

CHAPTER 15

ENVIRONMENT, CLIMATE CHANGE AND DEVELOPMENT

Like many other countries in the world environmental development is a great challenge for Bangladesh. The government of Bangladesh is working relentlessly to create a pollution free and eco-friendly country by adopting and implementing various environment-friendly plans, policies and programmes. The government is implementing 'Vision 2021' incorporating the environmental development as one of the most important goals. Already, Bangladesh has formulated a detailed work plan to ensure implementation of environmental targets of 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. 'Bangladesh Climate Change Trust Fund (BCCTF)' has been formed with national resources for implementation of BCCSAP 2009. In addition, government has enacted 'Climate Change Trust Fund Act, 2010' and 'Climate Change Trust Fund Guidelines' for better management of BCCTF. Furthermore, '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 many awareness programmes and reform activities for environment conservation including Ozone Layer Protection and Pollution Control. 'National Bio safety Framework' and 'National Biodiversity Strategy and Action Plan' are being implemented. The Ministry of Disaster Management and Relief is also responsive for implementing various programmes in order to tackle eventualities emanating from natural disasters.

The environment and ecosystem of Bangladesh, like other developing countries is threatened by the rapid growth of economy, urbanisation and population. Climate change risk is also a major threat to achieving Sustainable Development Goals (SDGs) and its targets. The present government is working endlessly to ensure a pollution free and sustainable environment-friendly Bangladesh for present and future generation. Ministry of Environment, Forest and Climate Change has been playing an important role by undertaking necessary steps for environmental pollution control and biodiversity conservation. For this reason the Ministry prepares and implements timely legislation, institutional strengthening and implementing other relevant activities.

International Initiatives on Protection of Environment

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 'United Nations Environment Programme (UNEP)' was formed by this conference. In 1992, an Earth Summit was held at Rio De Janeiro in Brazil, which is considered as a milestone in the environment conservation. For environment conservation three conventions namely 'Convention on Biological Diversity (CBD)', 'United Convention to Combat Desertification (UNCCD)' and 'United Nations Framework

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Conventions on Climate Change (UNFCCC) are globally accepted. In 1997, 'Kyoto Protocol' was signed with a view to reducing carbon dioxide and greenhouse gas emission. It was ratified by 191 states except Andorra, South Sudan, Canada and the United States. As part of the Kyoto Protocol, many developed countries have agreed to legally binding limitations/reductions in their emissions of green house gases within their committed period.

Table 15.1 shows the list of highest emitting 10 countries with the level of their Green House Gas (GHG) emissions.

Table: 15.1 Greenhouse Gas Emissions of Top 10 Countries

Sl. No	Country	Annual CO ₂ Emissions in 2013 (In millions of metric tons)	% of Global Total in 2013
1	China	11735.01	25.93
2	USA	6279.84	13.87
3	India	2909.06	6.43
4	Russia	2199.12	4.86
5	Japan	1353.35	2.99
6	Brazil	1017.81	2.25
7	Germany	894.06	1.98
8	Indonesia	744.34	1.46
9	Canada	738.38	1.63
10	Mexico	733.01	1.62

Source: CAIT Climate Data Explorer, 2017

United Nations Climate Change Conference

The United Nations Climate Change Conferences are yearly conferences of the UNFCCC Parties (Conference of the Parties, COP) to assess progress in dealing with climate change update issue. In 2017, the United Nations Climate Change Conference, 'COP 23' was held at Bonn in Germany.

'COP 24' will be held at Katowice in Poland during 2-14 December 2018. It is expected at 'COP 24' Paris Agreement Rule Book would be adopted.

The Paris Agreement (an agreement to deal with the issues of green house gases emissions, mitigation and adaptation) was negotiated by representatives of 195 countries. Paris Climate Change Agreement has been accepted by all the countries with appreciation. The major achievements of the Paris Agreement are stated in below:

- The Paris Agreement is a legally binding global document.
- A target has been fixed to limit temperature below 2 degree Celsius owing to the demand of the climate vulnerable countries like Bangladesh.
- Special priority supports to the Least Developed Countries (LDCs) on financial, technology transfer, capacity development along with relaxation from legal bindings.
- A Global goal on adaptation has been accepted for the first time in the conference.
- Rights to the displaced people by the climate change and loss and damage.
- Developed countries would extend financial support to the LDCs for climate change adaptation and mitigation. Especially, public funds and grant based financial support will be provided for adaptation to the vulnerable countries, LDCs and Small Island Developing States (SIDS).
- Financial support to the LDCs for the technology transfer and capacity development.

