

CHAPTER FIFTEEN

ENVIRONMENT, CLIMATE CHANGE AND DEVELOPMENT

Environmental development is a big challenge for a developing country like Bangladesh. Despite various environmental problems, the government of Bangladesh is working relentlessly to create a pollution free and eco-friendly country. The government is implementing 'Vision 2021' incorporating the environmental development as one of the most important goals. Furthermore, a detailed work plan has been formulated with a view to achieving environmental targets of Sustainable Development Goals (SDG's). 'Bangladesh Climate Change Strategy and Action Plan, 2009 (BCCSAP 2009)' is being implemented to address the impact of climate change where both adaptation and mitigation activities have been considered. For this reason, 'Bangladesh Climate Change Trust Fund (BCCTF)' has been formed with national resources. Moreover, the government has enacted 'Climate Change Trust Fund Act, 2010' and 'Climate Change Trust Fund Guidelines' for better management of BCCTF. Apart from, 'Bangladesh Climate Change Resilience Fund (BCCRF)' has also been formed with the assistance of Development Partners. The Ministry of Environment, Forest and Climate Change has also undertaken different consciousness programs and restructuring activities for environment conservation along with Ozone Layer Protection and Pollution Control. The Ministry of Disaster Management and Relief is also implementing various programs in order to tackle eventualities emanating from natural disasters.

The rapid growth of economy, urbanisation and population becomes a great threat for environmental and ecological balance of Bangladesh. Climate change creates threats for achieving Sustainable Development Goals (SDGs) and its targets. In order to establish a pollution free and sustainable environment-friendly country, the government is working hard to ensure better lives for current and future generations. Ministry of Environment, Forest and Climate Change has been playing a vital role by conducting essential activities for controlling environmental pollution and assuring biodiversity conservation. For this purpose, the Ministry has been formulated necessary legislation and implementing institutional strengthening activities.

International Initiatives on Environment Protection

The concept of environmental protection as well as its development received wider global attention at the Stockholm Conference in 1972. On the basis of this conference, several international initiatives were taken up which include establishing environmental institutions, undertaking national environmental work plan/policy across the countries. The formation of 'United Nations Environment Program (UNEP)' was the most effective outcome of this conference. In 1992, an Earth Summit was held at Rio De Janeiro in Brazil, which is considered as a landmark in the environment conservation. Later on 'Kyoto Protocol' was signed in 1997

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for the purpose of lessening carbon dioxide and green house gas emission.

International Efforts for Addressing Climate Change

United Nations Climate Change Conference or Conference of the Parties (COP) has been occurring every year since 1995 under the supervision of 'United Nations Framework for Climate Change (UNFCCC)'. Implementation status of UNFCCC is mainly discussed in this conference. The COP 21 was held at Paris in 2015 and a climate change agreement called 'Paris Agreement' was accepted by 195 countries. The COP 22 was held at Marrakesh in Morocco. The first meeting of the apex body of implementing Paris Agreement 'Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA)' was held during this conference. It was decided to formulate the 'Paris Agreement Work Program' by 2018. COP 23 was took place at Bonn, Germany in 2017. The latest world conference of climate change i.e. COP 24 held at Katowice, Poland. The 'Paris Agreement Work Program' has been accepted in this conference. All the participant countries agreed to reduce carbon emission in the conference. In addition, it has been decided to publish the progress report of carbon emission biennially from 2024.

Threats for Bangladesh due to Climate Change

Bangladesh is an innocent victim of the adverse impacts and in extreme vulnerable position due to climate change. Bangladesh is prone to natural disasters as the low-lying

part of the country is formed at the estuaries of the world's largest river systems. The country is surrounded by active Asian monsoon zone as well. 60 percent of land of the country is only 5 meters above from sea level. 'Hadley Center for Climate Prediction and Research (HCCPR)' estimates that sea level in Bangladesh will rise about 40 cm by 2080. According to 'Global Climate Change Risk Index, 2019' published by 'Germanwatch' Bangladesh is in 9th position among the countries that would be most affected by climate change induced natural disasters.

