Establishment of Fertilizer Testing Laboratories and Research Centre (EFLR) (1st Revised) (01/07/2012-30/06/2016)	Soil Resources Development Institute	5.71	0.00	5.71	0.76	0.76	0.00

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