Bangladesh Environmental Statistics Framework (BESF) 2016-2030

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Environment, Climate Change and Disaster Statistics (ECDS) Cell
Bangladesh Bureau of Statistics
Statistics and Informatics Division
Ministry of Planning
Government of the People's Republic of Bangladesh

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Bangladesh
Environmental Statistics Framework (BESF) 2016-2030

Prepared by

Environment, Climate Change and
Disaster Statistics (ECDS) Cell
National Accounting Wing
Bangladesh Bureau of Statistics
Statistics and Informatics Division
Ministry of Planning
Government of the People's Republic of Bangladesh

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Message

A H M Mustafa Kamal, FCA, MP
Minister
Ministry of Planning
Government of the People's Republic of Bangladesh
&
Deputy Chairman, Bangladesh Planning Commission

Our sustainable future depends largely on our ability to build a world where people have sustainable livelihood, food security, health care services and green environment. We have been working on to achieve the targets of Seventh Five Year Plan (7th FYP) and Sustainable Development Goals (SDGs) for Bangladesh. Global climate change and its adverse impacts have become an obstacle against all our efforts and may slow down our pace to the development. The relentless efforts of the Government, led by Hon'ble Prime Minister Sheikh Hasina, have made Bangladesh a resilient country to natural disasters, which is primarily known as one of the most disaster-prone countries of the world. We have been able to reduce the loss of life and livelihood from environmental degradation over the years.

It is an immense pleasure to mention that for the first time in Bangladesh a publication on "Bangladesh Environmental Statistics Framework (BESF) 2016-2030" is going to be published by BBS. It's a praise-worthy work of BBS under the joint collaboration of GED with financial support from UNDP and UNPEI. It also marks another achievement of the present government for fulfilling its commitment to generate environmental statistics undertake appropriate measures to address the environment, climate change and disaster management issues.

I take this opportunity to appreciate the effort of Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division and Mr. Md. Amir Hossain, Director General, BBS for guiding the preparation of this framework. I would further thank the team of Environment, Climate Change and Disaster Statistics Cell, BBS and Members of the Technical Committee and Officials of SID, GED, BBS, UNDP and UNPEI for their relentless effort in bringing out this publication. I also like to offer thanks to various Ministries/ Divisions/ Departments/ Organizations for providing their consensus on the final inputs to the authentic publication.

I hope that the contents of this publication will fulfill the needs of policy makers, development partners, NGOs, academics, other practitioners, researchers and students for tracking the environment and climate change issues.

Dhaka
May 2017

(A H M Mustafa Kamal, FCA, MP)

Message

M.A. Mannan, MP
State Minister
Ministry of Finance and Ministry of Planning
Government of the People's Republic of Bangladesh

I would like to congratulate the Bangladesh Bureau of Statistics (BBS), in collaboration with General Economics Division (GED), Planning Commission is going to publish a first time "Bangladesh Environmental Statistics Framework (BESF) 2016-2030" which will be a guideline, strategic action plan and integrated platform for collecting, analyzing and dissemination of environmental data. It will support the Sustainable Development Goals (SDGs), Sendai Framework for Disaster Risk Reduction (SFDRR), the Paris Agreement, BCCSAP, 7th Five Year Plan and other related plans. Government has taken many steps to reduce the environmental degradation which have been lauded by the World community. I believe that this publication gives us the data sources and overall situation in the environmental field by sectors and it is expected that it can serve as the basis for further environmental research and study as a guide or handbook.

The publication will definitely create scope for environmental (environment, climate change, bio-diversity and disasters) investment, provide reference in adaptation and undertaking of mitigation measures for environmental issues. The publication will also be used for discussion and dialogue with the development partners and negotiation for developing environmental statistics in our effort to make a sustainable future for all of us despite the ills of natural disaster, climate change and environmental situation for which Bangladesh is not in any way responsible.

I thank Professor Dr. Shamsul Alam, Member (Senior Secretary), General Economics Division (GED), Planning Commission; Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division; Mr. Md. Amir Hossain, Director General, Bangladesh Bureau of Statistics and Mr. Md. Rafiqul Islam, National Focal Point Officer, Environment, Climate Change and Disaster-related Statistics (ECDS) Cell, BBS; SSIP Project team, GED, UNDP and UNPEI officials for their efforts in bringing out this publication.

I would also like to offer my thanks to various Ministries, Divisions, Departments, Organizations for providing their consensus on the final inputs to this very important publication.

I hope the publication will serve as a reference book for all stakeholders including relevant organizations, policy-makers, academics, researchers and students.

Dhaka
May 2017

(M.A. Mannan, MP)

Message

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

I am pleased to acknowledge that the BBS with GED's support and guidance is publishing "Bangladesh Environmental Statistics Framework (BESF) 2016-2030". Our strength in initiation of Agenda 2030 (SDGs) implementation is through the development approach of 7th Five Year Plan (2016-2020) by integrating the SDGs and targets. This BESF for 2016-2030, first of its kind, to develop a framework to generate environment and climate data focusing on 7th FYP and SDGs in collaboration with the concerned sector organizations. This framework is a strategic action plan, guideline and integrated platform for collecting, compiling, analysing and disseminating environmental data and information. GED is happy to play a coordinating and catalytic role to support BBS for attaining consensus on feasible strategic action plans as government focal point on environmental data and information.

"Data Gap Analysis of Sustainable Development Goals (SDGs): Bangladesh Perspective" for monitoring SDGs has already been published by GED, Planning Commission. Existing survey, MIS, Census, national accounts and data generating system of several data generating agencies including BBS are reviewed in the light of UN proposed indicators. One hundred and fourteen indicators out of 230 indicators are exclusively environmental as a cross cutting issues.

As the NSO, BBS will take the core responsibility for producing official national statistics. It will not only generate 89 data related to SDGs targets but also spearhead the process of coordination with other data producing agencies and organizations of the Government to generate the relevant data and information timely. As administrative data will also be used in monitoring the implementation of SDGs, SFDRR, the Paris Agreement, BCCSAP and 7th Five Year Plan, the BBS has to develop a framework with the help of relevant organizations for the availability, authenticity and reliability of Administrative data.

I take this opportunity to thank the Secretary, Statistics and Informatics Division; Director General, BBS; Chief, GED; National Focal Point Officer, ECDS Cell, BBS; SSIP Project team for their efforts in preparing and finalizing the publication. I also like to offer thanks to concerned sector organizations for providing inputs. I also thank the UNDP and UNPEI for financial support in preparing the framework.

At the end, I would like to request concerned organizations to generate required environmental administrative data and provide to BBS as they can ensure putting into the statistical template for vetting and disseminating environmental statistics that will help in monitoring and progresses of SDGs implementation by GED as National SDGs Focal Point.

Dhaka
May 2017

(Shamsul Alam)

Foreword

K M Mozammel Hoq
Secretary
Statistics and Informatics Division
Ministry of Planning
Government of the People's Republic of Bangladesh

Bangladesh Environmental Statistics Framework (BESF) 2016-2030 has been prepared as part of the Bangladesh Government's efforts to develop a strategic model for sustainable development and organization of environmental statistics. The present programme is carried out as a component of the "Support to Sustainable and Inclusive Planning (SSIP)" Project, GED, Planning Commission, with the financial support from UNDP and UNPEI on strengthening capacity building of environmental statistics in BBS. One of the main activities of the programme is to apply United Nations Framework for the Development of Environment Statistics (UN-FDES) in Bangladesh. This is the first time the BBS in close collaboration with 57 designated focal points of relevant Ministries/Divisions/ Departments/Organizations has taken initiative to prepare the publication on BESF. It is a comprehensive strategic action plan, integrated platform and guideline for collecting, compiling, analysing and disseminating environmental data and information on the basis of identifying national priorities and future plans. The BESF publication has been prepared through an extensive consultative process for next 15 years timeline.

I am delighted to know that the BESF publication has captured almost all components and indicators of the environmental fields which have been identified of administrative records/ Meta data sources/ remote sensing data/ real time data/ scientific data/ monitoring data and situations by the concerned Ministries/ Divisions/ Departments/ Organizations. We shall work together with the citizens to fix climate change, to end poverty, to ensure food and livelihood security of the people in order to support of environmental data to the Sustainable Development Goals (SDGs), Sendai Framework for Disaster Risk Reduction (SFDRR), The Paris Agreement, BCCSAP, 7th Five Year Plan and others successive plans of Bangladesh.

My sincere thanks and gratitude to Mr. Md. Amir Hossain, Director General, BBS; Mr. Md. Baitul Amin Bhuiyan, DDG, BBS for their leadership in this regards and sincere appreciation to Mr. Md. Rafiqul Islam, National Focal Point Officer, ECDS Cell, BBS; Members of the Technical Committee, Monitoring Committee and Report Review Committee for their prudent guidance in bringing out the publication and providing all-out support in preparing this publication. I would like to offer my thanks to the organizations for providing their wholehearted support and the final inputs to the publication.

Finally, I offer my thankful gratitude to our colleagues in BBS, GED and SID who have participated in the process and extended their cooperation in all possible ways throughout the shortest period for its successful completion.

Dhaka
May 2017

(K M Mozammel Hoq)

Preface

Md. Amir Hossain
Director General
Bangladesh Bureau of Statistics
Statistics and Informatics Division
Ministry of Planning
Government of the People's Republic of Bangladesh

Bangladesh Environmental Statistics Framework (BESF) 2016-2030 was followed as far as possible depending on the data producing capability and existing environmental data availability in Bangladesh. The objective of the framework is to assist in the development, coordination and organization of comprehensive list of variables and indicators concerned with all components of information categories i.e. environment, climate change, social and economic activities including environmental conditions and quality, environmental resources and their uses, residuals, extreme events and disasters, human settlements and environmental health, environmental protection, management and engagement, environmental impacts of activities/events, policy responses and mitigating measures, inventories stock and background information. The Inter-Ministerial Technical Working Committee for preparation of Environment, Climate Change and Disaster Statistics of Bangladesh thoroughly examined and contributed in finalizing this publication.

BBS in close collaboration with GED, Planning Commission has taken initiative to prepare the publication on BESF financial supported by UNDP and UNPEI under the guideline of United Nations Framework for the Development of Environment Statistics (UN-FDES) in Bangladesh. It is a comprehensive strategic action plan, guideline and integrated platform for collecting, compiling, analysing and disseminating environmental data which will be supported of environmental data to the SDGs, SFDRR, The Paris Agreement, BCCSAP, 7th FYP and others successive plans of Bangladesh. BESF for the development of environmental statistics in Bangladesh would be a guide or handbook to the users, the policy makers and relevant Ministries/ Divisions/ Departments/ Organizations working in and related to the field of environment.

My sincere thanks and gratitude to Professor Dr. Shamsul Alam, Member (Senior Secretary), GED, Planning Commission; Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division; Mr. Naquib Bin Mahbub, Chief, GED and National Project Director, SSIP Project, GED, Planning Commission; Mr. Fakrul Ahsan, Project Manager, SSIP Project and Mr. Abul Kalam Azad, Director, National Accounting Wing, BBS for providing wholehearted support in preparing this publication.

Special thanks are also due to distinguished members of the Technical Committee, Monitoring Committee, Editors-PDs Forum and Report Review Committee for their contribution in the analytical improvement of the publication. I would also like to offer my sincere appreciation and gratitude for the ECDS team led by Mr. Md. Rafiqul Islam, Deputy Director and National Focal Point Officer, who actively coordinated the whole process and got the final publication prepared.

Our efforts will be fruitful only when the framework is found useful in the context of the country. Suggestions and comments will be highly appreciated.

Dhaka
May 2017

(Md. Amir Hossain)

National Focal Point Officer

Environment, Climate Change and
Disaster Statistics (ECDS) Cell
Bangladesh Bureau of Statistics (BBS)

Acknowledgement

The Publication on "Bangladesh Environmental Statistics Framework (BESF) 2016-2030" under Environment, Climate Change and Disaster Statistics (ECDS) Cell, National Accounting Wing, BBS is based on intensive consultative process of identifying data sources and situation analysis of environmental data and information in collaboration with GED, Planning Commission, with the financial support from UNDP and UNPEI. It is an integrated platform, strategic action plan and guideline for collecting, analysing and disseminating environmental data and information on the basis of national priorities and future plans focused on the SDGs, SFDRR, The Paris Agreement, BCCSAP, 7th FYP and others successive plans of Bangladesh. The BESF publication has been prepared thorough an extensive consultative process. I would like to request all stakeholders including concerned Ministries/Divisions/Departments/Organizations to play a proactive role in implementing and cooperating the BESF strategic action plan and integrated platform outline in this publication for next 15 years timeline.

My deep gratitude and sincere thanks to Professor Dr. Shamsul Alam, Member (Senior Secretary), GED, Planning Commission; K M Mozammel Hoq, Secretary, Statistics and Informatics Division (SID), Ministry of Planning for their interest, support and advice to the needs to bring out this publication on time. My sincere thanks and deep gratitude to Mr. Md. Amir Hossain, Director General (Additional Secretary), BBS. I also express my sincere thanks and gratitude to Mr. Mohammad Abdul Wazed, former Director General (Additional Secretary), BBS for his keen interest with wholehearted support and guidance for providing all-out support in development of Bangladesh Environmental Statistics Framework (BESF).

My deep gratitude to Mr. Bikash Kishore Das, Additional Secretary, Statistics and Informatics Division; Mr. Md. Baitul Amin Bhuiyan, Deputy Director General (Additional Secretary), BBS and Mr. A. B. M. Zakir Hossain, Additional Secretary (Admin), Statistics and Informatics Division; Mr. Abul Kalam Azad, Director, National Accounting Wing, BBS for their outstanding support and continuous guidance for preparing the publication on time.

It would be injustice if I do not mention the advice I have received from Dr. A. Atiq Rahman, Executive Director, Bangladesh Centre for Advanced Studies (BCAS), Dhaka; Professor Dr. Enamul Haque (Natural Resource and Environmental Economist), Department of Economics, East West University, Dhaka; Professor Dr. A. S. M. Maksud Kamal, Chairman, Department of Disaster Science and Management, University of Dhaka; Dr. M. Asaduzzaman, Former Research Director, BIDS at various stages of this process that enabled us to be on the right track. I would like to express my sincere thanks to the Chairman and members of the Technical Committee, ECDS Cell, BBS, Monitoring Committee, Report Review Committee of SID, Editors and PDs Forum of BBS for their participation, reviewing and providing feedback to finalize the publication.

My gratitude and sincere thanks to Mr. Sudipto Mukerjee, Country Director, United Nations Development Programme (UNDP), Bangladesh for his continuous support and valuable suggestions in bringing out this very auspicious publication. I also would like to offer my thanks to Mr. Mark Eigenraam, International Expert of Poverty and Environment Initiatives (PEI), UNPEI who trained up to the potential Focal Point Officers of relevant Ministries/Divisions/Departments/Organizations about the United Nations Framework for Development of Environment Statistics (UN-FDES), the System of Environmental Economic Accounting (SEEA) Central Framework as well as Poverty Environment Accounting Framework (PEAF) etc. for developing "Bangladesh Environmental Statistics Framework (BESF) 2016-2030".

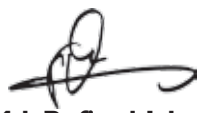
The contribution of Mr. Ashoke Adhikary, Local Consultant, "Bangladesh Environmental Statistics Framework (BESF) 2016-2030" under the ECDS Cell, National Accounting Wing, BBS is highly acknowledged who has done a thorough review of the BESF document and improve the technical integrity of the publication. My sincere thanks and gratitude to Mr. Md. Nazmul Hoque, Statistical Officer (SO); Ms. Dilruba Rahman, Assistant Statistical Officer (ASO); Mr. Md. Nazrul Islam, Statistical Investigator (SI) and others members of ECDS team for their great contribution in arranging the two expert group consultative workshops and one capacity building training programme on environmental statistics.

My sincere thank and gratitude to the foreign experts, resources persons, statistical scientists and the ECDS focal point officers/members from different ministries/divisions/departments/organizations for contributing and providing their wholehearted assistance in preparing the BESF publication. Mr. Naquib Bin Mahbub, Chief, GED and National Project Director, SSIP Project, GED, Planning Commission and Mr. Fakrul Ahsan, Project Manager, SSIP Project (Former Chief, GED) and SSIP Project Team deserve special thanks for their extensive contribution to support the ECDS Cell, BBS who took the major responsibility for preparing and finalizing the publication with utmost sincerity and dedication. They also deserve special thanks for their efforts in arranging two consultative expert group workshop and one capacity building training on environmental statistics to assist preparing and finishing the task with respect within the shortest allocated time for bringing out this publication.

I believe that the publication will serve as a guide/ handbook of environmental data inventory for all stakeholders including Ministries/Divisions/Departments/Organizations/NGOs/policy-maker/academics/researchers/students.

Comments and suggestions for further improvement of the publication will be highly appreciated.

Dhaka
May 2017



(Md. Rafiqul Islam)

Contents

Acronyms

ACC	:	Anti-Corruption Commission
AWRRID	:	Agriculture, Water Resources & Rural Institution Division, Planning Commission
BAB	:	Bangladesh Accreditation Board
BADC	:	Bangladesh Agricultural Development Corporation
BAEC	:	Bangladesh Atomic Energy Commission
BANBEIS	:	Bangladesh Bureau of Educational Information & Statistics
BARI	:	Bangladesh Agricultural Research Institute
BB	:	Bangladesh Bank
BBS	:	Bangladesh Bureau of Statistics
BCIC	:	Bangladesh Chemical Industries Corporation
BD	:	Bridges Division
BERC	:	Bangladesh Energy Regulatory Commission
BESF	:	Bangladesh Environmental Statistics Framework
BFD	:	Bangladesh Forest Department
BFID	:	Bank and Financial Institutions Division
BIDS	:	Bangladesh Institute of Development Studies
BGMEA	:	Bangladesh Garment Manufacturers and Exporters Association
BKMEA	:	Bangladesh Knitwear Manufacturers & Exporters Association
BRRI	:	Bangladesh Rice Research Institute
BWDB	:	Bangladesh Water Development Board
BIWTA	:	Bangladesh Inland Water Transport Authority
BIWTC	:	Bangladesh Inland Water Transport Corporation
BMD	:	Bangladesh Meteorological Department
BMD	:	Bureau of Mineral Development
BMDA	:	Barind Multipurpose Development Authority
BMET	:	Bureau of Manpower, Employment and Training
BN	:	Bangladesh Navy
BOI	:	Board of Investment, PMO
BP	:	Bangladesh Police
BPC	:	Bangladesh Petroleum Corporation
BR	:	Bangladesh Railway
BRTA	:	Bangladesh Road Transport Authority
BTC	:	Bangladesh Tariff Commission
BTRC	:	Bangladesh Telecommunication Regulatory Commission
BUET	:	Bangladesh University of Engineering and Technology
C&AG	:	Comptroller and Auditor General
CAAB	:	Civil Aviation Authority of Bangladesh
CD	:	Cabinet Division
CDA	:	Chittagong Development Authority
CDC	:	Communicable Disease Control unit of DGHS
CEGIS	:	Centre for Environment and Geographical Information System
CFC	:	Chlorofluorocarbon
CLE, MoLE	:	Child Labour Unit, Ministry of Labour and Employment

CPTU	:	Central Procurement Technical Unit
DAE	:	Department of Agricultural Extension
DDM	:	Department of Disaster Management
DGFP	:	Directorate General of Family Planning
DGHS	:	Directorate General of Health Services
DIFE	:	Department of Inspection for Factories and Establishments, MoLE
DLRS	:	Department of Land Records and Survey
DLS	:	Department Livestock Service
DNC	:	Department of Narcotics Control
DoE	:	Department of Environment
DoF	:	Department of Fisheries
DPDT	:	Department of Patents Designs and Trademarks of Bangladesh
DPE	:	Department of Primary Education
DPHE	:	Department of Public Health Engineering
DRSF	:	Disaster-related Statistics Framework
DYD	:	Department of Youth Development
EC	:	Election Commission
EMRD	:	Energy and Mineral Resources Division
ERD	:	Economic Relations Division
FD	:	Finance Division
EPB	:	Export Promotion Bureau
EPZ	:	Export Processing Zone
FPMU	:	Food Policy Monitoring Unit
FSCD	:	Fire Service and Civil Defence
GED	:	General Economics Division
GSB	:	Geological Survey of Bangladesh
HCU	:	Hydro Carbon Unit, EMRD
HEU	:	Health Economics Unit, MoHFW
ICTD	:	Information and Communication Technology Division
IDCOL	:	Infrastructure Development Company Limited
IDRA	:	Insurance Development and Regulatory Authority
IED	:	Industry & Energy Division, Planning Commission
IEDCR	:	Institute of Epidemiology, Disease Control and Research
InfCom	:	Information Commission
IPCC	:	Intergovernmental Panel on Climate Change
IRD	:	Internal Resources Division
IWFM	:	Institute of Water and Flood Management
IWM	:	Institute of Water Modelling
IUCN	:	International Union for Conservation of Nature
JRC	:	Joint Rivers Commission
KDA	:	Khulna Development Authority
LGD	:	Local Government Division
LGED	:	Local Government Engineering Department
LJD	:	Law and Justice Division
LPAD	:	Legislative and Parliamentary Affairs Division
MEA	:	Multilateral Environmental Agreement

MIS	:	Management Information System
MoA	:	Ministry of Agriculture
MoC	:	Ministry of Commerce
MoCA	:	Ministry of Cultural Affairs
MoCAT	:	Ministry of Civil Aviation and Tourism
MoCHTA	:	Ministry of Chittagong Hill Tracts Affairs
MoD	:	Ministry of Defence
MoDMR	:	Ministry of Disaster Management and Relief
MoE	:	Ministry of Education
MoEF	:	Ministry of Environment and Forests
MoEWOE	:	Ministry of Expatriates' Welfare and Overseas Employment
MoF	:	Ministry of Food
MoFA	:	Ministry of Foreign Affairs
MoFL	:	Ministry of Fisheries and Livestock
MoHA	:	Ministry of Home Affairs
MoHPW	:	Ministry of Housing and Public Works
MoInd	:	Ministry of Industries
MoInf	:	Ministry of Information
MoL	:	Ministry of Land
MoLE	:	Ministry of Labour and Employment
MoLWA	:	Ministry of Liberation War Affairs
MoPA	:	Ministry of Public Administration
MoPME	:	Ministry of Primary and Mass Education
MoR	:	Ministry of Railways
MoRA	:	Ministry of Religious Affairs
MoS	:	Ministry of Shipping
MoST	:	Ministry of Science and Technology
MoSW	:	Ministry of Social Welfare
MoTJ	:	Ministry of Textile and Jute
MoWCA	:	Ministry of Women and Children Affairs
MoWR	:	Ministry of Water Resources
MoYS	:	Ministry of Youth and Sports
MRA	:	Micro-Credit Regulatory Authority
NAPA	:	National Adaptation Programme of Action
NARS	:	National Agriculture Research System
NASP	:	National AIDS/STD Programme (Programme of DGHS)
NAW, BBS	:	National Accounting Wing, BBS
NCDC	:	Non-Communicable Disease Control (NCDC) unit of DGHS
NGOAB	:	NGO Affairs Bureau
NHRC	:	National Human Rights Commission
NIPORT	:	National Institute of Population Research and Training
NNS	:	National Nutritional Service
NSDS	:	National Strategy for the Development of Statistics
NSDS (2)	:	National Sustainable Development Strategy
NSSS	:	National Social Security Strategy
NTP	:	National Tuberculosis Control Program

OECD	:	Organisation for Economic Co-operation and Development
PD	:	Programming Division
PEAF	:	Poverty Environment Accounting Framework
PDB	:	Power Development Board
PDTMD	:	Patent Design & Trade Marks Department, Ministry of Industries
PID	:	Physical Infrastructure Division, Planning Commission
PMO	:	Prime Minister's Office
PoD	:	Power Division
PKSF	:	Palli Karma-Sahayak Foundation
PPPA	:	Public Private Partnership Authority, PMO
PTD	:	Posts and Telecommunications Division
RAJUK	:	Rajdhani Unnayan Kortripokkho
RDCD	:	Rural Development and Cooperatives Division
RRI	:	River Research Institute
RSC	:	Registrar, Supreme Court
RTHD	:	Road Transport and Highways Division
SEID	:	Socio Economic Infrastructure Division, Planning Commission
SID	:	Statistics and Informatics Division
SMEF	:	SME Foundation
SNA	:	System of National Accounts
SPARRSO	:	Bangladesh Space Research and Remote Sensing Organization
SOB	:	Survey of Bangladesh
SOD	:	Standing Orders on Disaster
SREDA	:	Sustainable & Renewable Energy Development Authority
SRDI	:	Soil Resource Development Institute
UGC	:	University Grants Commission
UNECE	:	United Nations Economic Commission for Europe
UNFCC	:	United Nations Framework Convention on Climate Change
UNFDES	:	United Nations Framework for Development of Environmental Statistics
UNDP	:	United Nations Development Programme
UNEP	:	United Nations Environment Programme
UNPEI	:	United Nations Poverty Environment Initiatives
UNSEEA	:	United Nations System of Environment Economic Accounting
UNESCAP	:	United Nations Economic Social Commission for Asia and the Pacific
UNISDR	:	United Nations International Strategy for Disaster Reduction
UNSD	:	United Nations Statistics Division
UNSC	:	United Nations Statistics Commission
WARPO	:	Water Resources Planning Organization
WASA	:	Water and Sewerage Authority
WDB	:	Water Development Board
WTO Cell	:	World Trade Organization Cell, Ministry of Commerce
Data Availability		
A	:	Availability
PA	:	Partial Availability
NA	:	Not Availability

Executive Summary

Executive Summary

Rapid human population growth, technological and industrial intervention impacted environment and caused environmental degradation which further expedited climate change over the world. Climate change has huge impacts on human lives and livelihoods by increasing frequency and intensity of various events of disasters. Cleaning forest land for cultivation, animal grazing and setting up industries, vehicle emission, toxic waste and chlorofluorocarbons (CFCs) emissions into the atmosphere is causing Global Warming. Given that the increased human population requires more natural resources but the fact is we are using our natural resources faster than our planet can replenish them.