'Providing Regional Climates for Impact Studies (PRECIS') has been projected that annual average rainfall of Bangladesh will increase about 4 percent, 2.3 percent and 6.7 percent in 2030, 2050 and 2070 respectively. Moreover, according to the projection of General Circulation Model (GCM) the annual average temperature of Bangladesh will increase by 2.4 degree celsius and annual average rainfall will be changed by 9.7 percent within 2100. A study of the World Bank noted that up to two-thirds of Bangladesh is inundated by floods in every three to five years. As a result, infrastructure, housing, agriculture and livelihoods damaged extremely. In addition, Low-lying coastal areas are also at risk from cyclones and storm surges. 'The International Panel on Climate Change (IPCC)' predicts that by 2050, Bangladesh will lose 17 percent of its land and 30 percent of its food production by 2050 because of negative impact of climate change. The report 'Economics of Adaptation to Climate Change in Bangladesh, 2010' of the World Bank estimates that Bangladesh will

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be required US\$5,516 million for investment and US\$112 million for recurrent cost 2050 to protect against storm surge risk.

The present government has formed ‘Bangladesh Climate Change Strategy and Action Plan’ in order to cope with climate change related situation. Bangladesh is the first country among the developing countries that forms such type of integrated work-plan to meet with the challenge regarding to climate change. In this plan, 44 activities within 6 thematic areas are identified. In order to implement these activities the government has formed Bangladesh Climate Change Trust Fund (BCCTF) by its own resources. BCCTF is a special kind of fund and Bangladesh is the pioneer to establish such type of fund among the Least Developed Countries (LDCs). The government has also promulgated ‘Climate Change Trust Fund Act, 2010’ to run this fund. From FY2009-10 to March 2019, the government has allocated a total of Tk.3,500 crore to this fund.

Bangladesh is going to develop ‘National Adaptation Plan (NAP)’ under UNFCCC in order to fix integrated adaptation strategies and activities to meet long-term impact on climate change. Meanwhile, a ‘NAP Road Map’ has been prepared. In addition, Bangladesh has prepared ‘Nationally Determined Contribution (NDC)’ plan to manage growing emissions without compromising the required development. According to this plan, it is estimated to reduce 10 percent carbon emission with international cooperation and decline 5 percent carbon release with own ability by 2030. The government is going to develop ‘NDC Implementation Road Map’ and ‘NDC

Mitigation Action Plan’ for proper implementation of NDC.

Moreover, ‘Nationally Appropriate Mitigation Action (NAMA)’ has been prepared. A ‘Climate Change Unit’ has also been formed at Ministry of Environment, Forest and Climate Change. Apart from this, various programs and projects are being executed by the government in order to adapt climate change impact.

A long-term integrated mega plan ‘Bangladesh Delta Plan 2100’ has been formulated to combat climate change impact. The vision of the plan is to achieve upper middle income status through eliminating extreme poverty by 2030 and to reach a prosperous country beyond 2041. Furthermore, 6 specific goals have been fixed to this plan. The goals are: (a) ensure safety from floods and climate change related disasters; (b) enhance water security and efficiency of water usages; (c) ensure sustainable and integrated river systems and estuaries management; (d) conserve and preserve wetlands and ecosystems and promote their appropriate use; (e) develop effective institutions and equitable governance for in-country and trans-boundary water resources management and (f) achieve optimal and integrated use of land and water resources. With a view to attaining these goals ‘Bangladesh Delta Plan 2100’ has taken ‘Flood Risk Management Strategies’ and Fresh Water Strategies’ at national level.

Internal Climate Finance

Bangladesh is pioneer among the developing countries regarding to enforcement of climate finance for adaptation and mitigation of

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climate change caused by natural calamity and disaster. Bangladesh is towel ahead of its competitors in terms of reinforcing the measures for climate finance for adaptation and mitigation of climate change induced natural calamity and disaster. In FY2017-18, Finance Division published climate budget report 'Climate Protection and Development' analysing budget of 6 climate relevant ministries. It was the first climate budget report of the country. Later on, in FY2018-19 Finance Division brought out the second report 'Climate Financing for Sustainable Development' reflecting climate expenditure of 20 line-ministries. Budget allocation of these twenty ministries is 45.84 percent of the total national budget of FY2018-19. Out of total allocation of these ministries 8.82 percent is climate relevant. In FY2014-15, climate relevant allocation was 5.37 percent of total budget which raised to 8.26 percent in FY2018-19.

Up to December 2018, a total of 687 projects under BCCTF have been approved of which 624 belong to the various ministries/divisions while the remaining 63 projects are being implemented by different NGOs under the supervision of *Palli Karma Sahayak* Foundation (PKSF).