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Bangladesh actively takes part in the discussion of the 'United Nations Climate Change Conference (UNCCC)' in favour of the climate change vulnerable countries. Bangladesh signed the Paris agreement on 22 April 2016. The Agreement had been entered into force on 4 November 2016.

Bangladesh has gained significant fame in the international climate change negotiation arena. Bangladesh has been elected as member of the Green Climate Fund under UNFCCC, the Executive Committee of Loss and Damage, the Adaptation Fund Board and the Consultative Group of Experts.

Climate Change and Bangladesh

The rise in sea level poses a big threat to the lives and livelihood of the huge population of the coastal areas of Bangladesh. The government gives the highest importance to the issue of tackling climate change induced disasters and the country's preparedness to protect lives and livelihoods of the people. Some policy initiatives concerning these are given below:

- National Adaptation Programme of Action (NAPA), 2005 (revised 2009)
- Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009
- Roadmap for Developing a National Adaptation Plan (NAP) for Bangladesh, 2015
- Nationally Determined Contribution (NDC) Implementation Roadmap (draft, 2017)
- National Appropriate Mitigation Action (NAMA)
- Joint Credit Mechanism (JCM)
- Climate Technology Centre and Network (CTCN)

- Establishment of Climate Change Unit in Ministry of Environment, Forest and Climate Change.

The government has established three funds to tackle the adverse impact of climate change:

- **Bangladesh Climate Change Trust Fund (BCCTF):** A 'Climate Change Trust Fund (CCTF)' was established by enacting a law in FY2009-10. A total of Tk.700 crore allocated from the government's own resources for this fund. Over the last eight consecutive fiscal years, the government allocated a total of Tk.3,500 crore for this fund. The main objective of this fund is to implement the BCCSAP, 2009. To run this fund, government has established 'Bangladesh Climate Change Trust Fund Board'. 'Bangladesh Climate Change Trust Fund Policy' was formed in 2009 and 'Bangladesh Climate Change Trust Fund Act' had been enacted in 2010.
- **Bangladesh Climate Change Resilience Fund (BCCRF):** 'Bangladesh Climate Change Resilience Fund (BCCRF)' is a coordinated financing mechanism by the government of Bangladesh, Development Partners (DPs) and the World Bank to address the impacts of climate change. The fund was established in May 2010 with financial support from Denmark, European Union, Sweden and United Kingdom. Moreover, Switzerland, Australia and the United States subsequently joined the fund. On behalf of the DPs, World Bank provided technical and financial management support to Bangladesh.

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- **Climate Investment Fund:** ‘The Pilot Programme for Climate Resilience (PPCR)’ of the Strategic Climate Funds (SCF) established under the Multi-donor Climate Investment Fund (CIF). The main objective of the fund is to help countries transform to a climate resilient development path, consistent with poverty reduction and SDGs. PPCR investment plan was designed under the leadership of the government in coordination with the Asian Development Bank (ADB), members of the World Bank Group (IBRD, IDA and IFC), key Bangladeshi stakeholders and other DPs.

The Finance Division has taken a Technical Assistance Project titled ‘Inclusive Budgeting and Financing for Climate Resilience (IBFCR)’. This project is funded by UNDP. The IBFCR project intends to foster a sustainable basis for identifying, maximising and managing sources and application of funds for financing climate resilient actions.

‘Bangladesh Delta Plan, 2100’ has been launched with a view to formatting long-term plan to overcome climate changed related issues. It is an integrated and holistic approach to deal with the expected impacts of climate change and other delta related challenges.

Internal Climate Finance

Bangladesh is pioneer among the developing countries regarding to enforcement of climate finance for adaptation and mitigation of climate change caused natural calamity and disaster. In FY2013-14, Bangladesh spent US\$ 1.7 billion as climate finance which was 6.36 percent of national budget and 1.19 percent of GDP of the same fiscal year. In FY2017-18, a

report ‘Protection and Development of Climate: Budget Report of 2017-18’ containing the accounts of climate financing of six ministries has been presented to the Parliament. By analysing the report, it is founded that these six ministries have allocated 19.2 percent of their budgetary allocation to face the climate change risk.