Bangladesh has a special geographical features and settings. World Risk Report 2016, identified Bangladesh as the 6th most natural disaster-prone country out of 173 countries in the world[1]. It has the Himalayan range to the north, the Bay of Bengal to the south with its funnelling towards Meghna estuary and the vast stretch of Indian land to the west. It's a low-lying country with 405 rivers[2] and it's the largest delta in the World formed by the mighty rivers namely the Padma (the Ganges), the Brahamaputra, the Jamuna, the Meghna etc.

The geography and climate have made the country vulnerable to different meteorological, hydrological and geological hazards. These hazards often lead to disasters and the major ones in the country are floods, cyclones, droughts, tidal surges, tornadoes, earthquakes, river erosion, infrastructure collapse, water logging, water and soil salinity, epidemic, and various forms of pollution etc. Environmental Statistics provide information about the state and changes of environmental conditions, the quality and availability of environmental resources, the impact of human activities and natural events on the environment. They also provide information about the social actions and economic measures that societies take to avoid or mitigate these impacts and to restore and maintain the capacity of the environment to provide the services that are essential for life and human well-being.

This Bangladesh Environmental Statistics Framework (BESF) has been developed to provide a comprehensive guidelines, strategic action plan, integrated platform for environmental data collection in a coordinated manner; mark out the scope of environment statistics; facilitate a coordination mechanism for collecting primary data and secondary data from field levels, different public and private sources; facilitate a synthesized presentation of data from various subject areas and sources; simplify the complexity of the environment appropriately so that it can be measured more easily; and help for identifying the range of statistics relevant to societal decision-making regarding the environmental issues.

Meanwhile, Bangladesh Bureau of Statistics (BBS) and General Economics Division (GED) of Planning Commission with the support from UNDP and UN-PEI accomplished some preparatory and foundation level activities such as reviewing legal framework; mandate and national policy priorities related to environment information and development; reviewing methodological resources; data mapping, availability and sources of data; capacity building on environmental statistics; validation of data sources and collaboration and linkage development with national scientists and experts on the issues etc. through organizing series of training and workshop sessions those were facilitated and moderated by national and international experts during October to December 2016.

The overall aim of the BESF is to provide with a general understanding and guidelines on the importance of environmental resources, poverty and environment nexus and systematic data collection for Environmental Statistics in order to develop the compendium of environmental statistics, the environmental economic accounts as well as natural resource accounts like water, forest, land, energy, environment-poverty accounts, experimental eco-system accounts, fish, agriculture etc. The specific objectives are: a) identifying main quantifiable aspects of the environment; b) identifying components, sub-components and topics that are relevant and statistically feasible according to defined national needs and priorities; d) facilitating the development of a national programme of environmental statistics; e) contributing to the assessment of data requirements, sources, availability and gaps; f) guiding the development of databases that can be used for multiple purposes; and g) assisting in the co-ordination and organization of environmental statistics given the inter-institutional nature of the domain.

[1] World Risk Report 2016: United Nations University (www.WorldRiskReport.org)

[2] The Rivers of Bangladesh published by BWDB

This BESF has been developed through reviewing of number of UN documents, agreements, Statistical Act 2013, National Strategy for the Development of Statistics (NSDS) and other relevant policies and literature. In addition, interaction with experts and extensive consultation process with potential data providers, environmental activists, academicians from public and private agencies took place to develop the document.

The BESF describes about the components of the basic set of environmental statistics and elaborated how components are interrelated, how they interact each other and how their relationship with humans. The document also has described BBS strategic action plan from 2016 to 2030 as: a) Establishing and improving environmental statistics process; b) Developing use of environmental statistics; c) Ensuring quality of environmental statistics; d) Recruiting and train up of human resources; e) Strengthening the coordination and management of environmental statistics activities; and f) Establishing digital platform for collecting, compiling, sharing and reporting environmental statistics.

Being the National Statistics Organization (NSO), Bangladesh Bureau of Statistics (BBS) will lead the implementation of environmental statistics development programme according to BESF. The programme will be running through active cooperation and support from Department of Environment (DoE), Bangladesh Forest Department (BFD) under the Ministry of Environment and Forest (MoEF), Department of Disaster Management (DDM), Ministry of Disaster Management and Relief (MoDMR) and others relevant Ministries/Divisions/Departments/ Organizations. As planned the Environmental Statistics programme will be continuing till 2030. The first, Compendium of Bangladesh Environmental Statistics has been planned to publish in 2017 and then after 3 years interval, may be in 2020, 2023, 2026 and 2029/30 with regular updating. BBS will require tracking and follow up the progress of implementation process and reporting to the Government and development partners for the activities. It also will require sharing and disseminating the progress with relevant stakeholders to expedite the make the process more efficient through coordination meetings in agreed frequency.

BBS in close collaboration with 57 focal points officers of relevant Ministries/ Divisions/ Departments/ Organizations have developed an implementation plan and a budget of BESF for strengthening capacity building of Environmental Statistics up to 2030. Multi-sectoral and administrative data will be provided by different Ministries/ Divisions/ Departments/ Organizations according to Statistical Act 2013. Therefore, strong coordination mechanism among different data providing or database maintaining Ministries/ Divisions/ Departments/ Organizations will be developed and established for collecting, compiling, assessing, reporting and disseminating environmental data and information.

In this BESF, 15 (fifteen) strategic goals and a number of progress indicators have been identified that will be used to measure progress; key milestones; and the proposed budget for each strategic goal. The overall cost of implementing the environmental statistics as set out in this document is estimated at BDT. 33630.00 million of which BDT. 9955.00 million is for the first four year from July 2017 to June 2021 and BDT. 23675.00 million for the long term July 2021 to June 2030. The budget has been prepared excluding the annual budget allocation of the government for compensation of the employee and other operating expenses, but the budget for development programmes have been included. The Government of Bangladesh may not be able enough to finance the whole plan from its own resources since it represents a large financial cooperation; so support from the Development Partners will be required.

This framework has been developed to provide a key understanding for the relevant stakeholders on importance of environmental statistics and how to act in team to provide/ gather data to develop a national environment statistics. This documents also briefly elaborated linkages of environment statistics with other national and international drivers, thus to establish its importance and portray environment and poverty nexus. However, it will require a lot of institutional work to strengthen the inter-institutional cooperation mechanism for developing and institutionalizing the national environmental statistics programmes. The crucial stakeholders at national level for the environmental statistics are a) NSOs; b) Environment and environmentally related line ministries or authorities; and c) national experts and researchers with extensive and in-depth knowledge of specific environmental phenomena.

Chapter 1

Introduction

1.1 Background of the Global Environmental Condition

The global climate is changing far more rapidly than anticipated in the early studies. Over the last few years, weather related extreme events such as cyclones, floods, tornados, thunderstorms, droughts, heat stress, wild fires etc. have affected all parts of the world. Even the silent ice caps of the Arctic are melting faster and drawing global concern. Many of the mountain glaciers are retreating at an unprecedented rate. Climate change impacts have been already visible across the world in various forms. This is demonstrated through various recent extreme climatic events around the world. Climate change has brought about severe and possibly permanent alterations to our planet's geological, biological and ecological systems. The Intergovernmental Panel on Climate Change (IPCC) contended in 2003 that "there is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities". These changes have led to the emergence of large-scale environmental hazards to human health, such as extreme weather, ozone depletion, loss of biodiversity, stresses to food-producing systems and the global spread of infectious diseases. To date adequate research has not been conducted on the impacts of climate change on health, food supply, economic growth, migration, security, societal change, and public goods, such as drinking water, than on the geophysical changes related to global warming. Human impacts can be both negative and positive. Numerous studies suggest, however, that the current and future impacts of climate change on human society are and will continue to be overwhelmingly negative. The majority of the adverse effects of climate change are experienced by poor and low-income communities around the world, who have much higher levels of vulnerability to environmental determinants of health, wealth and other factors, and much lower levels of capacity available for coping with environmental change. This also raises questions of climate justice, since the 50 least developed countries of the world account for not more than 1% of worldwide emissions of greenhouse gases (Wikipedia). Most of the key vulnerabilities to climate change are related to climate phenomena that exceed thresholds for adaptation; such as extreme weather events or abrupt climate change, as well as limited access to resources (financial, technical, human, institutional to cope and include something about Carbon emission, CFC, greenhouse gas etc.

1.2 Environmental Situation in Bangladesh

Bangladesh is known to be one of the most resilient countries of the world. Despite the regular and devastating disastrous events, the country manages to attain significant progress in many fronts of the MDGs. World Risk Report 2016, identified Bangladesh as the 6th most natural disaster-prone country out of 173 countries in the world[3]. The 2011 Global Assessment Report of the UNISDR revealed that in terms of number of people exposed to flood, cyclone and sea surge, Bangladesh is ranked first out of 162 countries[4]. It is a low-lying deltaic country covering an area of 147,470 sq. km and supporting about 158.90 (2015) million people with a population density of 1077 per square kilometre[5].

Bangladesh has a special geographical features and settings. It has the Himalayan range to the north, the Bay of Bengal to the south with its funnelling towards Meghna estuary and the vast stretch of Indian land to the west. It's a low-lying country with more than 230 rivers and it's the largest delta in the World formed by the mighty rivers namely the Padma (the Ganges), the Brahamaputra, the Karnafuly, the Jamuna, the Meghna, the Dhaleswari, and the Gamoti etc. The geography and climate have made the country vulnerable to different meteorological, hydrological and geological hazards. These hazards often lead to disasters and the major ones in the country are floods, cyclones, droughts, tidal surges, tornadoes, earthquakes, river erosion, infrastructure collapse, water logging, water and soil salinity, epidemic, and various forms of pollution etc. Climate change is the greatest threat to the mankind now and Bangladesh has been identified by the world scientists as one of the most vulnerable and potentially one of the most severely impacted countries by climate change including extreme weather events. Changes in the climate is a reality and is happening mainly due to greenhouse gas emission and rise in the surface air temperature of the earth. Climate Change and its impacts are the burning issue in the world. The challenges of climate change are multi-dimensional, multi-sectoral, immediate as well as long term and not limit to the country boundary.

In general, climate change is not only creating many new or unknown threats, but it will also increase certain interactions between environment and human welfare with stronger and more pronounced effects on human life than is currently seen for example drought, flooding, water-logging, cyclone and tidal surge, tornado, thunderstorm, river/coastal erosion, landslides, salinity intrusion, hailstorm, extreme weather events, etc.

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[3] World Risk Report 2016: United Nations University (www.WorldRiskReport.org)

[4] The 2011 Global Assessment Report on Disaster Risk Reduction (GAR11): UNISDR

[5] Vital Statistics of Bangladesh 2015: BBS

The super cyclones Sidr (15 November, 2007) and Aila (25 May, 2009) the frequent and prolonged floods are the obvious examples of such extreme events. These natural disasters may have colossal impacts on human health, agricultural production, and socio-economic conditions. Due to lack of adequate and pertinent data, knowledge about subsequent interactions that arise from these events; makes it difficult for the government to plan, design and undertake development programs.

The causes of climate change are global in nature while the impacts are felt locally and often very severely, particularly in the poor and developing countries like Bangladesh and its populations, particularly the poor and coastal communities are so vulnerable to the climate change impacts mainly because it faces a combination of number of different vulnerabilities. A set of twelve vulnerabilities has been identified. These are 1) Sea Level Rise 2) Cyclone (Intensity & Frequency) 3) Deeper Penetration of Saline Water 4) Erratic Rainfall 5) Flood (Intensity & Frequency) 6) Drought 7) River Bank Erosion 8) Health 9) Food Security 10) Water Security 11) Land slide in CHT and 12) Migration.

On the other hand some events like using insecticides, pesticides, threatening of species threat to natural ecosystem. Inadequate attention to these impacts increase the longterm costs of infrastructure investments and the likelihood that such investments fail to deliver the intended benefits. Bangladesh has always contended with these natural disasters, the country is now facing an even bigger threat, this time human-made: climate change and sea level rise. In particular this applies to the coastal areas of the country. Imperative today are a full appreciation of the climate threat and long-term policies to safeguard against catastrophe.

The IPCC Fourth and Fifth Assessment reports warn us about the devastating impacts of climate change and identified many of the key impacts for the Asian and African regions. The recent IPCC report and several other scientific studies warn that these may happen even more frequently in Bangladesh, and may constrain our economic and social development in near future. Bangladesh's experiences over water causing floods in the monsoon season and scarcity of water in the dry season due to change in hydrological patterns, rainfall and regional water flow patterns, which are linked with warmer weather and climate change. This situation will be aggravated in the warmer climate resulting in severe droughts and increasing floods. As a response to the decision of the Seventh Session of the Conference of the Parties (COP7) of the United Nations Framework Convention on Climate Change (UNFCCC) Bangladesh prepared the National Adaptation Programme of Action (NAPA, 2005). Since then Bangladesh prepared and subsequently adopted the "Bangladesh Climate Change Strategy and Action Plan (BCCSAP, 2009)" where research and knowledge management is an important pillar among the six pillars[6].

It is apprehended that the possible sea level rise will affect the country by inundating coastal areas of Bangladesh. A 30-45cm sea level will not only affect the coastal ecosystems, water and hamper agriculture and food production, but also may dislocate about 20 million people from coastal districts by the year 2050. These may create severe problems in rural livelihood, regional and sectoral development as well as in sharing scarce resources (land, water, forest and fisheries) and thus it will enhance rural to urban migration and social conflicts in the near future. The emerging climate refugees will put enormous pressure on urban economy and infrastructure (housing and communication) as well as on basic services such as water supply, power, health and sanitation. Bangladesh Environment and Climate Change Outlook 2012[7] has described the environmental degradation focusing mainly on the land, water, biodiversity, air quality, waste management and climate change vulnerability and ecosystem based adaptation. Bangladesh is suffering from severe impacts of climate change because of its low-lying nature and dense population. The climate change parameters like temperature, heavy rainfall, sea surface temperature, frequency of floods, cyclones and storm surges etc. are showing either anomalous or increasing trend. Climate change has a massive impact on food production which may turn into food insecurity by amplifying the environmental and socio-economic pressure. The impact of climate change on biodiversity is incalculable as large part of the country is under threat of being inundated.

1.3 History of Environmental Statistics

The concept of Environmental Statistics emerged during the first United Nations Global Conference on the Human Environment was held in Stockholm, Sweden in June 1972. The conference emphasized mainstreaming environmental concerns into socio-economic polices. The second major global conference in the environmental field was the United Nations Conference on Environment and Development (Rio de Janeiro, June 1992) where a ground-breaking consensus was achieved that strategies of sustainable develop ment should integrate environmental issues into development plans and policies.

[6] Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009: Ministry of Environment and Forest (MoEF)

[7] The Report published by the Department of Environment in June 2013.

Specific recommendations by Agenda 21 to United Nations Statistics Division (UNSD) referred to the development and implementation of integrated environmental and economic accounting and indicators of sustainable development. In 2000, most countries signed the Millennium Declaration and committed themselves to reach the declaration's Goals and Targets by 2015 including Goal 7 on environmental sustainability, using 10 globally agreed environmental indicators to monitor progress. The World Summit on Sustainable Development (Johannesburg, August 2002) put the emphasis on reaching specific targets in specific time frames and monitoring progress, thus reaffirming the need for statistics, indicators and integrated information systems that measure and track progress. More recently, during the United Nations Conference on Sustainable Development (Rio+20, Brazil, June 2012), member States of the United Nations have addressed the necessary advancement in environmental information. Its outcome document, "The Future We Want", contains various references to the importance of environmental data, information and indicators, that are highly relevant to the work of UNSD.

During the 1970's and 1980's while UNSD concentrated on conceptual frameworks for environmental statistics and indicators and on environmental-economic accounting, the United Nations Economic Commission for Europe (UNECE) Statistics Division pioneered work on standard environment statistics classifications. Environment statistics programs also started at the Organisation for Economic Co-operation and Development (OECD) and later at Eurostat, focusing on data collection and indicator development[8].

The first Environmental Statistics was launched in 1999 and since then it has been established on a biennial basis. In 2010, following the request of the Statistical Commission, UNSD started the revision of the 1984 Framework for the Development of Environment Statistics (FDES) including the establishment of a Core Set of Environment Statistics. By using the revised FDES, countries can build and strengthen technical capacities to better respond to the increasing demand for environmental information. Environmental and sustainable development assessment, climate change information and policy, discussions about ecosystems and biodiversity, the green economy and of measuring progress beyond GDP, as well as the post 2015 development agenda (including Sustainable Development Goals and its potential indicators), are all developments that are influencing and will most likely continue to affect the work carried out in the field of Environment Statistics.

Environmental Statistics thus cover a wide range of information and are multi- and inter-disciplinary in nature. They originate from a variety of institutions that collect data and, similarly, numerous methods are used to compile them. The field of Environmental Statistics requires an appropriate framework to guide its development, coordination and organization.

1.4 Towards an Institutional Set-up for Environmental Statistics

With the passage of time, need for environmental statistics is left among the policy makers. Relevant Ministries/ Divisions/ Departments/ Organizations initiated their efforts to generate data to meet their own requirements. Similarly, different non-government organizations (NGOs) also produce data and information on environmental issues. Department of Environment (DoE) is responsible for the implementation of BCCSAP and NAPA. To coordinate national efforts in developing environmental statistics and to support institutional strengthening and mobilise administrative backup an Inter-Ministerial Technical Working Committee has been set up by the government. This committee will cooperate and coordinate BBS to collect environmental data into an integrated and unified form. On the other hand, Government of Bangladesh has established an "Environment, Climate Change and Disaster Statistics (ECDS) Cell at Bangladesh Bureau of Statistics (BBS) for collecting, compiling, analysing, reporting, sharing and disseminating environmental statistics. The main task of the ECDS Cell is to develop and operational format and a database for BESF and to strengthen capacity building of environmental statistics of BBS. National Focal Point Officer (NFPO) of ECDS Cell, BBS is responsible for coordinating among relevant Ministries/ Divisions/ Departments/ Organizations for developing environmental statistics like compendium, state report, resource accounts etc.

1.5 Need Bangladesh Environmental Statistics Framework

a) Bangladesh Environmental Statistics Framework is a basic organizing structure to guide environmental statistics;

b) It is achieved through the identification of the structure, dimensions, categories and components (statistical topics) that constitute the contents of the framework;

c) The frame identifies the fields of concern with an illustration of classifications, selected statistics and indicators for application;

d) It gives us guideline for robust environmental

[8] http://unstats.un.org/unsd/environment/fdes.htm

pathways to collect, compile and share information from specific platform;

e) It will provide a comprehensive guidelines, tools and techniques for environmental data collection in a coordinated manner;

f) This frame facilitates a coordination mechanism for collecting administrative data from different public and private sources as well as facilitate a synthesized presentation of data from various subject areas and sources;

g) It will simplify the complexity of the environmental appropriately so that it can be measured more easily; and

h) Help for identifying the range of statistics relevant to societal decision-making regarding the environment.

1.6 Objectives of the BESF

The overall objective of the Bangladesh Environmental Statistics Framework (BESF) is to provide with a general understanding and guidelines on the importance of environmental resources, poverty an environment nexus and systematic data collection for Environmental Statistics in order to develop the national environmental economic accounts. The specific objectives are:

a) Identifying needs and priorities issues for action within the thematic areas of environmental issues;

b) Identifying main quantifiable aspects of the environmental scenarios;

c) Identifying components, sub-components and topics that are relevant and statistically feasible according to defined needs and priorities;

d) Integrating environmental data collection and reporting for various international, regional and national initiatives;

e) Facilitating the development of a national programme of environmental statistics;

f) Contributing to the assessment of data requirements, sources, availability and gaps;

g) Guiding the development of databases that can be used for multiple purposes;

h) Proposing a unified strengthening capacity building strategy and action plan for required resource mobilization and technical assistance;

i) Formulating an integrated institutional framework to coordinate and monitor the implementation of strategic action plan;

j) Establishing fruitful partnership and linkages with institutional framework;

k) Linking national plans and strategies to the SDGs, SFDRR, the Paris Agreement, MEAs etc. and

l) Assisting in the co-ordination and organization of environmental statistics given the inter-institutional nature of the domain.

1.7 Methodology of the Framework

1.7.1 BESF Preparation Process

Bangladesh Environmental Statistics Framework (BESF) 2016-2030 is a standard document which has been prepared through a series of extensive consultative process including expert group workshops, trainings, seminars, inter-ministerial meetings. The relevant Ministries/Divisions/Departments/Organizations/ Academics/ Development Partners, Experts, Environmental Practitioners and others stakeholders have been involved in the long process. A draft BESF was prepared and placed at the Inter-Ministerial Technical Working Committee held on 13 March 2017. The BESF Report has been prepared based on input received from concerned Ministries/ Divisions/ Departments/ Organizations. This timely initiative aided in the revision and refinement of the BESF document on basis of Inter-Ministerial Technical Working Committee's decision. Editor forum of BBS was also formed to scrutinize the lapses and gaps of capacity needs and priorities under UN-FDES. The Key policy-makers, particularly the Ministers/ Minister of State of the ministries concerned have been involved to ensure high levels commitment to the BESF process. The final draft of the BESF document was presented at the report review committee of Statistics and Informatics Division (SID), Ministry of Planning on 04 May 2017 for approving the document.

1.7.2 Review of Literature

A wide range of relevant documents and literatures of Environmental issues and related books were collected and reviewed to develop Bangladesh Environmental Statistics Framework (BESF) 2016-2030. Key documents and literature those were reviewed are:

- United Nations Framework for Development of Environment Statistics (UNFDES) 2013
- United Nations System of Environmental Statistics Framework (SEEA) 2012
- UNESCAP Disaster related Statistics Framework (DRSF)
- UNPEI Poverty Environment Accounting Framework (PEAF)
- Sustainable Development Goals (SDGs) 2016-2030
- Sendai Framework for the Disaster Risk Reduction (SFDRR) 2015-2030
- Bangladesh Environment and Climate Change Outlook 2012

Closing Session of Expert Group Workshop was held on 08 November 2016 at BBS Conference Room. Professor Dr. Shamsul Alam, Member (Senior Secretary), General Economics Division (GED), Planning Commission was present as Chief Guest. Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division was present as special guest. Mr. Sudipto Mukerjee, Country Director, UNDP Bangladesh was present as a Guest of Honor and Mr. Mohammad Abdul Wazed, Director General (Additional Secretary), BBS chaired the session.

- Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009
- Bangladesh Disaster-related Statistics 2015: Climate Change and Natural Disaster Perspectives
- Relevant documents of UNISDR
- Bangladesh National 3R Strategy for Waste Management 2010
- Seventh Five Year Plan of Bangladesh 2015
- Statistical Act 2013
- National Strategy for Development of Statistics (NSDS) 2013
- Relevant others documents
- Bangladesh Capacity Development Action Plan for Sustainable Environmental Governance (2007)
- UNFCC Framework Convention on Climate Change (2005)

Following the review outputs, an outline was developed for the Framework and came up with a final outline through a rigorous reviewing process by the team members.

1.7.3 Identifying the Data Sources of Environmental Statistics

Following the Basic Set of Bangladesh Environmental Statistics a desk review was carried out to identify the data sources. Primarily different ministries, divisions, departments and institutes were identified following the type and characteristics of statistics described in the Basic Set by components, sub-components and topics. This document was share in the Expert Group Training Workshop organised during 06-08 November 2016. A total of 90 participants from different ministries/divisions/departments/institutes, universities, research organisations and NGOs attended the expert group workshop. The workshop first provided with basic knowledge on the Environmental Statistics by renowned national and international experts and then shared the basic set of statistics for situation analysis and identifying data sources through small group work. The group came up with following group findings and suggestions:

- Potential sources of data, i.e. which ministries/ divisions/departments/organisations are responsible for providing, reporting and sharing data for environmental statistics;
- What roles should be played by different ministries/divisions/departments/organisations to collect, compile and disseminate data; and
- Recommendations for way forward.

Following the suggestions and feedback of the workshop participants, potential sources of data was revised and further shared in a workshop for validation during 21-22 December 2016.