International Climate Finance

'Green Climate Fund (GCF)' is one of the prime sources of international climate finance. On behalf of Bangladesh, Economic Relations Division represents to this fund. The secretariat of 'National Designated Authority' has already been formed at Economic Relations Division to get climate finance from GCF. Meanwhile,

'Infrastructure Development Company Limited (IDCOL) and '*Palli Karma-Sahayak* Foundation (PKSF)' have recognised as National Implementing Authority of climate finance projects. Up to May 2018, GCF has approved three projects of Bangladesh amounting to US\$85.42 million.

Activities for Removing Air Pollution

Air pollution increases gradually as a result of rapid urbanisation, industrialisation, and increasing number of vehicles and mills-factories. Department of Environment has taken different initiatives to control air pollution including introducing modern brick kiln, hollow brick, and improved cook stoves and so on. In order to control air pollution the government has been implementing the following activities:

Monitoring Air Quality:

11Continuous Air Monitoring Station (CAMS) have been operating in Dhaka, *Chattogram*, *Rajshahi*, *Khulna*, *Gazipur*, *Narayangonj* and *Barishal* city corporations areas. The quantity of air pollution elements such as ozone, sulphur dioxide, nitrogen dioxide, carbon mono-oxide and so on regularly measures through these CAMS.

Vehicular Emission Control

Department of Environment (DoE) is monitoring vehicules emmission in big cities of the country including to Dhaka and *Chattogram* in a regular basis to control that type of air pollution. DoE also takes legal action against the vehicles that pollute air severely.

Brick Kiln Emission Control

DoE works for establishing energy saving, effective in air pollution and modern technology based environment-friendly brick kiln instead of traditional brick kiln to reduce brick kiln emission. ‘The Brick Manufacturing and Kilns Establishment (Control) Act, 2013’ has been enacted to manage brick construction industry in accordance with the environment which has been effected from July 2014. The act realistically amended in 2019. At present, in total 72 percent brick kilns (5,571) are operating with modern technology.

DoE frequently executes enforcement activities all over the country against illegal brick kilns with the help of district administration and police administration. Up to February 2019, enforcement activities have been executed against 291 illegal brick kilns and recovered Tk.3.21 crore as penalty.

Industrial Pollution Control

In order to control industrial pollution, it is mandatory to take environmental clearance certificate from DoE for the particular industry/ project. DoE has issued and renewed the certificate while some prerequisite activities for example Effluent Treatment Plant (ETP), sound barrier, ‘Air Treatment Plant (ATP)’, Dust collector and internal monitoring system are fulfilled. From 2010 to December 2018, DoE has been issued a total of 55,801 environmental clearance certificate. In addition, 76,768 certificates have been renewed by DoE during this period.

Industrial Pollution Control Activities

- **Establishment of Effluent Treatment Plant (ETP):** DoE has been monitoring continuously to set up ETP with a view to preventing water pollution. As a result, most of the liquid waste discharging industries has already been installed ETP. Up to February 2019, altogether 1,747 industries/ projects have installed ETP. In addition, the activity of installing of 103 ETPs are under process.
- **Zero Discharge Plan:** Now, liquid waste discharge industries are implementing Zero Discharge Plan. As a result, produced liquid waste industries can not discharge in water way unless it is reused. From 2014 to February 2019, DoE approved 503 Zero Discharge Plans.
- **Enforcement Activities:** DoE takes legal action including filed case with environment court, operate mobile courts and penalty for environment pollution under the ‘Environmental Conservation Act, 1995’ (Revised in 2010). Up to February 2019, DoE recovered Tk.6.93 crore as fine by conducting enforcement activities against 188 institutes/ persons.
- **Operation against Banned Polythene Shopping Bags:** For controlling use of banned polythene shopping bags, field offices and enforcement section of DoE regularly operate mobile courts with district administrations’ support. Moreover, eight task forces have been formed in coordination with RAB, police, city corporations and other concerned organisations to run anti-polythene operation all over the country. They are working all over the country. Up to

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February 2019, DoE has seized 155.55 tons of shopping bags and fined Tk.4.29 crore by carrying out 197 operations.