International Climate Finance

According to the ‘Climate Public Expenditure and Institutional Review, 2012 (CPEIR-2012)’ one-fourth of climate finance of Bangladesh comes from the DPs. The DPs donate through different climate change related funds, such as: BCCRF’, Least Development Country Fund (LDCF)’ and ‘Special Climate Change Fund (SCCF). Up to April 2018, Bangladesh gets approximately US\$ 328 million from these sources.

In future, ‘Green Climate Fund (GCF)’ would be one of the main sources for international climate finance. The economic developed countries have been agreed to provide US\$ 100 billion to this fund. The secretariat of ‘National Designated Authority’ has already been formed 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.

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

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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 1 lakh populations reduce to 1,500 by 2030.’ Presently, in Bangladesh the number of affected persons is 12,881 among 1 lakh people.

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’. At present, there is no protected zone in marine areas.

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’. The first target of goal 15 declares that ‘20 percent of forest area as a proportion of total land area by 2030’. Currently, total forest area of Bangladesh is 13.23 percent of total land area.

Air Pollution Control Activities

Air pollution is one of the major threats to the environment in Bangladesh. Air pollution is increasing with rapid urbanisation and industrialisation. Emissions from brick kiln, construction activities, industrial operation and vehicle are considered the key sources of air pollution. For controlling air pollution, the government has been implementing the following activities:

Monitoring Air Pollution:

- Air pollution is a great problem in big cities and towns. Department of Environment (DoE) has been implementing various activities in the country for air quality monitoring and air pollution management. The implementation of the project ‘Clean Air and Sustainable Environment (CASE)’ with financial assistance of the World Bank is one of most notable activities. Under the CASE project, air quality monitoring networks of eleven Continuous Air Monitoring Station (CAMS) have been operating in eight city corporations areas. Moreover, five more CAMS are going to establish at Savar, Narsingdi, Mymensingh and Rangpur.
- The monitoring data is being processed and analysed and the database is being updated and preserved for air quality monitoring network of 11 CAMS at the central server of the DoE. At the same time, the updated monitoring data is being, analysed scientifically. With these analysed data, Air Quality Index (AQI) is being prepared regularly and published in the website.
- The DoE regularly measures intensity of air pollution from all polluting industries or projects and takes effective enforcement activities to highly polluting industries.

Vehicular Emission Control

- Monitoring and enforcement drives are conducted regularly in big cities to cut vehicular emission and related air pollution.
- According to ‘Bangladesh Environment Conservation Act, 1995,’ (Revised 2010) the

mobile court can penalty for air pollution due to vehicular emission. Moreover, the activities are also run by police administration according to ‘Motor Vehicle Ordinance Act, 1983’. Among the polluting vehicles the diesel run ones are considered to be the worst.

Air Pollution Emission from Brick Kiln

- Traditional brick kilns are considered one of the major causes of air pollution in Bangladesh. To combat air pollution from brick kilns ‘The Brick Manufacturing and Kilns Establishment (Control) Act, 2013’ has been enacted. The Act restricts the use of soils from fertile crop land, cutting and razing hills or hillocks, and use of firewood as fuels. The amendment of the Act is on the process. In the amendment proposal, emphasis has been given on promoting the use of advanced and energy saving technology.
- Instead of preparing the existing brick making technology, efforts have been made to introduce alternative construction materials and non-fired blocks.
- Against 749 illegal brick kilns, enforcement activities have been executed and an amount of Tk.17.09 crore has been imposed as penalty and Tk.12.69 crore has been recovered. Regular prosecution has been filed against 260 brick kilns and approximately 3.92 crore taka has been fined by mobile court operation in all over the country. In addition, more than 100 illegal brick kilns have been closed under various operations.

Industrial Pollution Control

After ensuring appropriate and necessary measures have been adopted for maintaining the pollution within allowable limit, environmental clearance certificate is issued for the particular industry/ project. Installation of pollution mitigation measures such as ‘Effluent Treatment Plant (ETP)’, sound barrier, ‘Air Treatment Plant (ATP)’, Dust collector and internal monitoring system are prerequisite in getting environmental clearance certificate for the particular industry/project. Likewise, the compliance of others pollution mitigation policies like National 3R (Reduce, Reuse and Recycle) principle is mandatory for getting clearance certificate. Moreover, setting up Rain Water Harvesting system and STP (Sewerage Treatment Plant) for multi-storied buildings and Zero Discharge Plan (ZDP) for industry/ project are compulsory during environmental clearance certificate issuance and its renewal.