1.7.4 Understanding the Environmental Data Gaps and Discrepancies

The cross cutting environmental statistics domain is an emerging field for most national statistical systems that face increasing demands from stakeholders. The problem of data gaps and indicators value discrepancies among national, regional and international producers has been present for a very long time in the World as well as Asia Pacific region and it comprises different statistical domains such as economic, demographic, social and environmental. Although data gaps and discrepancies are undesirable, it is understandable that international organizations need to estimate values when countries do not produce national data in certain domains, so that global analysis based on statistics is feasible. But countries generally resist and reject this practice, claiming that this is done without sufficient

Inaugural Session of Expert Group Validation Workshop was held on 21 December 2016 at BBS Auditorium. Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division was present as a Chief Guest. Mr. Naquib Bin Mahbub, Division Chief, GED, Planning Commission and Dr. A. Atiq Rahman, Executive Director, Bangladesh Centre for Advanced Studies were present as special guests. Mr. Sudipto Mukerjee, Country Director, UNDP Bangladesh was present as Guest of Honor and Mr. Mohammad Abdul Wazed, Director General (Additional Secretary), BBS chaired the session.

methodological transparency, particularly in the case of countries with regular, official and high quality (environmental) statistics production that are often not captured in the global databases and reports. During the 6-8 November 2016 the expert group training workshop on situation analysis of environmental statistics in Bangladesh, participants have identified gaps in the Environmental Statistics included quality of data, unique data collection tools and techniques, coordination, compilation and disseminations methodology.

1.7.5 Validation Workshop on Identifying Data Sources of Environmental Statistics

Following the outputs of group work by the participants of 6-8 November 2016 workshop, the Basic Set of Environmental Statistics were further revised and shared for validation in a workshop on Identifying Data Sources of Environmental Statistics during 21-22 December 2016. A group of national and international environmental experts from different renowned international, regional and national organizations participated the validation workshop as resource persons to clarify components of environmental statistics, importance of data and potential sources of data. The workshop participants from different ministries/ divisions/ departments/ organisations further validate sources of data for environmental statistics and also provided with potential source data.

1.8 Expected Outcomes from the framework

i) Reaching consensus among all stakeholders on the basic characteristics of environmental statistics for developing "Bangladesh Environmental Statistics Framework 2016-2030". It is a strategic action plan and guideline for next 15 years which will be an integrated platform for collecting, compiling, processing, analysing, disseminating and environmental data support to the SDGs, SFDRR, Paris Agreement in Climate Change, BCCSAP and 7th FYP of Bangladesh;

ii) Developing an agreement from all stakeholders (Ministries/ Divisions/ Departments/ Org. etc.) of the policy questions and identifying of all types of environmental indicators, accounts and tables to answer the policy questions for monitoring and evaluation of SDGs, SFDRR, Paris Agreement in Climate Change, BCCSAP and 7th FYP of Bangladesh;

iii) Developing a strategic action plan outlining the policy priorities, institutional framework, environ mental resilient indicators, components, accounts -statistics to compile and identifying constraints and opportunities for monitoring and evaluation of the SDGs, SFDRR, Paris Agreement in Climate Change, BCCSAP and 7th FYP of Bangladesh;

iv) Improving the environmental statistics templates, tables, garner support and general agreement on a collective vision of all stakeholders;

v) Key elements of a the Framework for strategic action plan to identify the environmental statistics indicators to better support to the SDGs, SFDRR, Paris Agreement in Climate Change, BCCSAP and 7th FYP of Bangladesh for monitoring and evaluation, with a particular emphasis on capacity building on strengthening environmental statistics at BBS; and

vi) Assessing the impeding factors for collection, compilation and dissemination of environmental statistics.

Closing Session of Expert Group Workshop was held on 08 November 2016 at BBS Conference Room. Professor Dr. Shamsul Alam, Member (Senior Secretary), General Economics Division (GED), Planning Commission was present as Chief Guest. Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division; Professor Dr. A. S. M. Maksud Kamal, Chairman, Department of Disaster Science and Management, University of Dhaka were present as special guests. Mr. Sudipto Mukerjee, Country Director, UNDP Bangladesh was present as a Guest of Honor and Mr. Mohammad Abdul Wazed, Director General (Additional Secretary), BBS chaired the session.

1.9 Rationale of the BESF

As mentioned, the Environmental Statistics theme by definition is the development and application of statistical methodology to environmental issues. These can be based in the natural environment (both undisturbed and perturbed) or the urban environment. Environmental statistics is a broad discipline stretching from how and what to sample, through to modelling impacts on human and ecosystem health and ultimately to providing predictions of what changes might occur in the future.

The demand for Environmental statistics is increasing in step with the continued its own challenges faced by the modern society. The recognition that human wellbeing depends on the environment has led to an increasing emphasis on environmental and sustainability concerns on which decisions and actions need to be taken. Paramount to these actions is the regular production of environmental statistics of the highest possible quality to support evidence-based policy-making by enabling the identification of environmental policy issues and allowing their objective quantification. Environmental statistics portray key information about the state of the environment and its most relevant changes through space and time. They strengthen assessments through quantitative techniques, making analyses more robust, timely and progressively harmonized at the national, regional and international levels. Environmental statistics are necessary for producing environmental assessments, state of the environmental reports, environmental compendia, environmental indicators, indicators of sustainable development, as well as to facilitate environmental-economic accounting of Bangladesh.

Over time, the changing environment affects humans in different ways. Escalating human impacts on environmental systems worldwide have raised concerns about the consequences of environmental changes for the sustainability of human societies and also for human wellbeing. Conditions of the living and non-living environment, natural processes and the capacity of ecosystems to provide goods and services all experience change as a result of human activities. Due to the interconnectivity between the different systems, changes in one part can influence a variety of changes in different parts of the system[9].

The recent two critical UN initiatives are Sustainable Development Goals (SDGs) and Sendai Framework for Disaster Risk Reduction (SFDRR). The Sustainable Development Goals (SDGs), officially known as transforming our world: the 2030 Agenda for Sustainable Development is a set of 17 aspirational "Global Goals" with 169 targets between them. Following the negotiations, a final document was adopted at the UN Sustainable Development Summit during September 25–27, 2015 in New York, USA. The title of the agenda is Transforming our world: the 2030 Agenda for Sustainable Development. The 17 goals and 169 targets have 230 approved indicators to monitor the progress. Of the 17 goals, 7 goals are exclusively environmental and 114 out of 230 indicators are environmental indicators.

The Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030 is the first major agreement of the post 2015 development agenda, with seven targets and four priorities for action. It was endorsed by the UN General Assembly following the 2015 Third UN World Conference on Disaster Risk Reduction (WCDRR).

[9] United Nations Framework for the Development of Environment Statistics (FDES) 2013

Inter-Ministerial Technical Working Committee Meeting was held on 13 March 2017 at Training Room 3, SSTI, BBS. Mr. Md. Amir Hossain, Director General (Additional Secretary), BBS chaired the meeting. Members of the Inter-Ministerial Technical Working Committee from different organizations were present in the meeting for approving the "Bangladesh Environmental Statistics Framework (BESF) 2016-2030.

SFDRR is aimed at the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries[10].

The Government of Bangladesh also developed its 7th Five Year Plan (2016-2020) aligning with SDGs. A formal document has been developed on implementation strategy of the SDGs through identifying responsibilities by Ministries/Divisions to each of the targets of SDGs. As a whole, as understood, environment and development nexus is very strong and interrelated, thus environmental statistics has become mandatory and urgent for understanding and monitoring progress of SDGs, SFDRR and 7th Five Year Plan.

1.10 Scopes of the Framework (BESF)

a) The scope of environment statistics framework covers biophysical aspects of the environment and those aspects of the human sub-system that directly influence the state and quality of the environmental components.

b) Environmental statistics framework give us quantitatively and qualitatively idea or assumption of the state and quality of the environment as well as the interactions among the environment, human activities, and natural events;

c) Environment, social and economic statistics overlap and it is not easy – or necessary – to draw a clear line dividing these areas;

d) Social and economic statistics that describe processes or activities with a direct impact on or direct interaction with, the environment are used widely in environment statistics;

e) Other relevant social and economic statistics, which are not part of environment statistics, are also required to place environmental issues in context and facilitate the integrated analysis of environmental, social and economic processes.

f) The use of consistent definitions and classifications among these fields supports their integration.

1.11 Limitation and Challenges

The limitation and challenges of developing environmental statistics such as shortage of knowledgeable and insufficient trained human resources, lack of technical capacity and shortage of financial resources including in the following limitation and challenges:

1) Lack of Inter-Ministerial/ Agencies agreement and coordination. There are some data available with concerned Ministries/ Divisions/ Organizations but due to lack of coordination and agreement, those data cannot be used collected and use for environmental statistics as consistence and coherence manners;

2) Lack of common format and platform for collecting organizing and sharing administrative environmental data;

3) Absence of proper mechanism to ensure quality of data by respective Ministries/Divisions/Organizations;

4) Unavailability of sufficient budget has become one of the vital issues for data collection, compiling, processing & disseminating environmental data; and

5) Absence of designated Focal Points Officer from respective Ministries/Divisions/Organizations when arranged meeting/seminar/workshop/training also is a big challenge for collecting, compiling, analysing and sharing data for environmental statistics.

[10] The Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030

Chapter 2

Global, Regional and National Initiative

2.1 United Nations Framework for the Development of Environment Statistics (UN-FDES)

The United Nations Framework for the Development of Environment Statistics (FDES) was first published in 1984 by United Nations Statistics Division (UNSD). For almost three decades it has been a useful framework for guiding countries in the development of their environment statistics programs. However, the combination of lessons learned during its application, along with improved scientific knowledge and emerging environmental concerns over the intervening years, strongly suggested that the FDES was ready for revision. The 41st session of the United Nations Statistical Commission endorsed a work program in February 2010 for UNSD to address this revision and develop a Core Set of Environment Statistics with the support of an Expert Group. The revision was based on a review of different conceptual, analytical and indicator frameworks. The UN-FDES is a multi-purpose conceptual and statistical framework that is comprehensive and integrative in nature and marks out the scope of environment statistics. It provides an organizing structure to guide the collection and compilation of environment statistics at the national level. It brings together data from the various relevant subject areas and sources. It is broad and holistic in nature, covering the issues and aspects of the environment that are relevant for policy analysis and decision making by applying it to cross-cutting issues such as climate change. Though the FDES is relevant to, and recommended for use by countries at any stage of development, its primary objective is to guide countries at early stages in the development of their environmental statistics programs. It can also be used by international and regional institutions, as well as by other users and producers of environmental statistics[11]. The primary objective of the FDES is to guide the formulation of environment statistics programs by:

- Delineating the scope of environment statistics and identifying its constituents;
- Contributing to the assessment of data requirements, sources, availability and gaps;
- Guiding the development of multipurpose data collection processes and databases; and
- Assisting in the co-ordination and organization of environmental statistics, given the inter-institutional nature of the domain.

2.2 United Nations System of Environmental-Economic Accounting

The System of Environmental-Economic Accounting (SEEA) Central Framework as international statistical standard by the UN Statistical Commission at its 43rd session in February 2012. It has been released as a white cover publication prior to official editing and was published in 2013 by the United Nations, EC, FAO, OECD, IMF and World Bank. The System of Environmental-Economic Accounting (SEEA) Central Framework[12] is a multipurpose, conceptual framework that describes the interactions between the economy and the environment, and the stocks and changes in stocks of environmental assets. Using a wide range of information, the SEEA Central Framework provides a structure to compare and contrast source data and allows the development of aggregates, indicators and trends across a broad spectrum of environmental and economic issues. Particular examples include the assessment of trends in the use and availability of natural resources, the extent of emissions and discharges to the environment resulting from economic activity, and the amount of economic activity undertaken for environmental purposes. At the heart of the SEEA Central Framework is a systems approach to the organization of environmental and economic information that covers, as completely as possible, the stocks and flows that are relevant to the analysis of environmental and economic issues. In applying this approach, the SEEA Central Framework applies the accounting concepts, structures, rules and principles of the System of National Accounts.

In practice, environmental-economic accounting includes the compilation of physical supply and use tables, functional accounts (such as environmental protection expenditure accounts), and asset accounts for natural resources like water, land, forest, energy, natural gas etc. The integration of information concerning the economy and the environment requires an inter-disciplinary approach. The SEEA Central Framework brings together, in a single measurement system, information on water, minerals, energy, timber, fish, soil, land and ecosystems, pollution and waste, production, consumption and accumulation. Each of these areas has specific and detailed measurement approaches that are integrated in the SEEA Central Framework to provide a comprehensive view. The concepts and definitions that comprise the SEEA Central Framework are designed to be applicable across all countries, regardless of their level of economic and statistical development,

[11] United Nations Framework for the Development of Environment Statistics (FDES) 2013

[12] United Nations System of Environmental-Economic Accounting (SEEA) 2013

their economic structure, or the composition of their environment. The SEEA Central Framework will be accompanied by two related parts: SEEA Experimental Ecosystem Accounts, and SEEA Extensions and Applications.

2.3 Relationship of the SEEA Central Framework to the System of National Accounts

The System of National Accounts (SNA) is a measurement framework that has developed since the 1950s to be the pre-eminent approach to the measurement of economic activity, economic wealth and the general structure of the economy. The SEEA Central Framework applies the accounting concepts, structures, rules and principles of the SNA to environmental information. Consequently, the SEEA Central Framework allows for the integration of environmental information (often measured in physical terms) with economic information (often measured in monetary terms) in a single framework. The power of the SEEA Central Framework comes from its capacity to present information in both physical and monetary terms in a coherent manner. Because it uses the same accounting conventions, the SEEA Central Framework is, in general, consistent with the SNA. However, given the specific analytical focus of the SEEA Central Framework on the environment and its linkages with the economy, as well as its focus on the measurement of stocks and flows in physical and monetary terms, there are some limited differences between the SEEA Central Framework and the SNA.

2.4 SEEA-Central Framework and SEEA-Experimental Ecosystem Accounting

SEEA Experimental Ecosystem Accounting presents a complementary perspective on environmental-economic accounting to that contained in the SEEA-Central Framework - the international statistical standard for environmental-economic accounting. Both the SEEA-Central Framework and SEEA-Experimental Ecosystem Accounting use the accounting concepts, structures and principles of the System of National Accounts (SNA). Furthermore, both documents extend the accounting approach described in the SNA to account for stocks and flows in physical terms. The SEEA-Central Framework starts from the perspective of the economy and its economic units (including households) and incorporates relevant environmental information concerning natural inputs, residual flows and associated environmental assets. In contrast, SEEA-Experimental Ecosystem Accounting starts from the perspective of ecosystems and links ecosystems to economic and other human activity. Together, the approaches provide the potential to describe in a complete manner the relationship between the environment, and economic and other human activity. SEEA-Experimental Ecosystem Accounting reflects a synthesis of the current knowledge in this area and can provide a starting point for the development of ecosystem accounting at national or sub-national levels. While SEEA-Experimental Ecosystem Accounting does not give precise instructions on how to compile ecosystem accounts, it represents a strong and clear convergence across the disciplines of ecology, economics and statistics on many core aspects related to the measurement of ecosystems. Thus there is a strong base on which further research and development can build.

In SEEA-Experimental Ecosystem Accounting, the stocks are represented by spatial areas each comprising an ecosystem asset. Each ecosystem asset has a range of characteristics– such as land cover, biodiversity, soil type, altitude and slope, etc. – which describe the operation and location of the ecosystem. The flows in SEEA-Experimental Ecosystem Accounting are of two types. **First,** there are flows within and between ecosystem assets that reflect ongoing ecosystem processes–these are referred to as intra-ecosystem flows and inter-ecosystem flows. The recognition of inter-ecosystem flows highlights the dependencies between different ecosystem assets (e.g. wetlands are dependent on flows of water from further up the river basin). **Second,** there are flows reflecting that people, through economic and other human activity, take advantage of the multitude of resources and processes that are generated by ecosystem assets–collectively these flows are known as ecosystem services. Ecosystem services are generated from the combination of ecosystem characteristics, intra-ecosystem flows and inter-ecosystem flows.

2.5 Relationship between the FDES, SEEA and SNA

As a multi-purpose statistical tool for the development of environmental statistics, the FDES is closely related to and supports other systems and frameworks that are frequently used at the national and international levels. It is a simplified illustration of the relationship between environmental data, the FDES, the SEEA and

[12] United Nations Framework for the Development of Environment Statistics (FDES) 2013

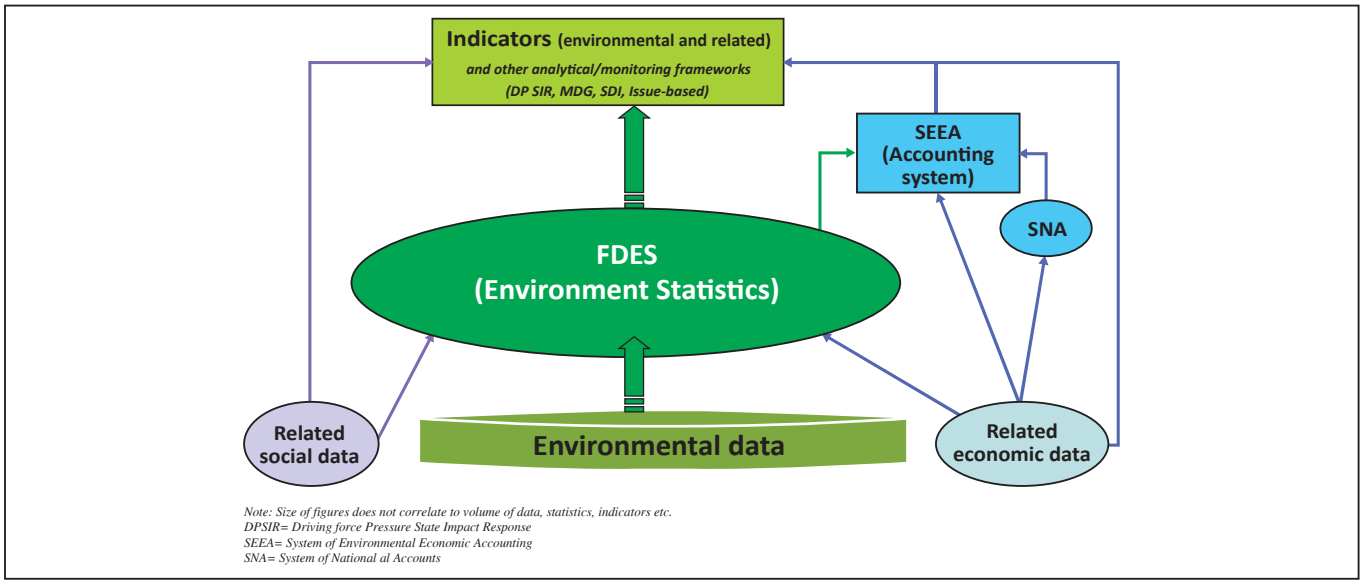

Figure 2.1: Inter-relationship among SEEA, FDES and SNA

the different analytical and indicator frameworks. The FDES is a tool to bring together and transform primary statistical and non-statistical data into environment statistics. These environment statistics can then be used to produce statistical series and indicators organized according to different analytical or policy frameworks or can be used, in combination with economic statistics to produce environmental economic accounts that link environment statistics with the SNA.

The SEEA Central Framework uses a great part of environment statistics by reorganizing them according to national accounting principles. One of the objectives of the FDES as a multipurpose framework is to provide, as much as possible, basic environment statistics necessary for the development of environmental -economic accounts. As environmental-economic accounting is considered an important user of environment statistics, consistency of the concepts, terms and definitions used in the FDES was ensured to the extent possible with the SEEA.

The SEEA Experimental Ecosystem Accounts will be a companion of the SEEA Central Framework. It extends the accounting to consider the measurement of flows of services to society provided by ecosystems and the measurement of ecosystem capital in terms of the capacity, and changes in capacity of ecosystems to provide those services in physical terms. It describes the valuation of ecosystems in so far as it is consistent with the market valuation principles of the SNA. Component 1 (Environmental conditions and quality) of the FDES contains statistics that can feed into the future ecosystem accounts.

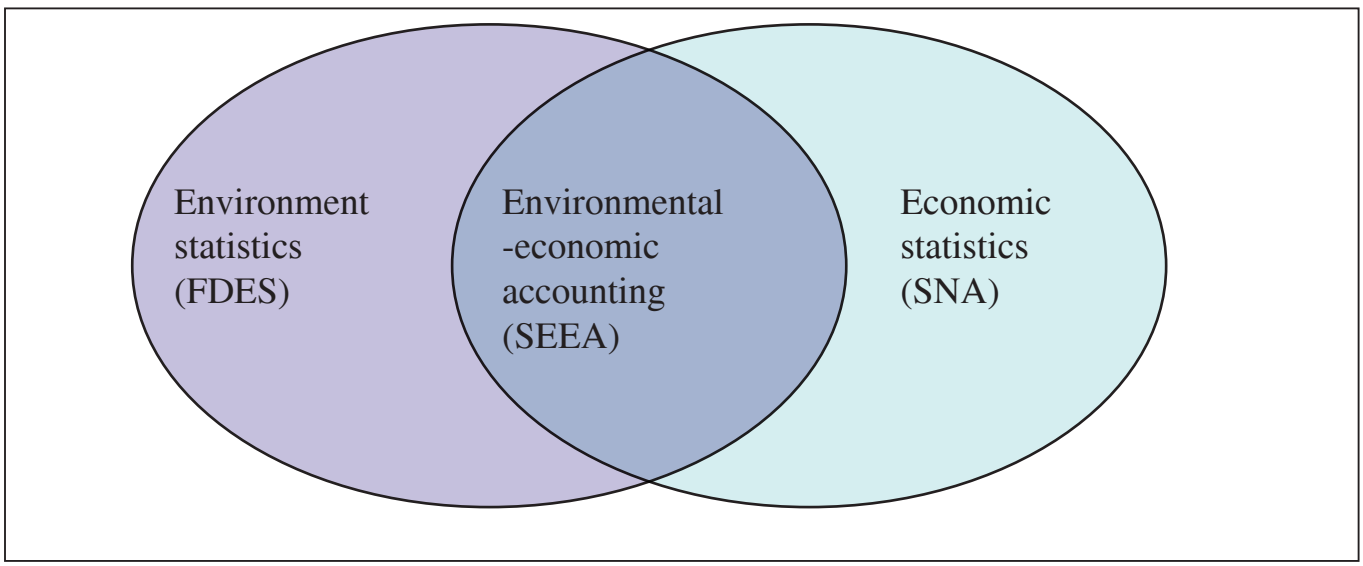

Figure 2.2: Integration among SEEA, FDES and SNA

2.6 Poverty Environment Accounting Framework (PEAF)[13]

The Poverty Environment Accounting Framework (PEAF) is an application of the accounting principles described in the System of Environmental-Economic Accounting (SEEA) to advance the measurement and analysis of the Poverty Environment Nexus. The PEAF is not a new accounting standard but is an adaptation of the SEEA to portray the casual relationships between the environment and poverty and thus support quantifying, reporting and accounting for the PEN to support decision making and policy analysis. A key aim of the paper is to describe the PEAF building on the principles and guidelines contained in the SEEA. There is broad recognition that there are strong links between poverty and the environment, often referred to as the poverty-environment-nexus (PEN). Clearly the environment, encompassing all natural resources, is important since it underpins most economic activity and is a source of individual and social wellbeing. For instance, natural resources including land, water, soil, forests, and minerals, are all necessary inputs to economic activity. In broad terms, there are three key links between poverty and the environment – (i) access to, and distribution of natural resources; (ii) distribution of benefits (both monetary and non-monetary) derived from natural resources; and (iii) the condition of natural resources and their capacity to provide benefits to people.

The PEAF is a framework that is used to produce a set of information to underpin Poverty-Environment Nexus (PEN) specific indicators. The key difference of the PEAF from traditional approaches is the deliberate attempt to produce an information set that is inherently integrated. An integrated information set allows for the coherent quantification and empirical examination of the PEN, and can be used to inform policy and decision making – both from a planning, investment decision-making and performance assessment perspective. It is an integrating framework for poverty-environment data and statistics that can be used to help understand how effective institutional policies and programs are at addressing the PEN. The information set should, consequently, strengthen the ability of institutions to engage in PEN related policies in a systematic and coordinated manner. The PEAF is not a new accounting standard but an adaptation of the SEEA to portray the causal relationships between the environment and poverty and thus support quantifying, reporting and accounting for the PEN to support decision making and policy analysis.

The PEAF shown below emerges from the application of the core model of ecosystem accounting thus bringing together assets, condition, services, benefits and beneficiaries. A key feature of the PEAF is the recognition of beneficiaries (including the poor) and their connection to the environment. This focus makes the framework fundamentally an empirical approach to accounting and reporting on the PEN.