- **Waste Management Activity:** DoE is implementing a pilot project 'Programatic CDM Project' to develop environmental based waste management. Under this project compost plants have been built at Narayanganj, Rangpur and Mymensing city corporations and Cox'sbazar municipality areas. Already the compost plants at Narayanganj and Mymensing have been started operation in producing compost. In addition, construction of two compost plants at Feni and Kishoreganj municipality areas is in under process.

Biodiversity Conservation

Because of climatic and geo-natural position, Bangladesh is affluent with biodiversity. However, The environment and biodiversity of Bangladesh now is in endangered due to the continuous expansion of urbanisation, industrialisation and some inconsiderate human activities.

Meanwhile, 'Bangladesh Biodiversity Act, 2017' has been enacted. Moreover, 'Ecologically Critical Management Rules, 2016' has been prepared.

National Biodiversity Strategy and Action Plan

Bangladesh has already prepared 'National Biodiversity Strategy and Action Plan (NBSAP) 2016-20' based on 'UN Biodiversity Strategic Plan 2016-2020'. The main theme of NBSAP is to preserve national biodiversity.

The main activities of NBSAP's are:

Conservation of Ecologically Critical Areas (ECA):

The government has declared 13 significant areas of biodiversity as 'Ecologically Critical Areas. The government has also taken initiatives to preserve these areas in order to protect biodiversity and ensure environmental development. Currently works started to preserve and promote biodiversity and ecosystem of Saintmartin, the only coral island of the country. In addition, preservation activity continues in the *Halda* river, the only natural breeding centre of the country and it has declared as ecologically critical area.

Different types of activities are being conducted in ecologically critical areas to ensure the conservation, management and sustainable use of coastal and wetland biodiversity. For this purpose, 1st phase of the project 'Community Based Adaptation in the Ecologically Critical Areas through Biodiversity Conservation and Social Protection' has already been completed at 'Cox'sbazar-Teknaf Peninsula, Sonadia Island and Hakaluki Haor. At present, the second phase of the project will be under taken.

Blue Economy: 'Blue Economy Action Plan'

has been taken to ensure sea ecosystem conservation, prevention of meritime pollution, to accumulate meritime resources and to ensure environmental-friendly management of these resources. Moreover, another main objective of this plan is to include the preservation and management of marine and coastal biodiversity in the mainstream of development.

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Marine Pollution Monitoring; In order to monitor marine pollution, water quality is tested regularly at 4 points in the Bay of Bengal. By analysing the result of these tests, it was found that from July 2017 to June 2018, Dissolved Oxygen was 6.3-8.5, pH was 7.0-8.4 and Total Dissolved Solid was 4,829-13,391. In addition, DoE has already completed a research project titled 'Assessment of Sea Level Rise and Vulnerability in the Coastal Zone of Bangladesh through Trend Analysis' to assess the sea level rise and determine the risks.

Ozone Layer Protection

Bangladesh had signed the Montreal Protocol in 1990 and ratified its later amendments. The 'National Technical Committee on Ozone Depleting Substances (NTCODS)' was formed in 1995. Furthermore, Ozone Cell was formed in 1996 in order to implement Montreal Protocol related activities. Ozone Cell is executing different projects funded by the Montreal Protocol Multilateral Fund since its inception. The government has already banned utilisation of some Ozone depleting substances. Moreover, different types of training programs are being arranged for the concerned people including law enforcement agencies who are worked for protecting 'Ozone Layer'. Bangladesh achieved special appreciation of United Nations Environment Program (UNEP) in 2012 and 2017 for the successful implementation of Montreal Protocol.

Sustainable Development Goals (SDGs) and Bangladesh

The government is working for the implementation of the environment and

climate related goals and targets of SDGs. Among 17 goals of SDGs, 3 goals are directly linked with environment and climate. The Goal 13 declares 'Take urgent action to combat climate change and its impacts'. According to the first indicator of goal 13 'Number of deaths, missing persons and directly affected persons attributed to disasters per one lakh populations reduce to 6,050 by 2020 and 1,500 by 2030.' According to 'SDGs: Bangladesh Progress Report- 2018' currently in Bangladesh the number of affected persons is 12,881 among one lakh people. Ministry of Disaster Management and Relief has prepared 'Disaster Risk Reduction Strategies of Bangladesh (2016-2020) with a view to achieving this target.