Industrial Pollution Control Activities

- **Establishment of Effluent Treatment Plant (ETP):** In order to prevent water pollution, installation of ETP is obligatory while certifying Environmental Clearance for the liquid waste discharging industries. As a result, most of the liquid waste discharging industries has already installed ETP. Up to June 2018, 1,691 industries/ projects have installed ETP. In addition, a total of 335 industries/ projects are given approval of ZDP.
- With a view to improving the water quality of the river *Buriganga* and environmental condition of Dhaka City, the government has shifted all Tanneries from

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Hazaribagh, Dhaka to Horindhara, Savar with a Central Effluent Treatment Plant (CETP).

- **Enforcement Activities:** DoE takes legal action including filed case in environment court, operate mobile court and penalty for environment pollution under the 'Environmental Conservation Act, 1995' (Revised in 2010). Up to June 2018, DoE has imposed compensation of Tk.270.03 crore by enforcing 4,191 polluting industries and recovered Tk.165.97 crore.
- **Operation against Banned Polythene Shopping Bags:** In order to control the use of banned polythene shopping bags eight task forces have been formed. They are working all over the country. Through conducting regular mobile court these task forces have been taking measures against illegal polythene producing industries. Up to June 2018, DoE has seized 472.86 tons of shopping bags and fined Tk.3.28 crore.
- **Noise Pollution:** DoE has been implementing a project 'Survey of Noise Level in Seven Divisional Headquarters under Integrated and Participatory Programme to Control Noise Pollution' to prevent noise pollution and create awareness on noise pollution. DoE has undertaken a noise awareness and publicity campaign to observe International Noise Day, 2018. The programme includes airing a discussion programme on television and publicity campaign through Public Media and Social Media.
- **Waste Management:** Waste management is one of the major challenges in the cities and towns of Bangladesh. Few projects are

being implemented as pilot projects for showcasing the implementation of National 3R Strategy for waste in different cities and towns with the financial support of Bangladesh Climate Change Trust Fund. Two compost plants have been started operation in producing compost and the construction of the rest six compost plants is in progress.

Water and Environment

Rivers are important features of Bangladesh landscape and playing a very significant role for the maintenance of the ecosystem of the country. Rivers are mainly used for irrigation, fisheries, drinking water, navigation and industrial purposes.

DoE has been monitoring surface and ground water quality since 1973. The surface water quality monitoring programme of DoE is supposed to include 66 stations of 28 rivers in Bangladesh. The monitoring involved in making field measurements (only pH at some stations) and collecting water samples for laboratory analyses. Six divisional offices measured 12 parameters (physical and chemical) of collected samples. These are pH, Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Suspended Solid (SS), Total Dissolved Solid (TDS), Electrical Conductivity (EC), Chloride, Turbidity and Total Alkalinity.

Based on the parameters mentioned above water quality of the major rivers such as *Padma, Meghna, Jumuna, Dhaleshwari, Surma, Korotoa* was found within the limit of Environmental Quality Standards (EQS) in 2016. On the other hand, rivers around greater Dhaka were highly polluted specially in the

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first four/five months of 2016 in terms of DO, BOD and COD value. DO was almost zero from January to April at different location of *Buriganga*, *Shitalakhya* and *Turag* river. High levels of TDS (586 mg/l), BOD (50.20 mg/l) and COD (212.62 mg/l) were found in *Buriganga* from January to December in 2016. In *Meghna* DO and BOD level were found within the EQS which varied from 0.8 to 7.1 mg/l and 0.2 to 8.4 mg/l respectively.

High levels of Chloride, TDS and Turbidity were found in *Moyuri*, *Rupsha*, *Pashur* and *Kakshiali* river. Highest level of Chloride (7,228 mg/l) and TDS (11,521 mg/l) were found in *Pashur* river. Highest value of Turbidity (124.46 NTU) was found in *Kakshiali* river. High COD (516 mg/l) was found in *Karnapuli* river. During dry seasons water quality become worse. On the contrary, river water quality improved greatly during the wet seasons indicating clear relationship between increased flow of river and river water quality.