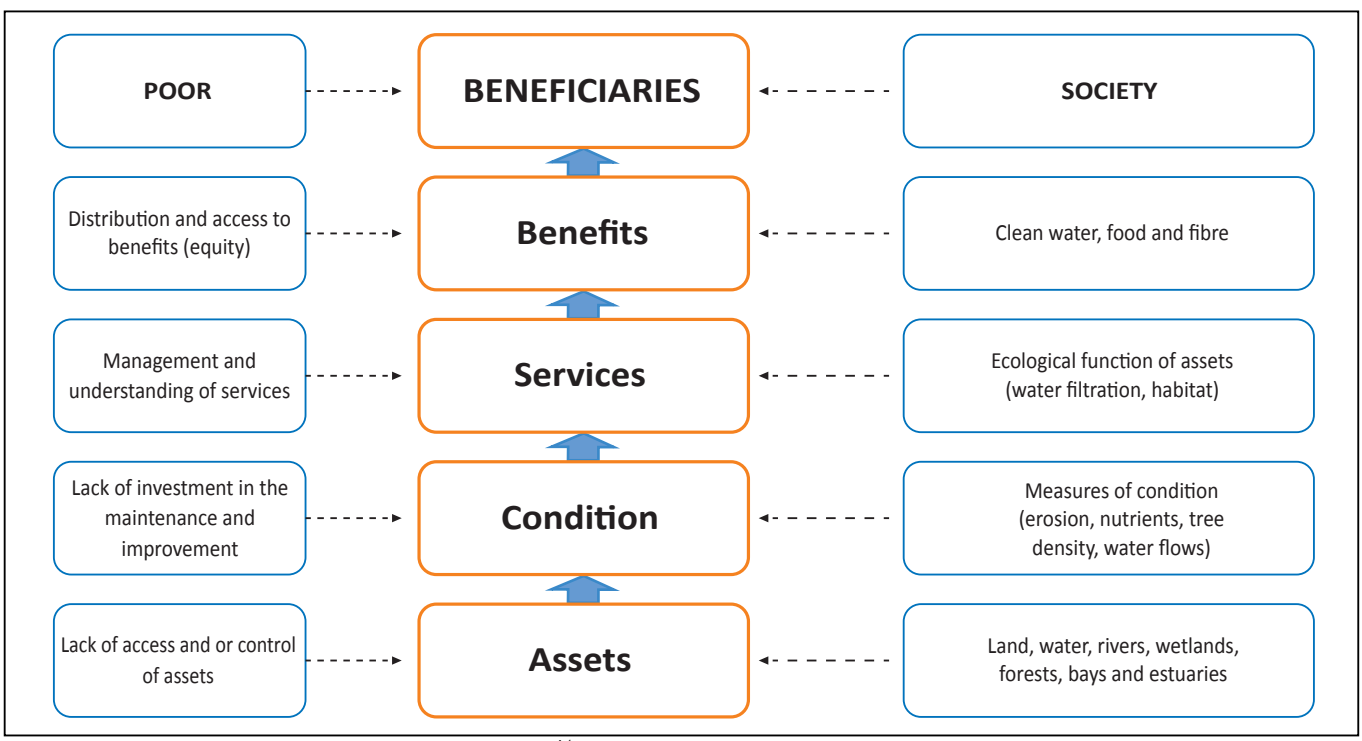

Figure 2.3: Poverty-Environment Accounting Framework (PEAF)[14]

[13] Mark Eigenraam, Director, IDEEA, consultant to the UNDP-UNEP Poverty-Environment Initiative (PEI).
[14] Mark Eigenraam, Director, IDEEA, consultant to the UNDP-UNEP Poverty-Environment Initiative (PEI).

In line with the SEEA EEA, the foundation of the PEAF is the spatial units of ecosystem assets. It is the access to, and control of, spatial areas – i.e. specific areas of land and ecosystems - by people, both the poor and the wealthy that underpins the link between the environment and human activity. By framing poverty-environment accounting in terms of spatial areas, the accounting framework provides a means by which a wide range of data can be integrated. It is this spatial perspective that underpins the PEAF and makes quantifying the PEN possible. Using the condition, services and benefits elements of the ecosystem core model, the PEAF envisages producing basic data tables and accounts to support analysis of alternative management and policy approaches to improving the condition of environmental assets and reducing levels of poverty.

• *PEAF in practice*

The PEAF accounts play an important role in integrating information on ecosystems using a spatial approach. When national level indicators hide important regional variations, spatial disaggregation is a necessary component in understanding the relationship between, for example, the location of natural resource stocks, settlement areas and economic activities. The SEEA Land accounts present a method of assessing shares of land use and land cover within a country. Further, land is a fundamental resource and often linked to poverty either via access, degradation, productivity and common use.

Since the finalisation of the SEEA Central Framework in 2012 there has been a concerted effort by countries to implement environmental-economic accounting. Key agencies leading the efforts include the National Statistics Offices, Finance and Environmental agencies. Initially these agencies were motivated to understand investment in the environment and how economic and social wellbeing are linked to the environment. However, it is now recognised that many government programs at both the national and global levels are engaging in the management of environmental assets and dealing with climate change mitigation and adaptation but approaching it with slightly different objectives. This has led to a much broader recognition of the potential role of a common, coherent and integrated set of environmental-economic information that can be compiled centrally and used by many agencies[15].

2.7 Disaster-related Statistics Framework (DRSF)

The Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030[16] was adopted at the Third UN World Conference in Sendai, Japan, on March 18, 2015.

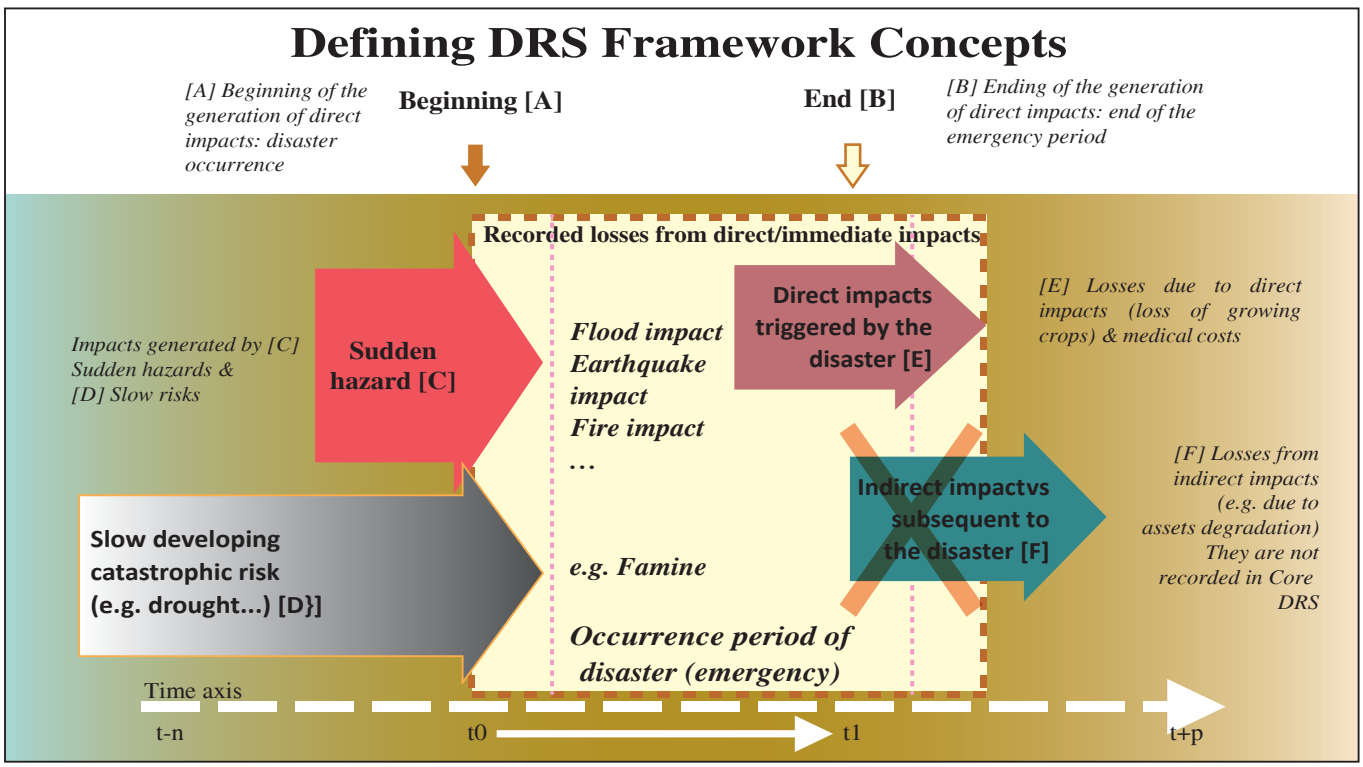

Figure 3.4: Disaster-related Statistics Framework Concepts[17]

[15] Ibid
[16] Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030
[17] http://www.unescap.org/our-work/statistics

It is the outcome of stakeholder consultations initiated in March 2012 and inter-governmental negotiations from July 2014 to March 2015, supported by the United Nations Office for Disaster Risk Reduction at the request of the UN General Assembly. The Sendai Framework is the successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. The Sendai Framework also articulates the following: the need for improved understanding of disaster risk in all its dimensions of exposure, vulnerability and hazard characteristics; the strengthening of disaster risk governance, including national platforms; accountability for disaster risk management; preparedness to "Build Back Better"; recognition of stakeholders and their roles; mobilization of risk-sensitive investment to avoid the creation of new risk; resilience of health infrastructure, cultural heritage and work-places; strengthening of international cooperation and global partnership, and risk-informed donor policies and programs, including financial support and loans from international financial institutions. Based on SFDRR 2015-2030, the ESCAP Commission established a regional expert group involving the experts/focal points from national statistics offices and national disaster management agencies from 14 Asia and Pacific countries along with experts on statistics or on disaster management information from many international organizations.

The Core Set of Statistics in this framework is built upon a clearly specified policy demand and existing mandate for government organization for monitoring, as described in the Sendai Framework. Monitoring the 7 targets in the Sendai Framework requires, as a basic minimum, good quality statistics on disaster occurrences and direct impacts. The Sendai framework contains a statement of outcome, for the next 15 years, to achieve a substantial reduction of disaster risk and losses, to lives, livelihoods and health and to the economic, physical, social, cultural, environmental assets of persons, businesses, communities and countries. The proposed targets in the framework are:

a) Reduce global disaster mortality;

b) Reduce the number of affected people;

c) Reduce direct disaster economic loss;

d) Reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities;

e) Increase the number of countries with national and local disaster risk reduction strategies;

f) Enhance international cooperation; and

g) Increase the availability of and access to multi-hazard early warning systems and disaster risk information[18].

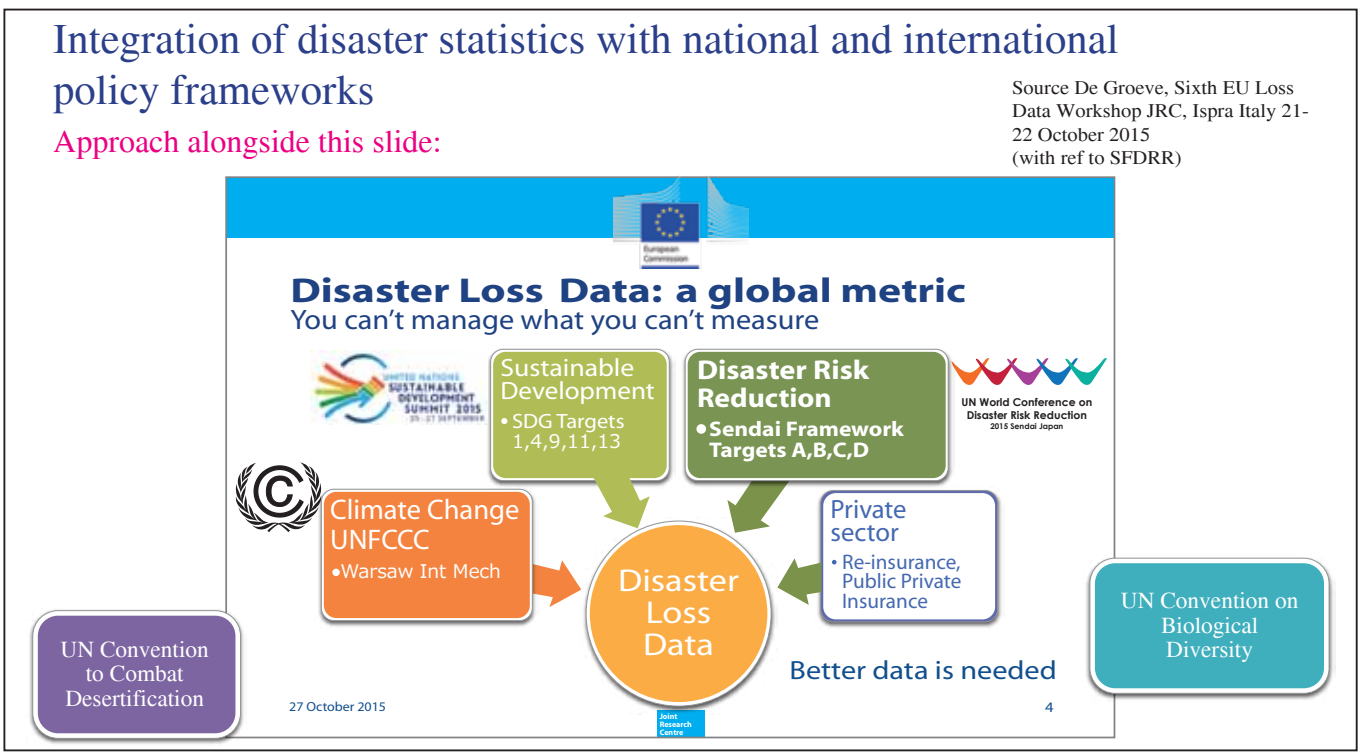

Figure 3.5: DRSF integration with other frameworks[19]

[18] Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030
[19] http://www.unescap.org/our-work/statistics

The Sendai Framework targets have been followed by specification of a disaster-related target in the UN Sustainable Development Goals (SDGs). The SDGs provide the globally recognized framework for the major global public policy priorities, such as ending poverty and ensuring sustainable access to basic resources. Potentially, there are complex relationships between disasters and development goals, with influences in both directions. SDG 11 calls for making cities and human settlements inclusive, safe, resilient and sustainable, with target 11.5:

"By 2030 significantly reduce the number of deaths and the number of affected people and decrease the economic losses relative to GDP caused by disasters, including water-related disasters, with the focus on protecting the poor and people in vulnerable situations".

It is anticipated that implementation of this framework and improving consistency in use of classifications and definitions for disaster occurrences and direct impacts will be an important contribution to monitoring and achieving targets for disaster risk reduction and for sustainable development. The terms of reference for this Framework are to meet requirements for monitoring the Sendai Framework targets, which is built on objectives of reducing impacts of disasters and improving disaster management. The approach in this framework is to align as much as possible, usual methodologies and classifications in the statistical domain as well as with current practices and existing databases. The purpose of the framework is to support production of official statistics, that is data and statistics produced and reported by the responsible government agencies. There is a demand to prioritize a Core Set designed to focus on disaster occurrences and direct impacts. This Core Set is presented in the context of the DRSF.

2.8 DRSF integration with other frameworks

The DRSF is designed to serve multiple analytical purposes and for integration with policy monitoring and indicator frameworks that have been established or are under development internationally. Compatibility between DRSF and these other frameworks is crucial because the Core Set of the DRSF will be needed for government agencies to respond to the demands on statistics and indicators for national or international monitoring of the related frameworks. Important examples, include the UN Sustainable Development Goals, which indicators on disasters aligned on the Sendai Framework, the Framework for the Development of Environmental Statistics, the work of the IPCC on "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation" (2012), the United Nations Convention to Combat Desertification (UNCCD), the Convention on Biological Diversity, other related initiatives by the United Nations Regional Commissions, and the work led by UNISDR and the Open-ended Intergovernmental Expert Working Group on Indicators and Terminology Relating to Disaster Risk Reduction.

2.9 Five Year Plan of National Development (7th FYP)[20]

The Five Year Plan for the period FY 2016-2020 is a National Policy guideline prepared by the General Economics Division (GED) of the Planning Commission which is more public oriented and participatory manure. It will provide direction to the national development for a period of 5 years and focuses on pro-poor economic growth, sustainable development and risk resilience with the vision of empowering peoples of Bangladesh. The Plan will also enunciates new strategies, institutions and policies to complete the remaining agenda of achieving the social, economic and environmental outcomes of the Vision 2021 and the associated Perspective Plan. The sectoral development strategy of the 7th Plan document has been divided into 14 national development priority sectors that will support for proper financing, better implementation and results monitoring of the Plan. A separate chapter on Development Results Framework (DRF) has been prepared in close collaboration and consultation with government and non-government stakeholders for monitoring the Plan. DRF for monitoring the 7th FYP has been prepared considering the indicators of SDGs. The DRF was also prepared in a consultative process due to address the views of different sectors and develop a robust and rigorous result based monitoring and evaluation framework. Both core macro and sectoral quantitative results will be monitored to measure the effective implementation of the 7th FYP for Bangladesh.

The 7th FYP have been structured to align with the recently adopted 14 uniform sectoral divisions. Previously, there was a lack of uniformity of sectoral classification among the ministries - Planning Commission followed 17 sectors; Ministry of Finance used 13 sectors for resource allocation while Sixth Five Year Plan focused on 10 thematic areas. This recently adopted change of having the same sectoral classification for ministries will bring harmony among planning, resource allocation, implementation and monitoring and with this spirit the sectoral chapters of the Plan have been arranged.

[20] 7th FYP of Bangladesh (2016-2020), General Economics Division (GED), Planning Commission of Bangladesh 2015

The government's scope to meet the desired milestones of Vision 2021-articulated under the "'Perspective Plan of Bangladesh 2010-2021" critically depends on meeting the governance challenges.

The main objective of the Seventh Five Year Plan is to ensure environmental sustainability through conservation of natural resources and reduce air and water pollution. The Seventh Plan has stressed the need to take into account environment, climate change adaptation and mitigation in a broader development context. In this regard, this Plan recognizes climate change as an added challenge to reduce poverty and environmental degradation. Thus, the Seventh Plan focuses on key strategic element for natural conservation with increased forest coverage with appropriate tree density, water bodies and protected areas and maintenance of natural resource quality and wildlife at a desired level. Creation of alternative livelihoods and building resilience for community to lessen anthropogenic pressure on resources will be enhanced. Relevant programmes for environmental and climate change capacity building at local and national level will be the main interventions of this Plan. Government will offer greater attention to the areas in research for knowledge generation concerning environment and climate change (7th FYP 2015).

The overall objective of disaster management during 7th FYP is to build resilience of the poor and reduce their exposure and vulnerability to geo-hydro-meteorological hazards, environmental shocks, man-made disasters, emerging hazards and climate related extreme events to make our cities, human habitat and resources safe, resilient and sustainable. (7th FYP 2015).

In the book of 7th FYP of Bangladesh has mentioned the role of BBS in the following ways: BBS is the primary data institution in Bangladesh. The BBS role has developed substantial experience and competence in providing a range of data at a national, district, and sectoral basis. Strengthening of the BBS is probably the topmost priority for instituting a result based Monitoring and Evaluation. Under the Seventh Plan time interval, the Government will offer greater effort to generate high quality data in a timely fashion by strengthening the capacity and scope of BBS (7th FYP 2015)[21].

2.10 Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs), officially known as transforming our world: The 2030 Agenda for Sustainable Development, are an inter-governmental set of aspiration 17 Goals with 169 targets.

Figure 2.6: Sustainable Development Goals (SDGs)

[21] 7th FYP of Bangladesh (2016-2020), General Economics Division (GED), Planning Commission of Bangladesh 2015

The proposal contained 17 goals with 169 targets covering a broad range of sustainable development of global issues. These included ending poverty and hunger, improving health and education, making cities more sustainable, combating climate change, and protecting oceans and forests. On 5 December 2014, the UN General Assembly accepted the Secretary General's Synthesis Report which stated that the agenda for the post-2015. SDG process would be based on the Open Working Group (OWG) Proposals. The Inter-governmental Negotiations on the Post 2015 Development Agenda (IGN) began in January 2015 and ended in August 2015. The negotiations of Meetings, a final document was adopted at the UN Sustainable Development Summit September 25-27, 2015 in New York, USA. The member states adopted the Sustainable Development Goals (SDGs) which has a number following characteristics:

1. The SDGs framework is expected to go far beyond the MDGs;
2. 17 Goals with 169 associated Targets have come into effect on 1 January 2016 and guide the international development agenda over the next 15 years with 16 Targets of Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR);
3. The member states including Bangladesh has committed to work towards implementing the Agenda within their own countries and at the regional and global levels;
4. In this context, one may look back to the learnings from MDGs experience for the purposes of drawing lessons for the SDGs implementation.

The government of Bangladesh also identified for its own need under the country study overlap with the targets proposed by the Open Working Group (OWG) on SDGs to a significant extent. During the 70th United Nations General Assembly (UNGA) the new global agenda SDGs was adopted by all Member Nations of United Nations. The New Agenda focusing on 17 Sustainable Development Goals with 169 associated targets which are integrated and indivisible. During the formulation of the 7th plan document, the proposed goals by UN Open Working Group (OWG) were well taken into consideration so that the probable goals of the SDGs can be illustrated in the national plan.

In 47th Conference of United Nations Statistical Commission (UNSC) adopted for monitoring all 169 targets with 230 indicators of SDGs on 25th September 2015 at UN Headquarters. Green Goals (6, 7, 11, 12, 13, 14, and 15) are exclusively environmental, Orange Goals (1, 2, 3, 8, and 9) selected targets and indicators are environmental. 114 indicators out of 230 indicators are exclusively environmental.

OWG finally proposed a framework of 230 Global Monitoring Indicators, accompanied by Complementary National Indicators. OWG also outlined principles for effective SDG monitoring, unpack the possible levels of review, and present a roadmap for action. Urgent technical priorities included filling gaps in available indicators, harnessing new innovative sources of data, and moving towards annual monitoring. National monitoring is the most important level of monitoring and will rely on nationally defined sets of indicators. National ownership at all levels of the SDGs is critical, and national monitoring must respond to national priorities and needs. Each Country can thus define the nature of the indicators, their specifications, timing, data collection methods, and disaggregation to suit their national needs and priorities.

Each country needs to decide whether such indicators should comprise only official data collected and vetted by the respective NSO or whether other official and non-official indicators should also be considered. Such "unofficial" data can add richness to the monitoring of the SDGs. Given the breadth of the SDG agenda, countries may choose to foster broad, multi-stakeholder participation in national monitoring (OWG 2015)[22].

2.11 Data Revolution for the SDGs: the Role of Indicators

Indicators are the backbone of monitoring progress towards the SDGs at the local, national, regional, and global levels. A sound indicator framework will turn the SDGs and their targets into a management tool to help countries and the global community develop implementation strategies and allocate resources accordingly. The monitoring framework and indicators for the SDGs should reflect the lessons learned from the MDGs. The SDGs will require annual reporting of high-quality data from all sectors. It will require much greater investments in building independent, impartial national statistical capacities and strengthening statistical quality and standards. NSOs must be actively involved in the development of global and national SDG indicator frameworks, through the Inter-agency and Expert Group on SDG Indicators that will be convened by the UN Statistical Commission. The SDGs will be goals for the world– applicable to all countries, as well as to multiple, diverse actors. In developing the goals, as well as the accompanying monitoring architecture the best statistical input from business, science, academia, and civil society should be sought (UNSG 2014)[23].

[22] https://sustainabledevelopment.un.org/owg.html
[23] http://www.un.org/en/sc/documents/sgreports/2015.shtml

Existing and new data systems will require continuous strengthening over coming decades. Many aspects of a comprehensive SDG monitoring system can only be implemented over several years, but important decisions will need to be taken soon. The 46th Session of the UN Statistical Commission provided an important moment in the development of an SDG monitoring system, and has put in place a multi-stakeholder process to devise the SDG indicators, via an Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs). The full indicator framework and a sound baseline can be adopted in time for the first High-Level Political Forum (HLPF) of the SDG era in July 2016. An effective annual review of the whole set of Global Monitoring Indicators will take some time to achieve, but by 2018 at the latest, OWG has hoped the international system, notably the UN organizations and partner institutions (OECD, World Bank, WTO, and others) will have in place an accurate and effective annual monitoring system. Annual monitoring is particularly crucial if the SDG indicators are to serve as a management tool, informing national planning and budgetary processes, as well as global follow-up (UNSG 2014)[24].

National ownership at all levels of the SDGs is critical, and national monitoring must respond to national priorities and needs. As recognized in The Road the Dignity by 2030, national monitoring of the SDGs should "build on existing national and local mechanisms and processes, with broad, multi-stakeholder participation. Countries can thus define the nature of the indicators, their specifications, timing, data collection methods, and disaggregation to suit their national needs and priorities. Each country needs to decide whether such indicators should comprise only official data collected and vetted by the respective NSO or other official and non-official indicators should also be considered. Given the breadth of the SDG agenda, countries may choose to foster broad, multi-stakeholder participation in national monitoring. The need for Complementary National Indicators derives from the fact that harmonized global indicators impose substantial costs on the collection and processing of data by NSOs and other stakeholders. A trade-off exists between the need for harmonized global data and countries' need to ensure that data is collected in a manner and subject to standards that reflect local needs and priorities (UNSG 2014)[25].