The goal 14 says 'Conserve and sustainably use the oceans, seas and marine resources for sustainable Development'. One of the key targets of this goal is 'Coverage of 2.5 percent of marine areas of Bangladesh as protected area'. 'SDGs: Bangladesh Progress Report- 2018' discloses that at present, 2.05 percent of marine of Bangladesh is protected. The goal 15 states that 'Protect, restore and promote sustainable use of terrestrial ecosystem, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss'. 'SDGs: Bangladesh Progress Report- 2018' reveals that the forest coverage of the country now stands at 17.5 percent which is targeted to increase to 20 percent by 2020. In order to protect bio-diversity, Bangladesh has taken many steps including continuous moratorium on tree felling, declaration of 13 significant

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areas of biodiversity as ‘Ecologically Critical Areas’, creating special biodiversity zones and creating two vulture safe zones.

Green Banking

Bangladesh Bank issued a comprehensive ‘Policy Guidelines for Green Banking’ to banks and financial institutions in January 2011 in order to develop a sustainable financial system. In FY2018-19 (up to February 2019), banks and financial institutes have disbursed Tk.4,954 crore as green finance. Up to February 2019, out of 33,619 rated projects Banks and Financial Institutes have disbursed Tk.1,44,303 crore against 28,536 environmental risk rated projects.

With a view to improving the brick sector especially brick kilns through constructing more energy efficiency and environment-friendly brick kilns, Bangladesh Bank has been implementing the ADB supported revolving relending facility ‘Financing Brick Kiln Efficiency Improvement Project’. In FY2018-19, under this project, a total of Tk.209.25 crore has been disbursed to 12 sub-projects through 13 participating banks and financial institutes

Conservation of Forest

Department of Forest (DoF) is responsible for conservation and sustainable management of forest. The total forest land of Bangladesh is 2.32 million hectares. Out of this total area, 1.60 million hectares are under DoF. The rest 0.72 million hectares forest are under the district administrations. Among the DoF areas, 1.40 million hectares are natural forests and 0.20 million hectares are artificially created coastal forest. In addition, there are

about 0.77 million hectares homestead forests growing on around villages and marginal land of the country.

DoF works for the enrichment of forest resources, providing raw materials to wood-based industries and conserving of biodiversity. Apart from, the Department has already implemented different development projects and programs with a view to conserving and developing environment as well as wildlife. It also works for the expansion of eco-tourism.

In FY2018-19, DoF has been implementing 10 investment projects and 5 technical assistance projects. 20 development projects under Climate Change Trust Fund have also been implemented by DoF.

Social Forestry and Poverty Reduction Activities

Social forestry has a great contribution to reduce poverty and improve socio-economic condition of the rural and marginal people. This activity also plays a vital role to protect environment balance, adaptation and mitigation of climate change impact and biodiversity conservation.

Dividends of beneficiaries have been increased by amending ‘The Social Forestry Rule, 2004’. Now, the beneficiaries have opportunity to invest in social forestry activities. It is noted that more than six lakh beneficiaries are involved in social forestry program. Up to March 2019, a total of Tk.314.54 crore has been distributed among 1,70,594 beneficiaries.

Social Forest activity has a big involvement in the social safety net program of the government. In addition, this program is

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largely contributing to economic development and women empowerment.

National Herbarium

Bangladesh National Herbarium (BNH) conducts taxonomic research on the plant species of the country. Collecting, indentifying, preserving and developing database of agricultural, woody, medicinal, threatened and economically important plants through field surveys is the main task of BNH. The institute publishes in a regular basis a booklet series called 'Flora of Bangladesh' which includes information about plant species of the country. BNH has implemented a program 'Red Data Book of Vascular Plants, Volume-2'. Through this program, some books including the information of endangered species plants have been published. Currently, a project called 'survey of vascular Flora of *Chattogram* and *Chattogram* Hill Tracts' being implemented by BNH.

Bangladesh Forest Research Institute

'Bangladesh Forest Research Institute' is the only national research institute for forest and forest resources. The main task of the institute is to develop innovative technology for increasing production of forest resources and better utilisation of these resources. In addition, the institute works for development and expansion of nursery and forestry strategies to retain some extinct plants. At present, the institute carrying out 53 research programs.