Bangladesh Water Development Board's Activities on Environment Development

Bangladesh Water Development Board (BWDB) plays a very important role in implementing many climate change adaptation projects relevant to water sector. All the climate change related projects/ programmes of BWDB are being implemented to the financial assistance of Bangladesh Climate Change Trust Fund (BCCTF). A total of 131 projects have been sanctioned by BCCTF for the implementation under BWDB. Up to June 2018, in total 78 projects have been implemented and the rest of 53 projects are under implementation. Under these projects,

construction of polder and dykes in the coastal areas, protection of river banks, re-excavation of rivers and *khals* and land reclamation works have been done. Apart from, after *SIDR*, BWDB had implemented 'Emergency Cyclone Recovery and Restoration Project (ECRRP)' with World Bank finance. In addition, 'Rehabilitation of BWDB Structure Damaged by Cyclone *AILA* in Coastal Areas' project had been implemented by BWDB. BWDB has also been implemented two projects 'Kalni-Kushiara River Management Project' and 'Preparation of Master Plan and Development of Database for *Haors* and Wetland' for the development of *Haors* and wetland areas of Bangladesh.

Biodiversity Conservation

Bangladesh is a signatory to the United Nations Convention on Biological Diversity (UNCBD). Being a party of the UNCBD, Bangladesh is working for international commitment. 'The National Biodiversity Strategy and Action Plan (NBSAP) 2016-2021' have been prepared. DoE has already published 5 national reports of Convention on Biological Diversity (CBD). Now, the DoE is working on preparation of the 6th National Report on CBD. Biodiversity 'Clearing House Mechanism (CHM)', a web based platform has been formed to provide biodiversity related information of the country. Moreover, 'Biodiversity Act, 2017' has been promulgated.

DoE has implemented various development initiatives towards conservation of biological diversity under the 'National Action Plan, 2020'. Some notable achievements of this action plans are as follows:

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- **Conservation of Ecologically Critical Areas (ECA):** ‘Ecologically Critical Area (ECA) Rules, 2016’ has been formed. 13 areas of biodiversity significance have been declared as ECA. Development projects have been taken on conservation of biodiversity in the ECAs.
- **Formation of Village Conservation Groups (VCG):** 74 Village Conservation Groups (VCG) have been formed by DoE engaging dedicated organised people in *Hakaluki Haor*, Cox’sBazar-Teknaf Peninsula and *Sonadia* Island ECA. The VCGs are registered with the Department of Cooperatives. Environmental, ecological, biodiversity conservation and livelihood diversification activities are systematised by this VCGs. 10 Village Conservation Centers (VCC) have been constructed in *Hakaluki Haor* and Cox’s Bazar. A biodiversity museum has been established in each VCC. Four environment towers or watch tower have already been built.
- **Creation and Conservation of Mangrove Forest:** Mangrove forests were created and conserved in different areas in Cox’sBazar. Some sand dunes have been conserved.
- **Creation and Conservation of Swamp Forest:** DoE has improved the *Hakaluki Haor* ecosystems by creation and conservation of Swamp Forest. The department has conserved 500 hector Swamp Forest and created 10 hector Swamp Forest in different areas in *Hakaluki Haor*. Swamp contributes in carbon sequestration and habitat creation. Swamp Forest is important habitat for fish, aquatic plants and animals, wildlife and local and migratory birds.
- **Establishment of Wetland Sanctuary:** Established 10 wetland sanctuaries after re-excavation envisioned for ecosystems management and fisheries conservation in *Hakaluki Haor*. These sanctuaries are very important for conservation of wetland biodiversity and fisheries resources of *Hakaluki Haor*.
- **Construction of Submersible Greenbelts:** 10 submersible greenbelts have been constructed in *Hakaluki Haor* to protect *Haor* fringe villages from powerful wave action locally called *afal* during flooding time. 10 submersible embankments were constructed and at the same time many saplings were planted.
- **Installation of Solar Based Irrigation Plants:** Installed five solar based irrigation plants with the objectives of reducing fossil fuel burning. The irrigation pumps will also play a central role in diversifying agriculture crops which has multifarious benefit for farmers and for land including reduces the risk of farming. This is an effective intervention for climate change mitigation.

Ozone Layer Protection

Bangladesh had signed the Montreal Protocol in 1990 and ratified its later amendments. To implement Montreal Protocol successfully in Bangladesh, a ‘National Technical Committee on Ozone Depleting Substances (NTCODS)’ was formed in 1995. In addition, Ozone Cell was formed to implement Montreal Protocol related activities in 1996. Ozone Cell is executing different projects funded by the

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Montreal Protocol Multilateral Fund since its beginning. The government has already banned utilisation of some Ozone depleting substances. Furthermore, different types of training programmes are being arranged for the concerned people including law enforcement agencies.