2.12 The Paris Agreement (2015)[26]

The Paris Agreement (French: *Accord de Paris*) is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with greenhouse gases emissions mitigation, adaptation and finance starting in the year 2020. The language of the agreement was negotiated by representatives of 195 countries at the 21st Conference of the Parties of the UNFCCC in Paris and adopted by consensus on 12 December 2015. As of December 2016, 194 UNFCCC members have signed the treaty, 134 of which have ratified it. After several European Union states ratified the agreement in October 2016, there were enough countries that had ratified the agreement that produce enough of the world's greenhouse gases for the agreement to enter into force. The agreement went into effect on 4 November 2016. The aim of the convention is described in Article 2, "enhancing the implementation" of the UNFCCC through:

a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;

c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

Countries furthermore aim to reach "global peaking of greenhouse gas emissions as soon as possible".

The Paris Agreement has still emphasized the principle of "Common but Differentiated Responsibility and Respective Capabilities"—the acknowledgement that different nations have different capacities and duties to climate action—it does not provide a specific division between developed and developing nations.

Adaptation issues garnered more focus in the formation of the Paris Agreement. Collective, long-term adaptation goals are included in the Agreement, and countries must report on their adaptation actions, making adaptation a parallel component of the agreement with mitigation. The adaptation goals focus on enhancing adaptive capacity, increasing resilience, and limiting vulnerability. Not part of the Paris Agreement (and not legally binding) is a plan to provide US$100 billion a year in aid to developing countries for implementing new procedures to minimize climate change with additional amounts to be provided in subsequent years. Though both mitigation and adaptation require increased climate financing, adaptation has typically

[24] Ibid
[25] Ibid
[26] https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf

received a disproportionately low level of support. A 2014 report by the OECD found that just 16 percent of global finance was directed toward climate adaptation in 2014.

The Paris Agreement attempts to address the deficit by calling for a balance of climate finance between adaptation and mitigation, and specifically underscoring the need to increase adaptation support for parties most vulnerable to the effects of climate change, including Least Developed Countries and Small Island Developing States. The agreement also reminds parties of the importance of public grants, because adaptation measures receive less investment from the public sector. Some specific outcomes of the elevated attention to adaptation financing in Paris include the G7 countries' announcement to provide US $420 million for Climate Risk Insurance, and the launching of a Climate Risk and Early Warning Systems (CREWS) Initiative. In early March 2016, the Obama administration gave a $500 million grant to the "Green Climate Fund" as "the first chunk of a $3 billion commitment made at the Paris climate talks." So far, the Green Climate Fund has now received over $10 billion in pledges. Notably, the pledges come from developed nations like France, the US, and Japan, but also from developing countries such as Mexico, Indonesia, and Vietnam.

• Loss and damage issue[27]

A new issue that emerged as a focal point in the Paris negotiations rose from the fact that many of the worst effects of climate change will be too severe or come too quickly to be avoided by adaptation measures. The Paris Agreement specifically acknowledges the need to address loss and damage of this kind, and aims to find appropriate responses. It specifies that loss and damage can take various forms—both as immediate impacts from extreme weather events, and slow onset impacts, such as the loss of land to sea-level rise for low-lying islands. The push to address loss and damage as a distinct issue in the Paris Agreement came from the Alliance of Small Island States and the Least Developed Countries, whose economies and livelihoods are most vulnerable to the negative impacts of climate change. Developed countries, however, worried that classifying the issue as one separate and beyond adaptation measures would create yet another climate finance provision, or might imply legal liability for catastrophic climate events. In the end, all parties acknowledged the need for "averting, minimizing, and addressing loss and damage" but notably excludes any mention of compensation or liability. The agreement also adopts the Warsaw International Mechanism for Loss and Damage, an institution that will attempt to address questions about how to classify, address, and share responsibility for loss and damage

• Global Stocktake

The global stocktake will kick off with a "facilitative dialogue" in 2018. At this convening, parties will evaluate how their NDCs stack up to the nearer-term goal of peaking global emissions and the long-term goal of achieving net zero emissions by the second half of this century. The implementation of the agreement by all member countries together will be evaluated every 5 years, with the first evaluation in 2023. The outcome is to be used as input for new nationally determined contributions of member states. The stocktake works as part of the Paris Agreement's effort to create a "ratcheting up" of ambition in emissions cuts. Because analysts have agreed that the current NDCs will not limit rising temperatures below 2 degrees Celsius, the global stocktake reconvenes parties to assess how their new NDCs must evolve so that they continually reflect a country's "highest possible ambition". The 5 year reviews will also evaluate adaptation, climate finance provisions, and technology development and transfer[28].

The Paris Agreement provides a common framework within which individual countries (or alliances of countries) are invited to define NDCs taking into account the overall goal of the Convention and the Agreement as well as their own capacities. The hope is that with increased transparency and an ambitious overall target, countries will step forward with ambitious national plans. The risk however, is that individual country contributions fall short of the overall goal and that the Paris Agreement remains a shell without sufficient action and support, unable to address the collective action problem of climate change[29].

2.13 Multilateral Environmental Agreements (MEAs)

A Multilateral Environmental Agreements (MEAs) is a legally binding agreement between three or more states relating to the environment. They are predominantly produced by the United Nations. Bangladesh is a signatory to a number of Multilateral Environmental Agreements (MEAs) including the Rio Conventions (RCs), i.e. United Nations Framework Convention on Climate Change (UNFCCC), Convention on Biological Diversity (CBD) and United Nations Convention to Combat Desertification (UNCCD). However, the country's capacities at individual, institutional and systemic levels to

[27] https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf

[28] https://en.wikipedia.org/wiki/Paris_Agreement

[29] http://www.climatefocus.com/sites/default/files/20151228%20COP%2021%20briefing%20FIN.pdf

implement these Conventions are limited. Multilateral Environmental Agreements contains some basic features. In fact international legal instruments formed in regional or global level. The main features of MEA's are[30]:

a) Targets environmental protections
b) Conducted between a large number of states or international organizations as parties
c) Concluded in written form
d) Governed by international law
e) Can be embodied in a single instrument or in two or more related instruments (framework agreements)

Stockholm conference on human development (1972) is accepts as the pioneer of multilateral environmental agreements. The outcome of the conference was formation of United Nations Environment Program (UNEP). Bangladesh has so far signed, ratified and or accessed 35 international Conventions, Treaties and Protocols (ICTPs). Among them the following ICTP's received attention of the government for follow up implementation[31].

1. Stockholm Convention On Persistent Organic Pollutants
2. Vienna Convention For The Protection Of Ozone Layer
3. Montreal Protocol On Substances That Deplete The Ozone Layer (1987)
4. Un Framework Convention On Climate Change (UNFCCC) 1992
5. Kyoto Protocol To The UN Framework Convention Climate Change (1997)
6. United Nations Convention On Biological Diversity (CBD)
7. Cartagena Protocol On Bio safety
8. Convention On Wetland Of International Importance Especially As Waterfowl Habitat (Ramsar Convention)
9. Convention On International Trade In Endangered Species Of Wild Fauna And Flora (Generally Known As CITIES)
10. United Nations Convention To Combat Desertification
11. Basel Convention On The Control Of Transboundary Movements Of Hazardous Wastes And Their Disposal
12. The United Nations Convention On The Law Of The Sea
13. The International Convention For The Prevention Of Pollution From Ships, 1973, As Modified By The Protocol Of 1978 Relating Thereto (Marpol 73/78)
14. Minamata Convention on Mercury
15. Nagoya Protocol on Access and Benefit sharing

Bangladesh undertook the National Capacity Self-Assessment (NCSA) initiative to assess the capacity needs and prepare a capacity development action plan for sustainable environmental governance. The overall objectives of the NCSA were to identify priority environmental issues within the thematic areas of climate change, biodiversity and land degradation; to make a synergy among these Conventions; to explore related capacity needs within and across the three thematic areas; to strengthen national procedures to negotiate and implement the global environmental conventions; to integrate national data collection and reporting for various conventions; to propose a comprehensive capacity development action plan; to formulate an integrated institutional framework to coordinate and monitor the implementation of the action plan; and to link country action to the broader global environmental management and sustainable development framework[32].

2.14 Legal Framework (Statistical Act, 2013)

Bangladesh Bureau of Statistics (BBS) has entered into a new era through the enactment of the Statistical Act, 2013 (the parishankhyan Ain, 2013). The act has mandated BBS as the stand alone agency for generating official statistics. It has empowered BBS to provide guidance other agencies for producing official statistics and to authenticate statistics generated by them. It is observed that proper implementation of the act will bring a ground-breaking change and a great success in every sphere of statistical operations[33]. The Statistical Act, 2013 *(the parishankhyan Ain, 2013)* has authorized the BBS to formulate guidelines for other agencies to

[30] file:///C:/Users/user/Desktop/Multilateral_Environmental_Agreements_an.pdf
[31] http://www.plancomm.gov.bd/wp-content/uploads/2015/02/11b_Environment-Forestry-and-Bioderversity-Conservation.pdf
[32] Bangladesh Capacity Development Action Plan for Sustainable Environmental Governance (2007)
[33] National Strategy for Development of Statistics (NSDS), BBS 2013

Inaugural Session of Expert Group Validation Workshop was held on 21 December 2016 at BBS Auditorium. Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division was present as Chief Guest. Mr. Naquib Bin Mahbub, Division Chief, GED, Planning Commission and Dr. A. Atiq Rahman, Executive Director, Bangladesh Centre for Advanced Studies were present as special guests. Mr. Sudipto Mukerjee, Country Director, UNDP Bangladesh was present as a Guest of Honor and Mr. Mohammad Abdul Wazed, Director General (Additional Secretary), BBS chaired the session. Mr. Abul Kalam Azad, Director, National Accounting Wing, BBS gave the welcome address.

produce statistics and set appropriate standards for them as well. Where statistics are already being generated in line with international standards, the process will be straightforward. In other cases, discussions will be needed with the relevant ministries or departments to identify to what extent they are interested in having their statistics assessed and what additional support might be needed to ensure that methods and procedures reach the required standard.

2.15 National Strategy for Development of Statistics (NSDS)

Many countries have already put in place processes to generate and make use of statistics on the environment and climate change as well as natural disasters. In Bang ladesh, however, many of the statistics that are needed to monitor the climate change and environment and to develop appropriate policies are not yet available. The Directorate of Environment under the Ministry of Environment and Forest is responsible for securing a healthy and clean environment, overseeing the proper implementation of environmental rules and regulations and adopting the right interventions to face environmental challenges. Due to its nature, the Department places more attention on the policy concerns rather than on producing statistics on the environment. Although BBS has published irregular reports entitled 'Compendium of Environment Statistics of Bangladesh' that includes some statistics on environmental issues it is still lacks capacity in this area. The problems include: a shortage of knowledgeable and trained manpower, insufficient technical capacity and a shortage of funds. The statistics that are available are very unsatisfactory for conducting research and development work on the environment and Climate Change issues.

• Strategic Actions of NSDS[34]

a) Compilation of Environmental Economic Accounts (SEEA);

b) Development of environmental statistics to ensure their regular updating and release;

c) Developing statistics to monitor the impacts of climate change;

d) Developing Bangladesh Framework for Development Environment Statistics (BFDES) complying with UNFDES;

e) Preparing Environment Score Card;

[34] National Strategy for Development of Statistics (NSDS), BBS 2013

f) Setting up a new Environment and Resource Statistics Wing in BBS to take the lead in this area; and

g) Developing linkage with Ministry of Environment and Forest.

- **The implementation of NSDS for Bangladesh will achieve tangible progress in terms of**

a) Improving the accuracy, reliability and timely production and dissemination of official statistics;

b) Defining the specific roles of data producers and their responsibilities and competencies;

c) Improving the dissemination of official statistics and their usefulness;

d) Providing a sound basis for establishing statistical priorities in collaboration with users and producers;

e) Assessing the strengths and weaknesses of the NSS and identifying appropriate ways of improving skills and competencies of the statistical workforce.

An important part of the NSDS will be to increase awareness about the importance and availability of timely and reliable official statistics and to promote their more effective use. An additional concern will be to build awareness among data providers as well as users. Now in BBS, professionalism, leadership, coordination and management are being improved following the recent enactment of the Parishankhyan Ain, 2013 (the Statistical Act, 2013) and this is an early part of implementing the NSDS.

It is a general consensus that reliable and timely statistics is inevitable for the evidence based planning and policy making. With the emergence of market economy and development of information and communication technology (ICT) the demand for official statistics has increased tremendously day by day. Now statistical data is being used in every sphere of life. Moreover, statistical data is essential for the effective monitoring and evaluation of progress and performance in a number of important areas/sectors, such as measuring the progress of the society, monitoring and evaluation the progress towards achieving the 7th FYP, BCCSAP, SDGs, SFDRR, the Paris Agreement and so on.

Chapter 3

Basic Set of Environmental Statistic

3.1 Basic Set of Environmental Statistics according to FDES

As mentioned earlier, the United Nations Framework for the Development of Environment Statistics (UN-FDES) is a comprehensive document which comprises all facets of environment statistics. Since this framework is a detailed list of general and broad topics, it can be a good guide for developing the System of Environment Economic Accounts/Statistics in individual countries. In developing Bangladesh Environmental Statistics Framework (BESF), this document has been taken as a broad guideline for identification of relevant information by anticipating data requirements for policy purpose and environmental sustainable management. Some information categories in the UN framework have not been included in BESF due to insufficient data availability. Similarly, socio-economic factors affecting the environment are also shown in each component. This framework has been designed as a tool assist in the development, coordination and organization of environment statistics at the national and international levels.

The framework recommends a list of environment statistics that a country may want to collect and maintain. Detail of definitions, concepts, classifications or tabulations are not given in this document and are left for future exercise. Since environment statistics are multi-disciplinary, various data sources have to be tapped as well as various methods have to be adopted for proper database development. This is why the framework cannot be taken as a system like System of National Accounts (SNA). BESF is a structured to monitor both the stock and flow of biotic and abiotic aspect of the environment. The data producing capabilities of the country is still very limited, especially in the area of natural environment. As mentioned earlier, socio-economic statistics are not collected from environmental point of view but with some modifications these data can be used in BESF.

The Framework organizes environment statistics into a structure composed of components, sub-components, statistical topics, and individual statistics using a multi-level approach. The first level of the structure consists of six fundamental components below that follow the UN-FDES:

1. Environmental Conditions and Quality
2. Environmental Resources and their Use
3. Residuals
4. External Events and Disasters
5. Human Settlement and Environmental Health
6. Environmental Protection, Management and Engagement.

The components of the FDES

- Figure-3.1 shows the six components of the FDES. The dotted lines separating the components indicate the continuous interactions among them. These interactions exist between and among all the components of the FDES. It should be noted that a two- dimensional diagram provides only a limited visualisation of the complex and interrelated nature of the relationships between humans and the environment.

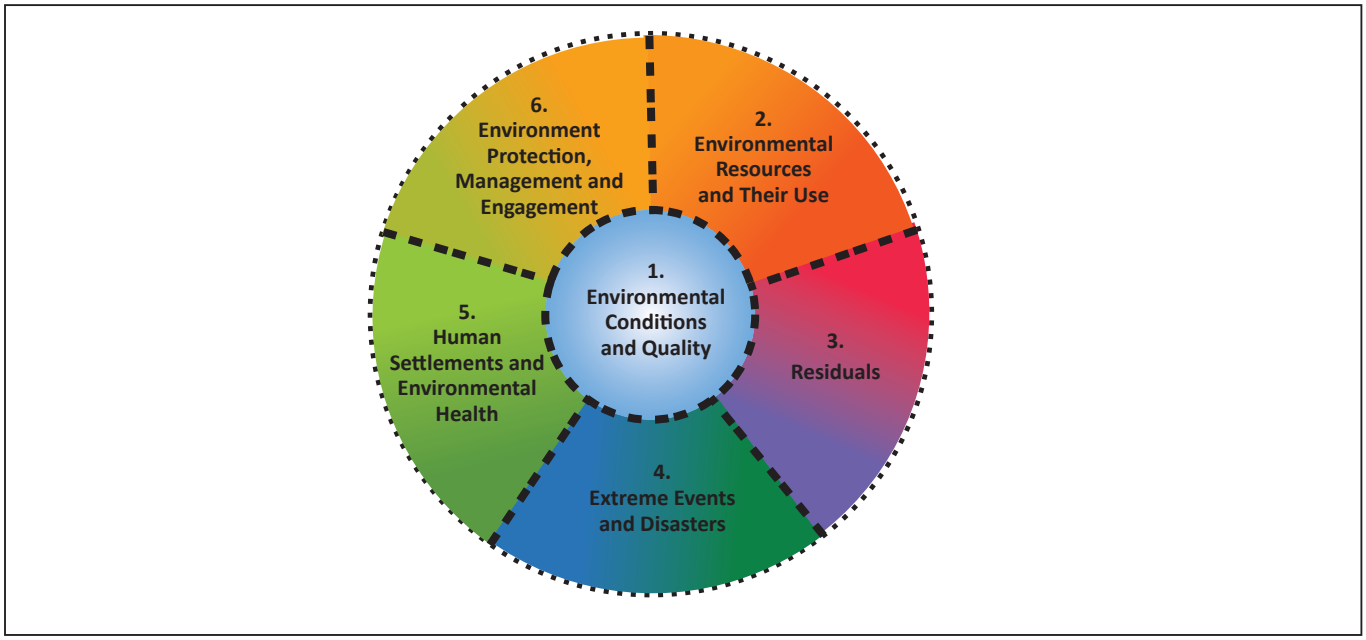

Figure 3.1 The components of the FDES

- The first component, Environmental conditions and quality, brings together statistics related to the conditions and quality of the natural environment and changes in those conditions and quality;
- The second component, Environmental resources and their use, groups statistics related to the availability and use of environmental resources (ecosystem provisioning services, land and sub-soil resources);
- The third component, Residuals, includes statistics related to the use of regulating services of the environment for the discharge of residuals from production and consumption processes;
- Statistics related to Extreme events and disasters (both natural and technological) and their impacts are covered by the fourth component;
- The fifth component brings together statistics related to Human settlements and environmental health and
- The sixth component, Environmental protection, management and engagement, groups statistics relevant to societal responses and economic measures aimed at protecting the environment and managing environmental resources.
- Environmental conditions and quality (Component 1) are central to the FDES. The other five components have been established based on their relationship to the central Component 1. As shown in Figure 3.1, all six components are intrinsically related to each other.
- The FDES uses a multi-level approach. The first level of the structure defines the six fundamental components. Each individual FDES component is further broken down into its respective sub-components (second level) and statistical topics (third level). The statistical topics represent the measurable aspects of the components of the FDES.
- The components, sub-components, statistical topics and individual statistics of the FDES define the scope and boundaries of environment statistics. They provide an organizing structure for synthesizing and presenting the information in a comprehensive, consistent and coherent manner. Each level uses numbering conventions as shown below in Table below. The final level contains the actual individual environment statistics.

Table 3.1: FDES uses a multi-level approach

Component	Sub-component
1	2
Component 1: Environmental Conditions and Quality	Sub-component 1.1: Physical Conditions Sub-component 1.2: Land Cover, Ecosystems and Biodiversity Sub-component 1.3: Environmental Quality
Component 2: Environmental Resources and their Use	Sub-component 2.1: Mineral Resources Sub-component 2.2: Energy Resources Sub-component 2.3: Land Sub-component 2.4: Soil Resources Sub-component 2.5: Biological Resources Sub-component 2.6: Water Resources
Component 3: Residuals	Sub-component 3.1: Emissions to Air Sub-component 3.2: Generation and Management of Wastewater Sub-component 3.3: Generation and Management of Waste Sub-component 3.4: Release of Chemical Substances
Component 4: Extreme Events and Disasters	Sub-component 4.1: Natural Extreme Events and Disasters Sub-component 4.2: Technological Disasters
Component 5: Human Settlements and Environmental Health	Sub-component 5.1: Human Settlements Sub-component 5.2: Environmental Health
Component 6: Environmental Protection, Management and Engagement	Sub-component 6.1: Environmental Protection and Resource Management Expenditure Sub-component 6.2: Environmental Governance and Regulation Sub-component 6.3: Extreme Event Preparedness and Disaster Management Sub-component 6.4: Environmental Information and Awareness

Table 3.2: FDES Components, Sub-components with Statistics

1 digit	*2 digits*	*3 digits*	*4 or 5 digits*
Component	Sub-component	Statistical Topic	Statistics

3.2 Basic Set of Environmental Statistics

The Basic Set of Environment Statistics is a comprehensive, but not exhaustive, set of statistics designed to support countries developing environment statistics programmes according to their national priorities for statistical development. It is flexible enough to be adapted to individual countries' environmental concerns, priorities and resources.

The Basic Set thus features a progression of three tiers, based on the level of relevance, availability and methodological development of the statistics, where Tier 1 corresponds to the Core Set of Environment Statistics. As national priorities require and data availability and resources permit, the scope may be widened gradually to include the statistics in Tiers 2 and 3.

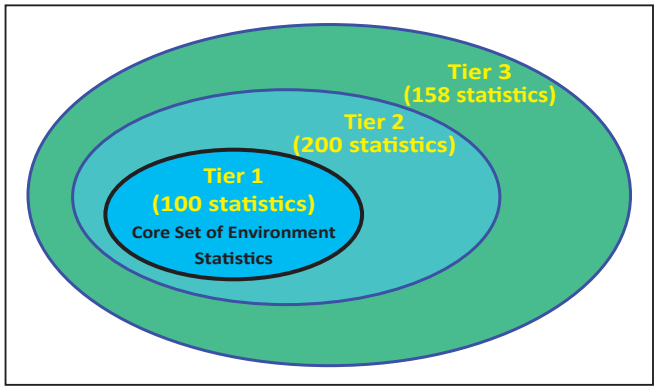

Figure 3.2: Basic set of environmental statistics in 3 tiers[35]

The three tiers of statistics are defined as follows:

- Tier 1, corresponding to the Core Set of Environment Statistics, includes 100 statistics which are of high priority and relevance to most countries and have a sound methodological foundation. It is recommended that countries consider producing them in the short-term.
- Tier 2 includes 200 environment statistics which are of priority and relevance to most countries but requires greater investment of time, resources or methodological development. It is recommended that countries consider producing them in the medium-term.
- Tier 3 includes 158 environment statistics which are either of lower priority or require significant methodological development. It is recommended that countries consider producing them in the long-term. The table below gives an account of statistics by components and by tiers.

Table 3.3: Account of statistics by components and by tiers

SL No	Component 1	Component 2	Component 3	Component 4	Component 5	Component 6	Total
Tier 1	32	30	19	4	12	3	100
Tier 2	58	51	34	11	22	24	200
Tier 3	51	43	5	16	20	23	158
Total	141	124	58	31	54	50	458

3.3 Core Set of Environmental Statistics

Core set of Environmental Statistics refers to the statistics of the tier 1 of the basic set. There are 100 core Set of Environment Statistics for 6 components (refer to the previous table) which combined statistical and non-statistical information on the environment. Core set foster, coordination and harmonization of environmental statistics at the national level.

When a country faces severe resource constraints in developing a national environment statistics programme, or is at the early stages in the development of environment statistics, the Core Set is well suited to provide guidance in determining priorities, scope, timing and periodicity in the production of such statistics, depending on national circumstances. It presents a comprehensive body of relevant environment statistics which can easily be tailored to suit specific national needs[36].

The Core Set provides guidance on the statistics to be included in a national environment statistics programme to provide national policy-makers and international agencies with the most relevant information on environmental issues of interest to countries and those that extend beyond national boundaries. It incorporates the most relevant statistics needed to report on global environmental conventions. As such, its use in national statistical programmes will help improve reporting on these conventions and agreements (UNFDES).

3.4 Data for Environmental Statistics

As mapped out following the basic set of Environmental Statistics, there are data in different Ministries/ Divisions/ Departments/ Organizations. As understood from the representatives of those ministries, divisions, departments, institutions and organisations, there are administrative data with them and those can satisfy the requirement of core set of statistics. However, there are challenges and problems of capturing data for Environmental Statistics included issues of coordination and agreement, common data collection format, mechanism for ensuring quality of data, budget and dedicated person in each Ministry/ Division/ Departments/ Organizations.

[35] United Nations Framework for the Development of Environmental Statistics (UNFDES)

[36] United Nations Framework for the Development of Environmental Statistics (UNFDES)

3.5 Role of Concerned Ministries/ Divisions/ Departments/ Org.

The key stakeholders for the environment statistics are the national statistics organisation, ministry of environment and relevant line ministries, departments, organizations, authorities and environment-poverty experts including NGOs, UN agencies, academics, students, journalists and private organisations. Each of the organisations needs to play unique and coordinated role to develop the national environmental statistics.

a) Bangladesh Bureau of Statistics (BBS), as the national statistical organisation (NSO) would be responsible for coordinating the process of developing the environmental statistics through creating an integrated national platform;

b) BBS will responsible for developing a team with membership from the identified data providing agencies and initiating capacity building for data collection, verification, sharing and reporting;

c) Each of the identified Ministries/ Divisions/ Departments/ Organizations for providing data will be responsible for assigning a dedicated official as the focal point officer, so that the person can coordinate within the agency and with BBS;

d) All Ministries/ Divisions/ Departments/ Organizations will be responsible for identifying data for environmental statistics following basic set of environmental statistics. They also are responsible for organising data following BBS guideline and tools in digital format and share with BBS;

e) They also will be responsible for establishing a database in close collaboration with BBS, keep updating those database and share with BBS following their needs and request.