Natural Disaster Management

Bangladesh is one of the most disaster-prone countries in the world. Every year, lives and

property are affected due to various disasters. Bangladesh faced to the devastating cyclones in 1970 and 1991, *SIDR* in 2007, *AILA* in 2009 and fatal floods in 1988, 1998, 2004 and 2007. Furthermore, every year different types of disasters attack the country. The government has been working for disaster risk reduction and preparedness and post disaster rehabilitation management. The main vision of the government is to establish an emergency response system by enhancing capacity of disaster management and to reduce disaster risk of people especially the poor and affected people.

Recent Steps/Initiatives Regarding Disaster Management

Activities Related to Act, Policies, Rules and Contracts

- Amend the permanent orders of disaster management including thunders and word disaster management committee.
- 'The Guideline of Dead Body Management, 2016' has been published
- 'Debris Management Guidelines' has already been finalise and
- Bangladesh has achieved the membership of 'Asian Diaster Reduction Centre (ADRC)', 'Regional Integrtd Multi-Hazzard Early Warning System (RIMES)', 'Asian Ministerial Conference on Diaster Reduction (AMCRD)' and 'International Search and Rescue Advisory Group (INSARAG)'.

Preparation of Action Plan

- 'Sendai Framework for Disaster Risk Reduction' was accepted at world

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conference of disaster risk reduction held at Sendai, Japan in 2015. Bangladesh has prepared the country action plan based on this framework.

- 'Contingency Plan' has been prepared for early recovery from any disastrous incident.
- The inundation map for flood and risk map for storm surge have been developed. The map could be used to determine the safe plinth level for construction of shelter, houses, roads, embankments and so on.
- For effective disaster management, preparation of 'Bangladesh Incident Management System (BIMS)' guidelines is at the final stage. In addition, separate drafts of 'Debris Management Plan' have been prepared for Dhaka, *Chattogram* and *Sylhet* Metropolitan areas.

Awareness Building Programs

- 'Damage and Needs Assessment (DNA)' Cell has been formed at Department of Disaster Management. The District Relief and Rehabilitation Officers and *Upazila* Project Implementation Officers have been provided trainings on DNA software.
- Multi-Hazard Risk and Vulnerable Assessment Cell' has been formed.

Ongoing Projects/ Programs

- Construction of Small Culverts/ Bridges: The project is implementing in order to remove water logging and development of communication system in rural areas. A total of 10,445 bridges/culverts have been

built under this project. Moreover, 2,937 bridges/ culverts under construction.

- Construction of Bridges/ Culverts at *Chattogram* Hill Tracts Area: Under this project a total of 468 culverts amounting to Tk.133.37 crore have been built at rural plain land. Length of these culverts is not more than 12 meters.
- Herringbone Bond (HBB) Project: The earthen rural roads are mainly constructed through Work for Food Program and Test Relief Program. Since FY2008-09, the government launched 'Employment Generation Program for Ultra Poor'. Mainly, rural earthen roads are built under this program. Up to March 2019, almost 3 lakh km earthen roads have been constructed by these programs. However, the roads become out of order during the rainy season. As a result, every year a huge amount of money has to spend for maintaining and re-constructing these roads. Under this circumstance, Herringbone Bond project has been accepted to reduce maintenance and management cost. It is estimated that a total of 3,145.50 km roads would be herringbone bond. Up to March 2019, 1,067.50 km roads have been herringbone bond at 488 *upazilas* under 64 districts. The rest of 2,078 will be completed by FY2018-19.
- Strengthening Disaster Risks Management Project: The main purpose of this project is to strengthen government disaster risk management activities by recovering and rehabilitating of natural calamities especially cyclone risked infrastructures. Under this project, the

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most vulnerable 12 districts fire stations and offices of 35 *upazila* Project Implementation Officer (PIO) will be modernised with ICT facilities.

Programs of Water Development Board to Combat Climate Change Risk

Bangladesh Water Development Board plays a special role to combat negative impact of climate change. The board has already implemented 91 projects amounting to Tk.813.12 crore with Bangladesh Climate Change Trust Fund (BCCTF). More than 43 projects are operating by BCCFT. These

projects includes construction/repair of polders/embankment, construction of cross dam for reclamation of land, river bank construction and re-excavation of rivers/*khals*. As a successful implementation of these projects, prevention of flood and saline water intrusion, removal of water logging, water availability and proper management of water have been ensured. Above all, livelihood of the people of the project areas has been improved and their ability to combat negative impact of climate change has also been increased.