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 FY2017-18 (up to March 2018), Banks and Financial Institutes have disbursed Tk.4,581.7 crore as direct green finance. From beginning to March 2018, out of 63,624 rated projects Banks and Financial Institutes have disbursed Tk.1,98,174.00 crore against 52,667 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 implementing the ADB financed ‘Financing Brick Kiln Efficiency Improvement Project’. In FY2017-18, under this project, a total of

Tk.177.39 crore has been disbursed to 11 sub-projects through 12 Participating Financial Institutes.

Conservation of Forest

Department of Forest (DoF) has been managing forests of the country for conservation of biodiversity and to ensure sustainability of the forest resources. 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. Forest management system has now got a momentum through pro-people participatory approach involving local people. As a result, tree covered area of the country has been increased. In the proposed ‘Forestry Master Plan (2017-2035) and in the Sustainable Goals, a target is set to bring 20 percent land of the country under tree cover by 2035. Table 15.2 presents the comparative scenario/statistics of forest land in SAARC countries:

Table 15.2: The Comparative Scenario/Statistics of Forest Land in SAARC Countries

Sl.No	Name of the Country	Total Land (Sq.Km.)	Total Forest Land (Sq.Km)	Forest Coverage(%)
1.	Afghanistan	652860	13500	2.01
2.	Bangladesh	147570	19549	13.24
3.	Bhutan	38117	27550	72.28
4.	India	2973190	706820	23.77
5.	Maldives	300	10	3.33
6.	Nepal	143350	36360	25.36
7.	Pakistan	770880	14720	1.91
8.	Sri Lanka	62710	20700	33.00

Source: Department of Forest.

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DoF has been working for fulfilling the shortage of forest resources, ensuring supply of raw materials to wood-based industries and conserving of bio-diversity. In addition, the Department has already implemented different development projects and programmes in order to conserve and develop environment as well as wildlife and to expand eco-tourism.

In FY2017-18, DoF implemented 19 development projects (11 investment projects and 8 technical assistance project) with an allocation of Tk.174.07 crore.

Social Forestry and Poverty Reduction Activities

Social forestry is playing a vital role to reduce poverty and improve socio-economic condition of the rural people. In addition, social forestry has a significant role to protect environment balance, adaptation and mitigation of climate change impact and biodiversity conservation.

Benefits of beneficiaries have been increased by amending 'The Social Forestry Rule, 2004'. The beneficiaries have gotten the opportunity to invest in government forest. It is noted that more than six lakh beneficiaries are involved in social forestry programme. Distribution of benefits among the beneficiaries is being continued through establishing participatory social forestry. This activity is playing a vital role in the social safety net programme of the government. Social forestry is largely contributing to economic development and women empowerment.

National Herbarium

Bangladesh National Herbarium (BNH) is a national organisation mandated to conduct

taxonomic research on the plant species of the country. The main objective of BNH is to collect, indentify, preserve and develop database of agricultural, woody medicinal threatened and economically important plants of the country. It plays an important role in the conservation of bio-diversity and environment.

The BNH regularly publishes a booklet series called 'Flora of Bangladesh' which includes information about plant species of the country.

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. Moreover, every year many kind of disasters attack the country. Ministry of Disaster Management and Relief has been playing a vital role in disaster risk reduction and preparedness and post disaster rehabilitation management. In order to combat the disaster, the main vision of the ministry is to establish an emergency response system by enhancing the total management capacity of the institutions.

Recently Accepted Steps/Initiatives Regarding Disaster Management

Activities Related to Act, Policies, Rules and Contracts

- 'Debris Management Guidelines' have already been finalised.

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- ‘The Guideline of Dead Body Management, 2016’ has been finalised and published.
- Amend the permanent orders of disaster management including thunders and word disaster management committee.

Actions Related to Preparation of Plans

- 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 finalised for Dhaka, Chattogram and Sylhet Metropolitan areas.

(C) On going Projects

- **Construction of Small Culverts/ Bridges:** The project is implementing in order to remove water logging and develop of communication systems. Under this project, a total of 12,993 small culverts/ bridges will be built.
- **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 most vulnerable 12 districts fire stations and offices of 35 *upazila* Project Implementation Officer (PIO) will be modernised through ICT.