3.6 BBS Strategic Action Plan from 2016 to 2030 and beyond

The issue of environment degradation has become an important issue for Bangladesh and more widely. Numbers of countries are in the processes to generating and make using environment and climate change statistics. In Bangladesh, however, many of the statistics that are needed to monitor the environment and to develop appropriate policies are not yet available. The Directorate of Environment under the Ministry of Environment and Forest is responsible for securing a healthy and clean environment, overseeing the proper implementation of environmental rules and regulations and adopting the right interventions to face environmental challenges. Due to its nature, the Department places more attention on the policy concerns rather than on producing statistics on the environment. Although BBS has published irregular reports entitled 'Compendium of Environment Statistics of Bangladesh' that include some statistics on environmental issues, it is still lacks capacity in this area. Problems include: a shortage of knowledgeable and trained manpower, insufficient technical capacity and a shortage of funds. Available statistics are not satisfactory for conducting environmental research and development work. International recommendations and frameworks, such as the System of Environmental-Economic Accounting (SEEA) and the United Nations Framework for Development Environment Statistics (UNFDES), have yet to be implemented in Bangladesh[37]. The strategic action plans, as anticipated for developing environmental statistics, are

a) Establishing and improving environmental statistics process

b) Developing use of environmental statistics

c) Ensuring quality of environmental statistics

d) Recruiting and train up of concerned human resources

e) Strengthening capacity of the coordination and management system for timely producing environmental statistics; and

f) Establishing digital platform for producing, sharing and reporting environmental statistics.

3.7 The Natural Resource Accounts /Environmental Resource Statistics

The System of Environmental-Economic Accounting (SEEA) is an important framework for monitoring progress in the context of the Sustainable Development Goals (SDGs). The United Nations Statistical Commission (UNSC) recognized at its 45th session that SEEA should contribute significantly to advancing a multidimensional information system for the SDGs. SEEA can provide an internationally recognized and standardized approach to integrating measures of the environment into a system of information fully consistent with the System of National Accounts (SNA) that is used to measure the economy.

[37] National Strategy for Development of Statistics (NSDS) 2013

The SEEA contains internationally agreed standard concepts, definitions, accounting rules and tables for producing internationally comparable statistics on the environment and its relationship with the economy. The most significant feature of SEEA is that it follows the similar accounting structure as the System of National Accounts (SNA) and uses concepts, definitions and classifications consistent with the SNA in order to facilitate the integration of environmental and economic statistics. It provides a wide range of statistics and indicators with many different potential analytical applications.

In the context of Bangladesh, according to National Strategy for the Development of Statistics (NSDS), BBS has a plan to compile and develop resource accounts (Land & Soil, Water, Agriculture, Forest, Experimental Ecosystem, Energy, Natural Gas, Fish, Materials Flow Accounts etc.) as per United Nations guidelines of the System of Environmental-Economic Accounting (SEEA).

Development of the environmental economic accounts/ statistics requires a lot of work step by step. In the preparatory step, the lead organization needs to build a national team and establishing leadership and responsibilities clapped by developing cooperation and collaboration modalities. BBS already has assessed the environmental situations, the data gap, data availabilities and sources during October to December 2016 by two expert group training workshop. In the next operational step of developing environmental statistics, contextualisation of the Core Set of Environmental Statistics has been done and now BBS will require:

a) Gathering quality data for environmental statistics from different sources as identified during the two expert group training workshop and several meetings;

b) Create a data base following the Core Set of Environmental Statistics;

c) Process and analyse data through collaboration and consultation with the national environment and poverty experts;

d) Present the data in report following the indicators of SDG, SFDRR and 7th Five Year Plan, so that the report can be used to prepare progress monitoring reports of those international and national plans;

e) The report should be published after five years but there should be provision of updating and publishing periodic report in each 2-3 year so that those can be used in progress monitoring of SDG, SFDRR and 7th Five Years Plan;

f) The report should be prepared and statistics will be presented in a way that can be reached by all type of audience including researchers, academicians and practitioners.

However, the report must be disseminated and shared among the relevant Ministries/ Divisions/ Departments/Organizations, Researchers, Academics and relevant UN agencies for their feedback. The accumulation of feedback process will enrich the environmental statistics.

Chapter 4

Implementation Arrangements

4.1 Implementation Arrangements

Environment Statistics has become a very crucial for achieving and progress monitoring of 7th FYP, BCCSAP, SDGs and SFDRR, thus it will require special attention to the programme and assigning dedicated officials for long term to carry forward the gradual and systematic development of Environment Statistics of Bangladesh.

Being the National Statistics Organization (NSO), Bangladesh Bureau of Statistics (BBS) will lead the implementation of environmental statistics development programme. The programme will be running through active cooperation and support of Ministry of Environment and Forest (MoEF) and relevant Ministries/ Divisions/ Departments/ Organizations. Financial cooperation and support from other relevant Ministries/ Divisions/ Departments/ Organizations will be coordinated through understanding the Statistical Act 2013, SDGs, SFDRR, 7th FYP and NSDS 2013 for strengthening capacity building of environmental statistics at BBS.

As BBS already has set up and operated a separate cell namely "Environment, Climate Change and Disaster Statistics (ECDS) Cell" having a designated National Focal Point Officer (NFPO), this cell will be responsible for implementing the programme including administrative, financial and management aspects under the direct supervision of the Director General of BBS. The whole implementation process will require appropriate capacity building within the BBS and other relevant Ministries/ Divisions/ Department/ Organizations, thus a huge investment for strengthening capacity building of "Environment, Climate Change and Disaster Statistics (ECDS) Cell" at BBS.

ECDS Cell, BBS and Focal Point of other relevant Ministries/ Divisions/ Department/ Organizations including public and private agencies will be responsible for developing and strengthening environmental statistics.

4.2 Possible Arrangements for Development Partners' Support to Environmental Statistics

Implementing the plan for development of the Environmental Statistics will involve coordination among different Ministries/ Divisions/ Departments/ Organizations including the development partners like UNSD, UNDP, GIZ, JICA, World Bank, ADB, UNEP, UNESCAP, UNPEI and other Official Organizations. Bangladesh Environmental Statistics Framework (BESF) 2016-2030 development process has been supported by UNDP and UN-PEI through General Economics Division (GED) of Planning Commission of Bangladesh. A series of consultation and capacity enhancement efforts took place during the process where many national, regional and international experts participated and contributed. The Environmental Statistics will be developed according to the United Nations guideline and with the assistance and support from UN agencies and development partners such as UNDP, UNEP, UNPEI, GIZ, JICA and UNESCAP. UNDP and UN-PEI has shown their interest to support and assist implementation of Environmental Statistics programme of Bangladesh from the initial stage.

4.3 Arrangements for Monitoring and Reporting Progress

As planned the Environmental Statistics programme will be continuing till 2030. The first, Compendium of Bangladesh Environmental Statistics 2017 has been planned to publish in mid 2018 and then after 3 years interval, may be in 2020, 2023, 2026 and 2029/30 with regular updating. BBS will require tracking and follow up the progress of implementation process and reporting to the Government and development partners for the activities. It also will require sharing and disseminating the progress with relevant stakeholders to expedite the make the process more efficient through coordination meetings in agreed frequency. The Environment, Climate Change and Disaster Statistics (ECDS) Cell will require assigning a monitoring and reporting team for tracking progress, preparing report and sharing findings with different concerned stakeholders at annual basis under the direct supervision by the DG, BBS. The monitoring will help not only tracking progress but also identify problems and challenges faced to develop the Environmental Statistics including data quality, thus to defining way forward.

Closing Session of Expert Group Workshop was held on 08 November 2016 at BBS Conference Room. Professor Dr. Shamsul Alam, Member (Senior Secretary), General Economics Division (GED), Planning Commission was present as Chief Guest. Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division, Professor Dr. A. S. M. Maksud Kamal, Chairman, Department of Disaster Science and Management, University of Dhaka were present as special guests. Mr. Sudipto Mukerjee, Country Director, UNDP Bangladesh was present as a Guest of Honor and Mr. Mohammad Abdul Wazed, Director General (Additional Secretary), BBS chaired the session.

Chapter 5

Implementation Plan and Budgeting of Environmental Statistics

5.1 The Strategic Goals and the Progress Indicators

This chapter sets out an implementation plan and a budget for the Environmental Statistics up to 2030. Multi-sectoral and administrative data will be provided by different Ministries/ Divisions/ Departments/ Organizations according to Statistical Act 2013. Therefore, strong coordination mechanism among different data providing or database maintaining Ministries/ Divisions/ Departments/ Organizations will be developed and established for collecting, compiling, assessing, reporting and disseminating environmental data and information.

Table 5.1 shows the implementation plan for development of Environment, Climate Change and Disaster Statistics at BBS. It includes: the strategic goals; the progress indicators that will be used to measure progress; key milestones; and the proposed budget for each strategic goal in the following ways:

Table 5.1: Summary Implementation Plan for environmental Statistics, BBS together with the estimated budget (in Million Taka)

Strategic Goals		Progress Indicators		Start Year	End Year	Budget 2017 to 2021	Budget 2021 to 2025	Budget 2025 to 2030	Total Budget
1		2		3	4	5	6	7	8
1.	Compendium of Environment Statistics	1.1	Preparing worksheet, data collection from the secondary sources and hiring of consultants	2017	2030	70.00	80.00	90.00	240.00
		1.2	Data entry and validation						
		1.3	Draft compilation and expert opinion						
2.	Compilation of Resource Accounts according to the United Nations System of Environmental-Economic Accounting (*SEEA*)	**2.1 Land & Soil Accounts**		2018	2030	65.00	70.00	75.00	210.00
			Training for the compilers						
			Conducting surveys and hiring of consultants						
			Validation and finalization						
		2.2 Water Accounts		2018	2030	65.00	70.00	75.00	210.00
			Training for the compilers						
			Conducting surveys and hiring of consultants						
			Validation and finalization						
		2.3 Forest Accounts		2019	2030	65.00	70.00	75.00	210.00
			Training for the compilers						
			Conducting surveys and hiring of consultants						
			Validation and finalization						
		2.4 Natural gas		2020	2030	65.00	70.00	75.00	210.00
			Training for the compilers						
			Conducting surveys and hiring of consultants						
			Validation and finalization						
		2.5 Energy Accounts		2019	2030	65.00	70.00	75.00	210.00
			Training for the compilers						
			Conducting surveys and hiring of consultants						
			Validation and finalization						
		2.6 Fish Accounts		2019	2030	65.00	70.00	75.00	210.00
			Training for the compilers						
			Conducting surveys and hiring of consultants						
			Validation and finalization						
			Sub-Total Tk.			**390.00**	**420.00**	**450.00**	**1260.00**

Strategic Goals		Progress Indicators		Start Year	End Year	Budget 2017 to 2021	Budget 2021 to 2025	Budget 2025 to 2030	Total Budget
1		2		3	4	5	6	7	8
3.	Climate Change and Natural Disaster-related Statistics	3.1	Conducting surveys, studies & data collection from the field and hiring of consultants	2018	2030	1200.00	1400.00	1600.00	4200.00
		3.2	Preparing Draft Report						
		3.3	Data validation and finalization of Report						
4.	Compilation of Social Accounting Matrix (SAM)	4.1	Conducting surveys, studies & data collection from secondary sources and hiring of consultants	2019	2030	65.00	70.00	75.00	210.00
		4.2	Draft compilation of SAM						
		4.3	Data validation, adjustment and finalization						
5.	Poverty-Environment Accounts in (PEA) light of SEEA	5.1	Conducting surveys, studies & data collection from secondary sources and hiring of consultants	2018	2030	65.00	70.00	75.00	210.00
		5.2	Draft compilation						
		5.3	Data validation, adjustment and finalization						
6.	Experimental Ecosystem Accounts (EEA) in light of SEEACF	6.1	Conducting surveys, studies & data collection from secondary sources and hiring of consultants	2019	2030	65.00	70.00	75.00	210.00
		6.2	Draft compilation and Report Writing						
		6.3	Data validation, adjustment and finalization						
7.	Household Survey of Health and Sanitation in disaster prone areas of Bangladesh	7.1	Conducting surveys, studies & data collection from the field and hiring of consultants	2018	2030	800.00	1000.00	1200.00	3000.00
		7.2	Preparing Draft Report						
		7.3	Data validation and finalization of Report						
8.	Urban/Rural (Household, Industrial/Institutional) Waste Generation, Recycling and Management Survey	8.1	Conducting surveys, studies & data collection from the field and hiring of consultants	2018	2030	1000.00	1200.00	1400.00	3600.00
		8.2	Preparing Draft Report and arranging expert opinion						
		8.3	Data validation and finalization of Report						
		8.4	Preparing Draft Report						
		8.5	Data validation and finalization of Report						
9.	Environmental Protection and Resource Management expenditure Accounts	9.1	Conducting surveys, studies & data collection from the field and hiring of consultants	2019	2030	600.00	800.00	1000.00	2400.00
		9.2	Preparing Draft Report						
		9.3	Data validation and finalization of Report						

Strategic Goals		Progress Indicators		Start Year	End Year	Budget 2017 to 2021	Budget 2021 to 2025	Budget 2025 to 2030	Total Budget
1		2		3	4	5	6	7	8
10.	Disaster Risk Reduction Expenditure Accounts	10.1	Conducting surveys, studies & data collection from the field and hiring of consultants	2019	2030	600.00	800.00	1000.00	2400.00
		10.2	Preparing Draft Report						
		10.3	Data validation and finalization of Report						
11.	Climate Change and Natural Disaster Impacts Vulnerability Index	11.1	Conducting surveys, studies & data collection from the field and hiring of consultants	2018	2030	1500.00	1700.00	2200.00	5400.00
		11.2	Preparing Draft Report						
		11.3	Data validation and finalization of Report						
12.	Pre-crisis data gathering tools as a baseline information	12.1	Data collection and hiring of Consultants	2020	2030	800.00	1000.00	1200.00	3000.00
		12.2	Preparing Draft Report						
		12.3	Data validation and finalization of Report						
13.	Climate and Natural disaster induces Survey	13.1	Conducting surveys, studies & data collection from the field and hiring of consultants	2019	2030	600.00	800.00	1000.00	2400.00
		13.2	Preparing Draft Report						
		13.3	Data validation and finalization of Report						
14.	Urban/Rural (Household, Industrial, Institutional) Water Generation, Use and Management Survey	14.1	Conducting surveys, studies & data collection from the field and hiring of consultants	2019	2030	1000.00	1200.00	1400.00	3600.00
		14.2	Preparing Draft Report and arranging expert opinion						
		14.3	Data validation and finalization of Report						
		14.4	Preparing Draft Report						
		14.5	Data validation and finalization of Report						
15.	Developing a web based data sharing, reporting and ensuring access for stakeholders	15.1	Conducting surveys, studies & data collection from the field and hiring of consultants	2018	2030	1200.00	200.00	100.00	1500.00
		15.2	Preparing Draft Report						
		15.3	Data validation and finalization of Report						
						9955.00	**10810.00**	**12865.00**	**33630.00**

The overall cost of implementing the environmental statistics as set out in this document is estimated at BDT. 33630.00 million of which BDT. 9955.00 million is for the first four year from July 2017 to June 2021 and BDT. 23675.00 million for the long term July 2021 to June 2030. Table 5.1 shows the budget estimates prepared by the two expert group workshop for the additional capacity building of environmental statistics. The budget has been prepared excluding the annual budget allocation of the government for compensation of the employee and other operating expenses, but the budget for development programmes has been included.

Table 5.2: Summary of the Estimated Cost for Implementing the Environmental Statistics (in Million Taka)

Name of the Strategic Goals		Phase 1 (2017 to 2021)	Phase 2 (2021 to 2025)	Phase 3 (2025 to 2030)	Total (2017 to 2030)
1		2	3	4	5
1.	Compendium of Environmental Statistics	70.00	80.00	90.00	240.00
2.	Compilation (Six types) of Resource Accounts (SEEA)	390.00	420.00	450.00	1260.00
3.	Climate change and Natural Disaster-related Statistics	1200.00	1400.00	1600.00	4200.00
4.	Compilation of Social Accounting Matrix (SAM)	65.00	70.00	75.00	210.00
5.	Poverty-Environment Accounts (PEA) in light of SEEA	65.00	70.00	75.00	210.00
6.	Experimental Ecosystem Accounts in light of SEEA CF	65.00	70.00	75.00	210.00
7.	Household Survey of Health and Sanitation in disaster prone areas of Bangladesh	800.00	1000.00	1200.00	3000.00
8.	Urban/Rural (Household, Industrial and Institutional) Waste Generation, Recycling and Management Survey	1000.00	1200.00	1400.00	3600.00
9.	Environmental Protection and Resource Management expenditure Accounts	600.00	800.00	1000.00	2400.00
10.	Disaster Risk Reduction Expenditure Accounts	600.00	800.00	1000.00	2400.00
11.	Climate Change and Natural Disaster Impacts Vulnerability Index	1500.00	1700.00	2200.00	5400.00
12.	Pre-crisis (Natural Disaster period) data gathering tools as a baseline information	800.00	1000.00	1200.00	3000.00
13.	Climate and Natural disaster induces Migration Survey in Bangladesh	600.00	800.00	1000.00	2400.00
14.	Urban/Rural (Household, Industrial, Institutional) Water Generation, Use and Management Survey	1000.00	1200.00	1400.00	3600.00
15.	Developing a web based data sharing and reporting and ensuring access for stakeholders	1200.00	200.00	100.00	1500.00
	Total	**9955.00**	**10810.00**	**12865.00**	**33630.00**

5.2. A Proposed Financing Plan

The Government of Bangladesh may not be able enough to finance the whole plan from its own resources since it represents a large financial cooperation; so Development Partners' support will be required. The Focal Point Officers from concerned Ministries/ Divisions/ Departments/ Organizations set up the proposed financial plans during the design stage of "Bangladesh Environmental Statistics Framework (BESF) 2016-2030" including the Development Partners interested in statistical development in BBS were approached to consider financing elements of the Environmental Statistics. The UNDP and UNPEI have approached to support the preliminary implementation of the institutionalization of environmental statistics through their environmental statistics capacity building including this framework. The estimated total cost of the development programme set out in the environmental statistics for the first phase of the program until June 2021 is estimated BDT. 9955.00 million. Based on the assumption that the Government recurrent budget will continue to meet staff and other operating costs for the four financial years from July 2017 onwards, an initial financing plan is set out in Table 5.2. The aim is to ensure that all development of environmental statistics in Bangladesh takes place within the framework 2016-2030. The figures in the table assume that all costs are calculated in 2016 prices and an exchange rate of US$1.00 = BDT. 80.00. As the table indicates, the estimated financing gap for the first phase is BDT. 9955.00 million or about US$ 124.44 million.

Chapter 6

Way Forward

Way Forward

This Framework has been developed to provide a key understanding for the relevant stakeholders on importance of environmental statistics and how to act in team to provide/ gather data to develop a national environment statistics. This documents also briefly elaborated linkages of environment statistics with other national and international drivers, thus to establish its importance and portray environment and poverty nexus. However, it will require a lot of institutional work to strengthen the inter-institutional cooperation mechanism for developing and institutionalizing the national environmental statistics programmes. The crucial stakeholders at national level for the environmental statistics are a) NSOs; b) Environment and environmentally related line ministries or authorities; and c) national experts and researchers with extensive and in-depth knowledge of specific environmental phenomena.

Meanwhile, Bangladesh Bureau of Statistics (BBS) and General Economics Division (GED) of Planning Commission with the support of UNDP and UN-PEI accomplished some preparatory and foundation level activities such as reviewing legal framework; mandate and national policy priorities related to environment information and development; reviewing methodological resources; data mapping, availability and sources of data; capacity building on environmental statistics; validation of data sources and collaboration and linkage development with national scientists and experts on the issues etc. through organizing series of training and workshop sessions those were facilitated and moderated by national and international experts during October to December 2016.

However, following recommendations from the concerned participants of two expert group workshops, way forward for developing an Environment Statistics for Bangladesh are suggested below:

a) As the Central National Statistical Organization (NSO), Bangladesh Bureau of Statistics (BBS) must lead the development and preparation process of Bangladesh Environmental Statistics;

b) BBS should develop a national team for developing national environmental statistics, establish leadership and delegate responsibilities and establish a mode of cooperation with other institutions and within each institution in order to form and formalize a national inter-institutional collaboration platform;

c) As the lead agency, BBS should develop a coordination mechanism among the responsible Ministries/Divisions /Department/ Organizations, and within BBS to ensure proper communi cation and avoid duplication of data collection;

d) A common guideline and data collection tools/format will be developed by BBS with technical cooperation by development partners and responsible Ministries/Divisions /Departments will collect data respective guidelines and tools with global standards;

e) Each of the responsible Ministries/ Divisions /Departments/ Organizations will assign a focal point officer and the person will be responsible to provide data to BBS. Need to formalize and support inter-and intra-institutional collaboration mechanism and focal points;

f) Each of the responsible Ministries/ Divisions /Departments/ Organizations will identify data gap in the basic set of environmental statistics with SDGs and 7th FYP and the area/field where data are not available, BBS will take necessary initiative with coordination and support from responsible Ministries/ Divisions /Departments/ Organizations;

g) BBS will provide active support to respective Ministries/Divisions/Departments/ Organizations to ensure quality of data to be captured and will carry out data validation;

h) While it is identified that which are the Ministries/Divisions/Departments/ Organizations responsible for providing data and information for developing environmental statistics, they will develop a plan and budget for data collection through analysing of data requirement. Each relevant Ministries/ Divisions/ Departments/ Organizations will allocate sufficient budget for implementing the plan for generating, providing and sharing the real time, data, remote sensing data, administrative data, scientific and research based data etc. to BBS;

i) Geographical Information System (GIS) technology should be used to collect and capture data from the field;

j) There are huge number of volunteers of Department of Disaster Management (DDM) in the coastal and disaster prone areas of Bangladesh and they can collect data and information for the organization;

Opinion Session of Expert Group Workshop which was held on 07 November 2016 at the Conference Room, BBS. Professor Dr. Enamul Haque, Department of Economics, East West University, Dhaka chaired the opinion session. Dr. Mohammad Mahfuz Kabir, Acting Research Director, Bangladesh Institute of International and Strategic Studies (BIISS); Mr. Mark Eigenraam, Director, IDEEA Group, Australia and Regional Consultant, United Nations Poverty Environment Initiative (UNPEI), Bangkok, Thailand were present as Resource Persons.

k) Ministry of Disaster Management and Relief use D-form for post disaster period for data collection and that form is being used to capture loss/damage information. This data and information collect by DDM from the fields through D-form and DDM will provide the data to BBS for validation and authentication;

l) BBS will provide regular human resource development and capacity building support to other agencies for data collection, compilation, verification, sharing and maintenance;

m) Administrative data of the concerned Ministries/ Divisions/ Departments/ Organizations should disseminate in their respective website as regular release with consultation of BBS according to statistical rules;

n) After capturing and verification of environmental data as the BBS guideline and tools/ formats. The relevant Ministries/ Divisions /Departments/ Organizations will share the digital version of data in cooperation with BBS. BBS as the lead agency to develop the environmental statistics will further verify and analyse data to prepare the environmental statistics;

o) The proposed data collection frequency is 3-5 years that will be started from 2017 and will continue till 2030 given that each of the concerned agencies will maintain a database keeping provision of regular updating the database;

p) Once the quality and validated data are in hand, BBS should develop metadata and prepare publication with global standards. BBS also will launch an event and disseminate the environmental statistics products for obtaining feedback;

q) Further it is suggested to institutionalize and strengthen the Environment, Climate Change and Disaster Statistics (ECDS) Cell, allocate budget and staff resources dedicated to environmental statistics and also develop cooperation, connections and collaboration with UN agencies, Development Partners, Regional and Global Expert groups, Networks and Resources.

Annex

Annex 1: Summary findings from the Expert Group Workshops

Bangladesh Bureau of Statistics (BSS) organised and facilitated 2 workshops under this assignment of Bangladesh Environmental Statistics Framework (BESF) 2016-2030 development. The summary of those workshops are documented and attached as annex.

Workshop 1: Expert Group Training Workshop on Situation Analysis of Environmental Statistics for Developing "Bangladesh Environmental Statistics Framework 2016-2030"

Group presentation session on "Mapping of Accounts and Data Priorities" of Expert Group Workshop which was held on 08 November 2016 at the Conference Room, BBS. Mr. Fakrul Ahsan, Project Manager, SSIP Project, GED, Planning Commission chaired the session. Mr. Mark Eigenraam, Director, IDEEA Group, Australia and Regional Consultant, United Nations Poverty Environment Initiative (UNPEI), Bangkok, Thailand was present as Resource Person. Group Leaders were delivered the specific point of view on "Mapping of Accounts and Data Priorities".

This expert group workshop was held at BBS Conference Room on 6-8 November 2016 with the participation of 66 persons from different Ministries/ Divisions/ Departments/ Organizations, public and private universities, and research organisations. BBS in cooperation with General Economic Divisions (GED) of Planning Commission was organized the workshop, with financial support from United Nations Development Programme (UNDP) and United Nations Poverty Environment Initiatives (UNPEI). One resource person came from Australia who is a Poverty and Environment Expert from UNPEI. Other resource persons are the nationally renowned environmental experts came from public and private institutes.

The first part of the workshop was capacity building of the participants, especially for the data providers so that they can have a better understanding on the environmental statistics. After the capacity building sessions, the workshop facilitated group work to analysis the situation of environmental statistics and identify the data sources using the Basic Set of Environmental Statistics. The participants were divided into 6 groups, provided 6 components to 6 groups and they were assigned in the following ways:

a) *Data availability for environmental statistics by sectors;*

b) *Identification of responsible agency for producing the need data and information;*

c) *Data compilation, collection and dissemination mechanism with sharing and reporting;*

d) *Set up a common digital platform for developing environmental database toolkits; and*

e) *Overall recommendations and suggestions by each group.*

Each of the group came up with their group findings for presentation and open discussion.

Issues discussed during the workshop are

a) Introduction to the System of Environmental Economic Accounting (SEEA);

b) Linking SEEA to policy (environment, agriculture, water, planning, etc.);

c) Environmentally responsive social accounting matrix in a cross sectoral development context of Bangladesh for integrating statistical indicator in light of SDGs and 7thFYP;

d) Cross sectoral development of Bangladesh for integrating statistical system for data support/inform to the sectoral policy, investment, reporting and monitoring based on SDGs and national plans;

e) Ecosystem Extent, Ecosystem Condition and Services Accounts;

f) Bangladesh Social Safety Net programme – policy diver;

g) Poverty Environment Accounting Framework (PEAF);

h) Historical Background and current situation of Household Income and Expenditure Survey (HIES) linkage to Environment: Importance of National Perspectives;

i) Core Set of Environmental Statistics of Bangladesh align with UNFDES, SDGs Target/Indicators and 7th FYP;

j) Sampling methodology for data collection: challenges and prospects;

k) Ecosystem Accounting in light of System of Environmental Economic Accounting (SEEA): An Idea for Moving Forward;

l) System of National Accounts (SNA): Compilation of Gross Domestic Products (GDP) and Gross National Income (GNI)-Example of Agriculture Sector;

m) System of National Accounts (SNA) linked to System of Environmental Economic Accounting (SEEA Central Framework);

n) Strategic Work Plan of Environmental Statistics (Division of Roles/Mapping) according to SDGs;

o) Importance of Climate Change and Disaster-related Statistics for monitoring the SFDRR and SDGs: Definitions of Disasters and its Impacts, Hazards (Peril) Family and Main Events Classification.

The workshop defined the following objectives to achieve

a) To assess the current situation of environmental statistics such as disaster-related statistics, environmental-economic accounting and related statistics of Bangladesh;

b) To improve the technical expertise of the potential focal points in environmental statistics implementation and discuss data gaps and way forward;

c) To identify the national policy priorities, accounts, data priorities, strategic action plan and future plans align with SDGs, SFDDR, 7th FYP and others successive plans; and

d) To assess the impeding factors in the collection, compilation and dissemination of environment statistics, disaster-related statistics, environmental-economic accounting with linkage to poverty and related statistics.

Expected outcomes from the workshop were

a) Reaching consensus for developing "Bangladesh Environmental Statistics Framework 2016-2030 for next 15 years;

b) A common agreement from all stakeholders of the policy questions and identification of environmental statistics indicators, accounts and tables;

c) To outline the policy priorities, institutional framework, environmental resilient indicators and components;

d) To develop an environmental statistics templates, garner support and general agreement on a collective vision;

e) To identify the environmental statistics indicators to better data support to the SDGs and 7th FYP monitoring;

f) Strengthening capacity of BBS for producing information and data on environmental statistics.

Outputs from Group Works

06 (Six) groups came up with their recommendations for expediting environmental statistics initiative, these are:

a) Developing an environmental statistics inventory and sources for preparing "Compendium of Bangladesh Environmental Statistics" and updating its regularly based on periodicity and reference time;

b) Undertaking a thorough inventory of all existing information relevant to the Environmental (Environment, Climate Change and Disaster), including actual and potential suppliers of data;

c) Compiling resource accounts: forests, fish, water, mineral and energy, land and natural gas based on SEEA CF;

d) Experimental Ecosystem Accounting in light of SEEA CF;

e) Preparing a comprehensive database on Environmental Statistics (Climate Change, Disaster, waste management and Bio-diversity) for monitoring and evaluating the impacts of climate change with GIS link;

Inaugural Session of Expert Group Workshop was held on 06 November 2016 at BBS Auditorium. Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division was present as Chief Guest. Mr. M. A Mannan Howlader, Additional Secretary (Development), Statistics and Informatics Division and Mr. Naquib Bin Mahbub, Division Chief, GED, Planning Commission, Md. Abul Kalam Azad, Director, National Accounting, BBS were present as special guests, Mr. Md. Baitul Amin Bhuiyan, Director General (Incharge), BBS chaired the session. Mr. Md. Rafiqul Islam, Deputy Director and National Focal Point Officer, ECDS Cell, BBS delivered key note paper about the Expert Group Workshop.

f) Conducting the Household Survey of Health and Sanitation in disaster prone areas;

g) Conducting Urban/Rural (Household and Industrial) Waste generation and Management Survey;

h) Developing a Poverty-Environmental Accounting Framework (PEAF);

i) Enabling common understanding, consensus and providing the single reference of Environmental Information to BBS with key Ministries and other Institutions;

j) Developing methodology in consultation with concerned stakeholders' consistence with UN Guideline;

k) Capacity building of human resources and technological skill development;

l) Budget provision for collecting, compiling, processing and disseminating environmental data and information;

m) Strengthening the inter-ministerial coordination mechanism;

n) Developing a web based data in BBS and ensuring access by concerned organizations for collecting, compiling, analysing, sharing and reporting environmental data and information;

o) Harmonizing Environmental Frameworks and Concepts with global Standards.

SWOT Analysis for Environmental Statistics

Strength, Weakness, Opportunity and Threat (SWOT) analysis was done for the Environmental Statistics and the result is:

Strength:

- There are Field Offices at Division, District and Upazila level;
- Availability of relevant literature;
- Available office space;
- Positive attitude of the Government machinery and monitoring system;
- Statistical Act 2013 and National Strategy for the Development of Statistics (NSDS).

Weakness:

- Shortage of human resource;
- Lack of knowledge about environmental statistics;
- Inadequate fund;
- Lack of logistic facilities;
- Absence of digital toolkit
- Lack of Inter-Ministerial coordination.

Opportunity:

- Strong organizational structure;
- Vibrant civil society;
- Media support.

Threat:

- Interference during selection of enumerators;
- Bias sample selection;
- Natural calamities;
- Unwillingness of respondents to provide detail information.

Way Forward

Bangladesh Environmental Statistics Framework (BESF) 2016-2030 is a guideline and integrated platform for collecting, compiling, analysing and dissemination of environmental data focusing on SDGs, SFDRR, the Paris Agreement, BCCSAP and 7th FYP of Bangladesh. The participants of the workshop came up with following way forward during their group presentation:

- Technical and financial support should be provided by UNDP and other Development Partners for institutionalization in the statistical system;
- Environmental Statistics should be prepared and updated in every 3-5 reference year;
- Public expenditure for producing environmental data should be increased;
- A separate budget code should be assigned to track public expenditure on environment and climate change statistics;
- ECDS Cell, BBS should be upgraded as a regular wing of the BBS as per provision of NSDS.

Workshop 2: Expert Group Validation Workshop on Identifying Data Sources of Environmental Statistics for Developing "Bangladesh Environmental Statistics Framework (BESF) 2016-2030"

This expert group validation workshop was held on 21-22 December 2016 at the BBS Conference Room in participation of 90 participant's/ designated focal point officers from different concerned Ministries/ Divisions/ Departments/Organizations. The participants represented their organisations an attended the expert group workshop for validating sources of data for environmental statistics. National and international environmental scientists and experts facilitated the workshop mainly to make the participants understand the importance of data and its sources for planning and developing Bangladesh Environmental Statistics Framework (BESF) 2016-2030.

The resource persons of the expert group workshop presented and discussed related issues and asked participants for the sources of data. Earlier the data sources were identified but there was gap in the sources. Thus sources were further validated through discussion among the participants by adding and changing new sources to the basic set of environmental statistics according to UNFDES.

Objectives of the Expert Group Validation Workshop

a) To assess the current situation of environmental statistics (climate change and disaster related statistics, natural resource accounts) and related statistics of Bangladesh;

b) To identify and validate the data sources of environmental statistics for developing "Bangladesh Environmental Statistics Framework (BESF) 2016-2030";

c) To improve the technical expertise of the potential focal points in environmental statistics implementation and discuss remaining questions from the workshop;

d) To identify the national policy priorities, accounts, data priorities, strategic action plan and future plans align with SDGs, SFDDR, the Paris Agreement, BCCSAP, 7th FYP and others successive plans of Bangladesh; and

e) To assess the impeding factors in the collection, compilation and dissemination of environment statistics, disaster-related statistics, environmental -economic accounting with linkage to poverty and related statistics.

Issues discussed in the Workshop

i. Introduction, importance and identifying data sources;

ii. Importance of Environmental Statistics and Natural Resource Accounts in light of Sustainable Development Goals (SDGs): Policy Consideration and Moving Forward;

iii. Environmental Resource and their use: Mineral Resources, Energy Resources, Land and Soil Resources, Biological Resources and Water Resources;

iv. Links between environmental data, national policy, planning and management: how to collect, integrate, organise, store and access the data;

Inaugural Session of Expert Group Validation Workshop was held on 21 December 2016 at BBS Auditorium. Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division was present as Chief Guest. Mr. Naquib Bin Mahbub, Division Chief, GED, Planning Commission and Dr. A. Atiq Rahman, Executive Director, Bangladesh Centre for Advanced Studies were present as special guests. Mr. Sudipto Mukerjee, Country Director, UNDP Bangladesh was present as a Guest of Honor and Mr. Mohammad Abdul Wazed, Director General (Additional Secretary), BBS chaired the session.

v. How to collect, integrate, organise, manage, store and access the environmental spatial and temporal data;

vi. How to collect and integrate water data for formulating water policy and management;

vii. How to collect and integrate land and soil resources data for producing natural resource statistics;

viii. Environmental data needs on national policy and development planning in light of SDGs and 7th Five Year Plan ;

ix. Environmental conditions and quality: physical conditions, land cover, ecosystem, biodiversity and environmental quality;

x. Residuals: emission to air, generation and management of waste, release of chemical substance;

xi. Extreme event, disasters, environmental protection, management and engagement;

xii. Human settlement and environmental health;

xiii. Methodologies, approaches, integration, production and dissemination of environmental statistics: challenges and way forward;

xiv. Disaster risk reduction expenditure accounts link to environmental statistics framework: why is it important for question in national regional and global arena;

xv. Different methodological challenges for producing environmental statistics: an integration of administrative data;

xvi. Climate financing and public expenditure: an institutional challenge;

xvii. How should we collect, measure and produce loss and damage data due to climate change: definitional challenge.

Outputs of the workshop

a) Validated data sources for 6 (six) components of Basic Set of Environmental Statistics and SDGs environmental indicators. Participants and resource persons jointly identify sources of data for environmental statistics by indicators as in the basic set of environmental statistics; and

b) Participants acquired knowledge with better understanding of the Environmental Statistics.

Annex 2: Basic Set of Bangladesh Environmental Statistics

Component 1: Environmental Conditions and Quality

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Units	Computation Level	Data Source	Data Status
1	2	3	4	5	6
Component 1: Environmental Conditions and Quality					
Sub-component 1.1: Physical Conditions					
Topic 1.1.1: Atmosphere, climate and weather	a. Temperature		▪ National ▪ Division ▪ District/station		
	1. **Monthly average**	Degrees (°C)		BMD	A
	2. **Minimum monthly average**	Degrees (°C)		BMD	A
	3. **Maximum monthly average**	Degrees (°C)		BMD	A
	b. Precipitation (also in 2.6.1.a) (Rainfall)		▪ National ▪ Division ▪ District/station		
	1. **Annual average**	Amount(mm.)		BMD, BWDB, DAE	A
	2. **Long-term annual average**	Amount(mm.)		BMD, BWDB, DAE	A
	3. Monthly average	Amount(mm.)		BMD, BWDB, DAE	A
	4. Minimum monthly value	Amount(mm.)		BMD, BWDB, DAE	A
	5. Maximum monthly value	Amount(mm.)		BMD, BWDB, DAE	A
	c. Relative humidity		▪ National ▪ Division ▪ District/station		
	1. Minimum monthly value	%		BMD	A
	2. Maximum monthly value	%		BMD	A
	d. Pressure (Wind)		▪ National ▪ Division ▪ District/station		
	1. *Minimum monthly value*	Pressure unit (hPa)		BMD	A
	2. *Maximum monthly value*	Pressure unit (hPa)		BMD	A
	e. Wind speed		▪ National ▪ Division ▪ District/station		
	1. *Minimum monthly value*	Speed(km/hr)		BMD	A
	2. *Maximum monthly value*	Speed(km/hr)		BMD	A
	f. Solar radiation		▪ National ▪ Division ▪ District/station		
	1. *Average daily value*	j/m^2		BMD, BAEC	PA
	2. *Average monthly value*	j/m^2		BMD, BAEC	PA
	3. *Number of hours of sunshine*	Time(hr)		BMD, BAEC	PA
	g. UV radiation		▪ National ▪ Division ▪ District/station		
	1. *Maximum daily value*	Area, Energy unit		BAEC	PA
	2. *Average daily value*	Area, Energy unit		BAEC	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		3. *Maximum monthly value*	Area, Energy unit		BAEC	PA
		4. *Average monthly value*	Area, Energy unit		BAEC	PA
	h	Thundering and Lighting		▪ National ▪ Division ▪ District/station		
		1. Thundering	Number		BMD	A
		2. Lighting	Number		BMD	A
Topic 1.1.2: Hydrographical characteristics	a.	Lakes		▪ National ▪ Division ▪ District/station		
		1. Surface area	Area		SOB, CEGIS, SPARRSO, DLR, WARPO	A
		2. *Maximum depth*	Depth		SOB, CEGIS, SPARRSO, DLR, WARPO	PA
	b.	Rivers and streams				
		1. Length	Length		BWDB, SPARRSO	A
	c.	Artificial reservoirs				
		1. *Surface area*	Area		BWDB, SPARRSO	A
		2. *Maximum depth*	Depth		BWDB, SPARRSO	PA
	d.	Watersheds				
		1. **Description of main watersheds**	Area, Description		BWDB, IWM, SPARRSO	PA
	e.	Seas		▪ By location ▪ National, ▪ Division ▪ District within coastal waters or Exclusive Economic Zone (EEZ)		
		1. Coastal waters	Area		SOB, Sea Research Institute,	A
		2. Territorial sea	Area		SOB, Sea Research Institute, DOF, NAVY, Ministry of Foreign Affairs , Chittagong Port Authority	A
		3. Exclusive Economic Zone (EEZ)	Area		SOB, Sea Research Institute, DOF, NAVY, Ministry of Foreign Affairs , Chittagong Port Authority	A
		4. *Sea level*	Depth		SOB, Sea Research Institute, DOF, NAVY, Ministry of Foreign Affairs , Chittagong Port Authority	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
	f.	*Aquifers*	Depth, Description	▪ By location ▪ By salinity levels ▪ By watershed ▪ National ▪ Division ▪ District		
		Renewable			BWDB, DPHE, WASA, MoA, BMDA	PA
		Non-renewable			BWDB, DPHE, WASA, MoA, BMDA	PA
Topic 1.1.3: Geological and geographical information	a.	Geological, geographical and geo-morphological conditions of terrestrial areas and islands		▪ National ▪ Division ▪ District		
		1. Length of border	Length		DLR, SOB, SPARRSO	A
		2. **Area of country or region**	Area, Location		DLR, SOB, SPARRSO	A
		3. Number of islands	Number		DLR, SOB, SPARRSO	A
		4. Area of islands	Area		DLR, SOB, SPARRSO	PA
		5. *Main geo-morphological characteristics of islands*	Description		DLR, SOB, SPARRSO	PA
		6. *Spatial distribution of land relief*	Description, Location		SOB	PA
		7. *Characteristics of landforms* (e.g., plains, hills, plateaus, dunes, , mountains, seamounts)	Description, Area, Height		DLR, GSB, SOB,	PA
		8. *Area by rock types*	Area		DLR, GSB, SOB,	PA
		9. *Length of fault lines*	Length		MoL, GSB, SOB,	PA
	b.	**Coastal waters** (including area of coral reefs and mangroves)	Area, Description		DLR, BFD, SOB	PA
	c.	**Length of marine coastline**	Length		DLR, GSB, SOB, SPARRSO, Navy	A
	d.	**Coastal area**	Area		BWDB, WARPO, DLR, SOB	A
Topic 1.1.4: Soil characteristics	a.	Soil characterization		▪ By location ▪ National		
		1. **Area by soil types**	Area		DAE/SRDI, SPARRSO	A
	b.	River/Coastal Erosion				
		1. **Area affected by River/Coastal Erosion**	Area		BWDB	A
		2. Area affected by salinization	Area		SRDI	PA
		3. Area affected by waterlogging	Area		GSB, SPARRSO	PA
		4. Area affected by acidification	Area		SRDI	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		5. *Area affected by compaction*	Area		GSB	NA
	c.	Nutrient content of soil, measured in levels of:		▪ By nutrient ▪ By Sub-District		
		1. Nitrogen (N)	Concentration		SRDI	A
		2. Phosphorous (P)	Concentration			A
		3. *Calcium (Ca)*	Concentration			A
		4. *Magnesium (Mg)*	Concentration			A
		5. *Potassium (K)*	Concentration			A
		6. *Zinc (Zn)*	Concentration			A
		7. *Other*	Concentration			A
Sub-component 1.2: Land Cover, Ecosystems and Biodiversity						
Topic 1.2.1: Land cover	a.	**Area under land cover categories**	Area	▪ By location ▪ By type of land cover		
		Artificial surfaces including urban and associated areas			BFD, SOB, SPARRSO	A
		Herbaceous crops			BFD, SOB, SPARRSO	A
		Woody crops			BFD, SOB, SPARRSO	A
		Multiple or layered crops;			BFD, SOB, SPARRSO	A
		Grassland;			BFD, SOB, SPARRSO	A
		Tree-covered areas;			BFD, SOB, SPARRSO	A
		Mangroves;			BFD, SOB, SPARRSO	A
		Shrub-covered areas;			BFD, SOB, SPARRSO	A
		Shrubs and/or herbaceous vegetation, aquatic or regularly flooded;			BFD, SOB, SPARRSO, DOF	PA
		Sparsely natural vegetated areas;			BFD, SOB, SPARRSO, DOF, DOE	PA
		Terrestrial barren land			BFD, SOB, SPARRSO, DOF, DOE	PA
		Inland water bodies			BFD, SOB, SPARRSO, BWDB, WARPO	A
		Coastal water bodies			BFD, SOB, SPARRSO, BWDB, WARPO	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		Inter-tidal areas			BFD, SOB, SPARRSO, BWDB, WARPO	A
Topic 1.2.2: Ecosystems and biodiversity	a.	General ecosystem characteristics, extent and pattern		▪ By location/Station ▪ By ecosystem (e.g., forest, cultivated, dry land, coastal, marine, urban, inland water, island, mountain)[b] Hill		
		1.**Area of ecosystems**	Area			
		Forest (Reserve and Game)			BFD	A
		Coastal			BFD	A
		Marine			BFD	A
		Urban (Botanical Garden)			BFD	A
		Inland water			BFD, SPARRSO	A
		Island			BFD, SPARRSO	A
		Mountain/Hill			BFD, DOE, DOF, IUCN	A
		Eco Park			BFD	A
		Sanctuary			DOF	A
	b.	Ecosystems' chemical and physical characteristics				
		1. *Nutrients*	Concentration		SRDI, BFD	A
		2. *Carbon*	Concentration		SRDI, BFD	A
		3. *Pollutants (Air Quality & River Water Quality)*	Concentration		DOE	PA
	c.	Biodiversity		▪ By ecosystem (e.g., forest, cultivated, dry land, coastal, marine, urban, polar, inland water, island, mountain)[b] ▪ By status category (e.g., extinct, extinct in the wild, threatened, near threatened, least concern) ▪ By class (e.g., mammals, fishes, birds, reptiles) ▪ National ▪ Division		
		1. **Known flora and fauna species**	Number		DOE, BFD, IUCN	PA
		2. Endemic flora and fauna species	Number		BFD, DOF, IUNC	PA
		3.Invasive alien flora and fauna species	Number		BFD, DOF, IUNC	PA
		5. *Habitat fragmentation*	Area, Description, Location, Number		BFD, DOE, IUCN	NA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
				▪ District		
	d.	Protected areas and species		▪ By location ▪ By management category[c] ▪ By ecosystem (e.g., forest, cultivated, dryland, coastal, marine, urban, polar, inland water, island, mountain)[b] ▪ National ▪ Division ▪ District		
		1. **Protected terrestrial and marine area** (also in 1.2.3.a)	Number, Area			
		Forest (Reserve and Game)			BFD, DOE, DOF, IUCN	PA
		Coastal			BFD, DOE, DOF, IUCN	PA
		Marine			BFD, DOE, DOF, IUCN	PA
		Island			BFD, DOE, DOF, IUCN	PA
		Sanctuary			DOF	PA
		Eco Park			BFD	PA
		Urban (Botanical Garden)			BFD	PA
		Mountain and Hill			BFD, DOE, DOF, IUCN	PA
		2. Protected flora and fauna species	Number	▪ By species ▪ By ecosystem (e.g., forest, cultivated, dryland, coastal, marine, urban, polar, inland water, island, mountain)[b] ▪ By status category ▪ National ▪ Division ▪ District		
		Forest (Reserve and Game)			BFD, DOE, DOF, IUCN	PA
		Coastal			BFD, DOE, DOF, IUCN	PA
		Marine			BFD, DOE, DOF, IUCN	PA
		Island			BFD, DOE, DOF, IUCN	PA
		Sanctuary			DOF	PA
		Eco Park			BFD	PA
		Urban (Botanical Garden)			BFD	PA
		Mountain and Hill			BFD, DOE, DOF, IUCN	PA
(a) SEEA land cover categories, based on FAO Land Cover Classification System (http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (b) Reporting categories used in the Millennium Ecosystem Assessment (http://www.millenniumassessment.org/documents/document.356.aspx.pdf) (c) IUCN reporting categories: Strict nature reserves; Wilderness areas; National parks, Natural monuments or features; Habitat/species management areas; Protected landscapes/seascapes; and Protected areas with sustainable use of natural resources (http://www.iucn.org/theme/protected-areas/about/categories)						
Topic 1.2.3: Forests	a.	Forest area	Number, Area	▪ National ▪ Division ▪ District By Location ▪ By dominant tree species		
		1. **Total**	Number, Area		BFD	A
		2. Natural	Number, Area		BFD	A
		3. Planted	Number, Area		BFD	A
		4. Protected forest area(also in 1.2.2.d)	Number, Area		BFD	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		a) Forest (Reserve and Game)	Number, Area	▪ By ownership category	BFD, DOE, DOF	A
		b) Coastal	Number, Area		BFD, DOE, DOF	A
		c) Marine	Number, Area		BFD, DOE, DOF	A
		d) Island	Number, Area		BFD, DOE, DOF	A
		e) Sanctuary	Number, Area		DOF	A
		f) Eco Park	Number, Area		BFD	A
		g) Urban (Botanical Garden)	Number, Area		BFD	A
		h) Mountain and Hill	Number, Area		BFD, DOE, DOF	A
	b	Forest biomass				
		1. Total	Volume		BFD	PA
		2. *Carbon storage in living forest biomass*	Mass		BFD	PA
Sub-component 1.3: Environmental Quality						
Topic 1.3.1: Air quality	a.	**Local air quality**		**By Location/ Station**		
		1. **Concentration level of particulate matter (PM_{10})**	Concentration		DOE	A
		2. **Concentration level of particulate matter ($PM_{2.5}$)**	Concentration		DOE	A
		3. **Concentration level of tropospheric ozone (O_3)**	Concentration		DOE	A
		4. **Concentration level of carbon monoxide (CO)**	Concentration		DOE	A
		5. **Concentration level of sulphur dioxide (SO_2)**	Concentration		DOE	A
		6. **Concentration levels of nitrogen oxides (NOx)**	Concentration		DOE	A
		7. Concentration levels of heavy metals	Concentration		DOE	PA
		8. Concentration levels of non-methane volatile organic compounds (NMVOCs)	Concentration		DOE	PA
		9. *Concentration levels of dioxins*	Concentration		DOE	NA
		10. *Concentration levels of furans*	Concentration		DOE	NA
		11. Concentration levels of other pollutants	Concentration		DOE	PA
		12. Number of days when maximum allowable levels were exceeded per year	Number	▪ By pollutant	DOE	NA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
Topic 1.3.2: Freshwater quality	a.	Nutrients and chlorophyll		▪ **By Location**		
		1. **Concentration level of nitrogen**	Concentration		DOE, IWFM, IWM	PA
		2. **Concentration level of phosphorous**	Concentration		DOE, IWFM, IWM	PA
		3. Concentration level of chlorophyll A	Concentration		DOE, IWFM, IWM	PA
	b.	Organic matter				PA
		1. **Biochemical oxygen demand (BOD)**	Concentration		DOE, IWFM, IWM	PA
		2. Chemical oxygen demand (COD)	Concentration		DOE, IWFM, IWM	PA
	c.	Pathogens				PA
		1. **Concentration levels of faecal coliforms**	Concentration		DOE, IWFM, IWM	PA
	d.	Metals (e.g., mercury, lead, nickel, arsenic, cadmium)				
		1. Concentration levels in sediment and freshwater	Concentration		DOE, IWFM, IWM	PA
		2. Concentration levels in freshwater organisms	Concentration		DOE, IWFM, IWM	PA
	e.	Organic contaminants (e.g., PCBs, DDT, pesticides, furans, dioxins, phenols, radioactive waste)				
		1. Concentration levels in sediment and freshwater	Concentration		DOE, IWFM, IWM	PA
		2. Concentration levels in freshwater organisms	Concentration		DOE, IWFM, IWM	PA
	f.	Physical and chemical characteristics				
		1. pH/Acidity/Alkalinity	Level		DOE, DAE	PA
		2. Temperature	Degrees		DOE, DAE	PA
		3. *Total suspended solids (TSS)*	Concentration		DOE, DAE	PA
		4. Salinity	Concentration		DOE, DAE, WDB	PA
		5. Dissolved oxygen (DO)	Concentration		DOE, DAE	PA
	g.	Plastic waste and other freshwater debris				
		1. Amount of plastic waste and other debris	Area, Mass		DOE, DAE	PA
Topic 1.3.3: Marine water quality	a.	Nutrients and chlorophyll		▪ By Location		
		1. **Concentration level of nitrogen**	Concentration		DOE, NAVY, Marine Fisheries Institute, Ocean Research Institute	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		2. **Concentration level of phosphorous**	Concentration		DOE, NAVY, Marine Fisheries Institute, Ocean Research Institute	PA
		3. Concentration level of chlorophyll A	Concentration		DOE, NAVY, Marine Fisheries Institute, Ocean Research Institute	PA
	b	Organic matter				
		1. **Biochemical oxygen demand (BOD)**	Concentration		DOE	NA
		2. Chemical oxygen demand (COD)	Concentration		DOE	NA
	c.	Pathogens				
		1. Concentration levels of faecal coliforms in recreational marine waters	Concentration		DOE, Health	NA
	d	Metals (e.g., mercury, lead, nickel, arsenic, cadmium)				
		1. Concentration levels in sediment and marine water	Concentration		DOE	NA
		2. Concentration levels in marine organisms	Concentration		DOE	NA
	e.	Organic contaminants (e.g., PCBs, DDT, pesticides, furans, dioxins, phenols, radioactive waste)				
		1. *Concentration levels in sediment and marine water*	Concentration		DOE	NA
		2. *Concentration levels in marine organisms*	Concentration		DOE	NA
	f.	Physical and chemical characteristics				
		1. *pH/Acidity/Alkalinity*	Level		DOE	PA
		2. Temperature	Degrees		DOE	PA
		3. *Total suspended solids (TSS)*	Concentration		DOE	NA
		4. *Salinity*	Concentration		DOE	NA
		5. Dissolved oxygen (DO)	Concentration		DOE	NA
		6. *Density*	Density		DOE	NA
	g	Coral bleaching				
		1. **Area affected by coral bleaching**	Area		DOE	NA
	h	Plastic waste and other marine debris		▪ By coastal zone,		

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		1.*Amount of plastic waste and other debris in marine waters*	Area, Mass	delta, estuary or other local marine environment ▪ By location ▪ National ▪ Division ▪ District ▪ By point measurement	DOE	NA
	i.	Red tide				
		1. *Occurrence*	Number		DOE	NA
		2. *Impacted area*	Area		DOE	NA
		3. *Duration*	Duration		DOE	NA
	j.	Oil pollution				
		1. *Area of oil slicks*	Area		DOE	PA
		2. *Amount of tar balls*	Area, Diameter, Number		DOE	NA
Topic 1.3.4: Soil pollution	a.	Sites affected by pollution		▪ By location ▪ National ▪ Division ▪ District ▪ By type of pollutant ▪ By source		
		1. Contaminated sites	Area, Number		SRDI, DOE	PA
		2. Potentially contaminated sites	Area, Number		SRDI, DOE	PA
		3. Remediated sites	Area, Number		SRDI, DOE	PA
		4. Other sites	Area, Number		SRDI, DOE	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
Component 2: Environmental Resources and their Use						
Sub-component 2.1: Mineral Resources						
Topic 2.1.1: Stocks and changes of mineral resources	a.	Mineral resources		▪ By Block . By mineral (e.g., metal ores including precious metals and rare earths ,coal, oil, gas, stone, sand and clay, chemical and fertilizer minerals, salt, gemstones, abrasive minerals, graphite, asphalt, natural solid bitumen, quartz, mica) ▪ National ▪ Division ▪ District		
		1. **Stocks of commercially recoverable resources**	Mass, Volume			
		Metal ores including precious metals and rare earths			GSB	A
		Coal			Petro Bangla, Bureau of Mineral Development (BMD), GSB	A
		Oil			Petro Bangla, BPC, GSB	A
		Gas			Petro Bangla, GSB	A
		Stone			Petro Bangla, GSB	A
		Sand			BMD, DC, GSB	A
		Glass Clay			BMD, DC, GSB	A
		White Clay			BMD, DC, GSB	A
		Chemical and fertilizer minerals			Ministry of Commerce	A
		Salt			Ministry of Industries, GSB	A
		Asphalt			Petro Bangla, GSB	A
		Natural solid bitumen			Petro Bangla, GSB	A
		Quartz			Bureau of Mineral Development (BMD), Petro Bangla, GSB	A
		Pit			GSB/Petro Bangla	A
		2. New discoveries	Mass, Volume		GSB, Petro Bangla	PA
		3. *Upward reappraisals*	Mass, Volume		Petro Bangla	PA
		4. *Upward reclassifications*	Mass, Volume		Petro Bangla, BPC	PA
		5. **Extraction**	Mass, Volume		GSB/Petro Bangla	PA
		6. *Catastrophic losses*	Mass, Volume		GSB/Petro Bangla	PA
		7. *Downward reappraisals*	Mass, Volume		GSB/Petro Bangla	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		8. *Downward reclassifications*	Mass, Volume		GSB/Petro Bangla	PA
		9. Stocks of potentially commercially recoverable resources	Mass, Volume		GSB/Petro Bangla	PA
		Metal ores including precious metals and rare earths			GSB	A
		Coal			Petro Bangla, GSB	A
		Oil			Petro Bangla, BPC	A
		Gas			Petro Bangla	A
		Stone			Petro Bangla, GSB	A
		Sand			BMD, DC, GSB	A
		Glass Clay			BMD, DC, GSB	A
		White Clay			BMD, DC, GSB	A
		Chemical and fertilizer minerals			Petro Bangla, BCIC	A
		Salt			BCIC, GSB	A
		Gemstones			Petro Bangla, GSB	PA
		Abrasive minerals			Petro Bangla, GSB	PA
		Graphite			Petro Bangla, GSB	PA
		Asphalt			Petro Bangla, GSB	PA
		Natural solid bitumen			Petro Bangla, GSB	PA
		Quartz			Petro Bangla, GSB	PA
		10. *Stocks of non-commercial and other known resources*	Mass, Volume			
		Heavy Materials	Mass, Volume		GSB, BAEC	PA
Topic 2.1.2: Production and trade of minerals	a.	Production of minerals	Mass, Volume		Petro Bangla, GSB	A
	b.	Imports of minerals	Currency, Mass, Volume		Export Promotion Bureau, PCB, Petro Bangla, NBR	A
	c.	Exports of minerals	Currency, Mass, Volume		Export Promotion Bureau, PCB, NBR	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
Sub-Component 2.2: Energy resources						
Topic 2.2.1: Stocks and changes of energy resources	a.	Energy resources		▪ By resource (e.g., natural gas, crude oil and natural gas liquids, oil shale, and extra heavy oil (includes oil extracted from oil sands), coal and lignite, peat, non-metallic minerals except for coal or peat, uranium and thorium ores) ▪ National ▪ Division ▪ District		
		1. **Stocks of commercially recoverable resources**	Mass, Volume			
		Natural gas			Petro Bangla, GSB	A
		Crude oil and natural gas liquids			Petro Bangla, GSB	A
		Oil shale, and extra heavy oil (includes oil extracted from oil sands)			Petro Bangla, GSB	A
		Coal and lignite			Petro Bangla, GSB	A
		Peat			Petro Bangla, GSB	A
		Non-metallic minerals except for coal or peat			Petro Bangla, GSB	A
		Uranium			BAEC, GSB	PA
		Thorium ores			Petro Bangla, GSB	PA
		2. New discoveries	Mass, Volume		Petro Bangla, GSB	PA
		3. *Upward reappraisals*	Mass, Volume		Petro Bangla	PA
		4. *Upward reclassifications*	Mass, Volume		Petro Bangla	PA
		5. **Extraction**	Mass, Volume		Petro Bangla	A
		6. *Catastrophic losses*	Mass, Volume		Petro Bangla	PA
		7. *Downward reappraisals*	Mass, Volume		Petro Bangla	PA
		8. *Downward reclassifications*	Mass, Volume		Petro Bangla	PA
		9. Stocks of potentially commercially recoverable resources	Mass, Volume		Petro Bangla	A
		Natural gas			Petro Bangla	A
		Crude oil and natural gas liquids			Petro Bangla	A
		Oil shale, and extra heavy oil (includes oil extracted from oil sands)			Petro Bangla	A
		Coal and lignite			Petro Bangla, GSB	A
		Peat			Petro Bangla, GSB	A
		Non-metallic minerals except for coal or peat			Petro Bangla, GSB	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		Uranium			BAEC	PA
		Thorium ores			BAEC, GSB	PA
Topic 2.2.2: Production, trade and consumption of energy	a.	Production of energy		▪ By non-renewable resource (e.g., petroleum, natural gas, coal, nuclear fuels, non-sustainable firewood, waste, other non-renewable) ▪ By renewable resource (e.g., solar, hydroelectric, geothermal, tidal action, wave action, marine, wind, biomass) ▪ National ▪ Division ▪ District		
		1. **Total production**	Energy unit, Mass, Volume		Petro Bangla	A
		2. **Production from non-renewable sources**	Energy unit, Mass, Volume			
		Petroleum			Petro Bangla	A
		Natural gas			Petro Bangla	A
		Coal			Petro Bangla	A
		Non-sustainable firewood			BFD	PA
		Other non-renewable			BERC, BPC	PA
		3. **Production from renewable sources**	Energy unit, Mass, Volume			
		Solar			PDB/SREDA, IDCOL	A
		Hydroelectric			PDB	A
		Geothermal			PDB/SREDA, IDCOL	A
		Wind			PDB/SREDA, IDCOL	PA
		Biomass			BFD/DOE, PKSF, NGOAB	PA
		4. **Primary energy production**	Energy unit, Mass, Volume	▪ By primary energy resource (e.g., petroleum, natural gas, coal, hydro energy, geothermal, nuclear fuels, cane products, other primary) ▪ By secondary energy resource (e.g., electricity, liquefied petroleum		
		Petroleum			BPC/Petro Bangla	A
		Natural gas			BPC/Petro Bangla	A
		Coal			BPC/Petro Bangla	A
		Hydro energy			PD. PDB	A
		Nuclear fuels			BAEC	NA
		Cane products			BCIC, BSFIC	NA
		Other primary				NA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		5. Imports of energy	Energy unit, Mass, Volume	gas, gasoline/alcohol, kerosene, diesel oil, fuel oil, coke, charcoal, gases, other secondary) ▪ National ▪ Division ▪ District	PDB/Petro Bangla	A
		6. Exports of energy	Energy unit, Mass, Volume		PDB/ Petro Bangla	A
		7. **Secondary energy production**	Energy unit, Mass, Volume			
		Electricity			PD/PDB	A
		Liquefied petroleum gas			Petro Bangla	NA
		Gasoline/alcohol			Petro Bangla	PA
		Kerosene			Petro Bangla, BPC	PA
		Diesel oil			Petro Bangla, BPC	PA
		Fuel oil			Petro Bangla, BPC	PA
		Coke			Petro Bangla, BPC	A
		Charcoal			Petro Bangla	PA
		Gases			Petro Bangla	A
		Other secondary				PA
	b.	**Total energy supply**	Energy unit, Mass, Volume	▪ By energy product	PD/PDB	A
	c.	**Final consumption of energy**	Energy unit, Mass, Volume	▪ By households ▪ By ISIC economic activity ▪ By tourists ▪ National ▪ Division ▪ District	PD/PDB, Power Cell	A
Sub-component 2.3: Land						
Topic 2.3.1: Land use	a.	**Area under land use categories**	Area	▪ By type of land		

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		Agriculture		use (e.g., agriculture; forestry; land used for aquaculture; use of built-up and related areas; land used for maintenance and restoration of environmental functions; other uses of land not elsewhere classified; land not in use; inland waters used for aquaculture or holding facilities; inland waters used for maintenance and restoration of environmental functions; other uses of inland waters not elsewhere classified; inland water not in use; coastal waters (including area of coral reefs and mangroves); Exclusive Economic Zone (EEZ)) ▪ National ▪ Division ▪ District	DAE, BBS	A
		Forestry			BFD, BBS	A
		Land used for aquaculture			DOF	A
		Use of built-up and related areas			UDD	PA
		Land used for maintenance and restoration of environmental functions			DOE	PA
		Other uses of land not elsewhere classified			DAE	PA
		Land not in use			DAE	A
		Inland waters used for aquaculture or holding facilities			DOF	PA
		Inland waters used for maintenance and restoration of environmental functions			DOE	PA
		Other uses of inland waters not elsewhere classified			DAE	PA
		Inland water not in use			DOF	PA
		Coastal waters (including area of coral reefs and mangroves)			BFD, BWDB	PA
	b.	Other aspects of land use		▪ National ▪ Division ▪ District	DAE	PA
		1. *Area of land under organic farming*	Area		DAE	PA
		2. Area of land under irrigation	Area		BADC/WDB/LGED, BADC	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		3. Area of land under sustainable forest management	Area		DAE/BFD	A
		4. *Area of land under agro-forestry*	Area		DAE/BFD	PA
	c.	Land ownership	Area	▪ By ownership category ▪ National ▪ Division ▪ District	Department of Land Records and Survey	A
Topic 2.3.2: Use of forest land	a.	Use of forest land		▪ By forest type ▪ National ▪ Division ▪ District ▪ By dominant tree species		
		1. **Area deforested**	Area		BFD	PA
		2. Area reforested	Area		BFD	PA
		3. Area afforested	Area		BFD	A
		4. *Natural growth*	Area		BFD	PA
	b.	Forest area by primary designated function	Area	▪ Production ▪ Protection of soil and water ▪ Conservation of biodiversity ▪ Social services ▪ Multiple use ▪ Other	BFD	PA
Sub-component 2.4: Soil Resources						
Topic 2.4.1: Soil resources	A.	General soil type	Area	By Type By Sub-District		
	1.	Floodplain soils			SRDI	A
	2.	Calcareous Alluvium			SRDI	A
	3.	Non-calcareous Alluvium			SRDI	A
	4.	Calcareous Brown Floodplain soils			SRDI	A
	5.	Calcareous Grey Floodplain soils			SRDI	A
	6.	Calcareous Dark Grey Floodplain soils			SRDI	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Units	Computation Level	Data Source	Data Status
1	2	3	4	5	6
	7. Non Calcareous Grey Floodplain soils			SRDI	A
	8. Non Calcareous Brown Floodplain soils			SRDI	A
	9. Non Calcareous Dark Grey Floodplain soils			SRDI	A
	10. Black Terai soils			SRDI	A
	11. Acid Basin clays			SRDI	A
	12. Acid Sulphate soils			SRDI	A
	13. Peat			SRDI	A
	14. Grey Piedmont Soils			SRDI	A
	15. Made-land			SRDI	A
	16. Hill soils (Brown Hill Soils)			SRDI	A
	17. Terrace soils			SRDI	A
	18. Shallow Red-Brown Terrace soils			SRDI	A
	19. Deep Red-Brown Terrace soils			SRDI	A
	20. Brown Mottled Terrace soils			SRDI	A
	21. Shallow Grey Terrace soils			SRDI	A
	22. Deep Grey Terrace soils			SRDI	A
	23. Grey Valley soils			SRDI	A
	Total soil area			SRDI	A
	B. Classification of Soil	Area	By Type By Sub-District	SRDI, CEGIS	A
	C. Physiography Unit	Area	By Type By Sub-District	SRDI, CEGIS	A
	D. Soil Track	Area	By Type By Sub-District	SRDI, CEGIS	A
Sub-component 2.5: Biological Resources					
Topic 2.5.1: Timber resources	a. Timber resources		▪ By type (e.g., natural or planted)		
	1. **Stocks of timber resources**	Volume		BFD	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		Natural		▪ National ▪ Division ▪ District		
		Planted				
		2. Natural growth	Volume		BFD	PA
		3. Fallings	Volume		BFD	PA
		4. Removals	Volume		BFD	PA
		5. *Felling residues*	Volume		BFD	NA
		6. *Natural losses*	Volume		BFD	NA
		7. *Catastrophic losses*	Volume		BFD	NA
		8. *Reclassifications*	Volume		DOAE	NA
	b.	Amount used of:		▪ National ▪ Division ▪ District		
		1. Fertilizers (also in 3.4.1.a)	Area, Mass, Volume		DAE/Bangladesh Fertilizer Association, BADC	PA
		2. Pesticides(also in 3.4.1.b)	Area, Mass, Volume		DAE/ BADC/BFD	PA
	c.	Forest production	Volume	▪ **By type of product (e.g., timber, industrial Roundwood, fuelwood, pulp, chips)** ▪ National ▪ Division ▪ District	BFD	A
		Timber			BFD	A
		Industrial round-wood,			BFD	A
		Fuel-wood,			BFD	PA
		Pulp			BFD	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		Chips			BFD	PA
	d.	Fuel wood production	Volume	▪ National ▪ Division ▪ District	BFD	PA
	e.	Imports of forest products	Currency, Mass, Volume	▪ By type of product	BFD	A
	f.	Exports of forest products	Currency, Mass, Volume		BFD	A
Topic 2.5.2: Aquatic resources	a.	**Fish capture production**	Mass	▪ By relevant freshwater and marine species ▪ National ▪ Division ▪ District	DOF	A
	b.	**Aquaculture production**	Mass		DOF	PA
	c.	Imports of fish and fishery products	Currency, Mass, Volume	▪ By relevant freshwater and marine species ▪ By type of product ▪ By species	DOF	A
	d.	Exports of fish and fishery products	Currency, Mass, Volume		DOF	A
	e.	Amount used of:		▪ By type of water (i.e., marine or freshwater) ▪ National ▪ Division ▪ District		
		1. *Pellets* (also in 3.4.1.c)	Mass, Volume		DOF	PA
		2. *Hormones* (also in 3.4.1.d)	Mass, Volume		DOF	PA
		3.*Colourants*(also in 3.4.1.e)	Mass, Volume		DOF	PA
		4. *Antibiotics* (also in 3.4.1.f)	Mass, Volume		DOF	PA
		5. *Fungicides*	Mass, Volume		DOF	PA
	f.	Aquatic resources		▪ By relevant freshwater and marine species ▪ By type (e.g., natural or cultivated) ▪ National ▪ Division ▪ District		
		1. Stocks of aquatic resources	Mass		DOF	PA
		Natural			DOF	
		Cultivated			DOF	
		2. *Additions to aquatic resources*	Mass		DOF	NA
		3. *Reductions in aquatic resources*	Mass		DOF	NA
Topic 2.5.3: Crops	a.	Main annual and perennial crops		▪ By crop ▪ By size		
		1. **Area planted**	Area		DAE, BBS	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		2. **Area harvested**	Area	▪ National ▪ Division ▪ District	DAE, BBS	A
		3. **Amount produced**	Mass		DAE, BBS	A
		4. *Amount of organic production*	Mass		DAE, BBS	PA
		5. *Amount of genetically modified crops produced*	Mass		BARI, DAE, BBS	PA
	b.	Amount used of:		▪ By type of fertilizer ▪ By type of pesticide ▪ By crop ▪ National ▪ Division ▪ District		
		1. **Natural fertilizers** (e.g., manure, compost, lime) (also in 3.4.1.a)	Area, Mass, Volume		DAE, BADC	PA
		2. **Chemical fertilizers** (also in 3.4.1.a)	Area, Mass, Volume		DAE, BADC	A
		3. **Pesticides** (also in 3.4.1.b)	Area, Mass, Volume		DAE, BADC	A
		4. Genetically modified seeds	Mass	▪ By crop ▪ National ▪ Division ▪ District	BARI, BADC	PA
	c.	Monoculture/resource-intensive farming systems		▪ By crop ▪ By size ▪ National ▪ Division ▪ District		
		1. Area being used for production	Area		DAE	PA
		2. Amount produced	Mass		DAE	PA
		3. *Amount of genetically modified crops produced*	Mass		DAE	NA
	d.	Imports of crops	Currency, Mass		DG Food, NBR	A
	e.	Exports of crops	Currency, Mass		DAE, DG Food, NBR	A
Topic 2.5.4: Livestock	a.	Livestock		▪ By type of animal ▪ National ▪ Division ▪ District		
		1. **Number of live animals**	Number		DLS, BBS	A
		2. Number of animals slaughtered	Number		DLS, LGD	PA
	b.	Amount used of:				
		1. *Antibiotics* (also in 3.4.1.f)	Mass		DLS	PA
		2. *Hormones* (also in 3.4.1.d)	Mass		DLS	PA
	c.	Imports of livestock	Currency, Number		DLS, NBR	PA
	d.	Exports of livestock	Currency, Number		DLS, NBR	PA
Topic 2.5.5: Other non-cultivated biological resources	a.	Permits for regulated hunting and trapping of wild animals		▪ By species		
		1. Number of permits issued per year	Number		BFD	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		2. Number of animal kills allowed by permits	Number		BFD	PA
	b.	Imports of endangered species	Currency, Number		BFD, NBR	A
	c.	Exports of endangered species	Currency, Number		BFD, NBR	A
	d.	*Reported wild animals killed or trapped for food or sale*	Number		BFD	PA
	e.	*Trade in wildlife and captive-bred species*	Description, Mass, Number	▪ By status category ▪ National ▪ Division ▪ District	BFD	NA
	f.	*Non-wood forest products and other plants*	Mass, Volume	▪ By type of product ▪ National ▪ Division ▪ District	BFD, DOE	NA
Sub-component 2.6: Water Resources						
Topic 2.6.1: Water resources	a.	Inflow of water to inland water resources		▪ National ▪ Division ▪ District ▪ By territory of origin and destination		
		1. **Precipitation** (also in 1.1.1.b)	Volume/mm		BMD	A
		2. **Inflow from neighbouring territories**	Volume/mm		BWDB, JRC	A
		3. *Inflow subject to treaties*	Volume/mm		JRC	PA
	b.	Outflow of water from inland water resources	Volume/mm			
		1. **Evapotranspiration**	Volume/mm		BMD, BWDB	PA
		2. Outflow to neighbouring territories	Volume/mm		BMD, BWDB	PA
		3. Outflow subject to treaties	Volume/mm		BMD, BWDB	PA
		4. Outflow to the sea	Volume/mm		BMD, BWDB	PA
	c.	Inland water stocks	Volume/mm	▪ National ▪ Division ▪ District		
		1. Surface water stocks in artificial reservoirs	Volume/mm		BWDB, WARPO	PA
		2. Surface water stocks in lakes	Volume/mm		BWDB, WARPO	PA
		3. Surface water stocks in rivers and streams	Volume/mm		BWDB, WARPO	PA
		4. Surface water stocks in wetlands	Volume/mm		DHWD	PA
		5. Groundwater stocks	Volume/mm		DHWD	PA
Topic 2.6.2: Abstraction, use and returns of water		6. Rain Water	Volume/mm			NA
	a.	**Total water abstraction**	Volume	▪ By type of	BWDB/River Research	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
	b.	**Water abstraction from surface water**	Volume	source ▪ National ▪ Division ▪ District	Institute (RRI) RRI, WMI, BADC, BMDA	PA
	c.	Water abstraction from groundwater				PA
		1. **From renewable groundwater resources**	Volume		BWDB/River Research Institute (RRI) RRI, WMI, BADC, BMDA	PA
		2. **From non-renewable groundwater resources**	Volume		BWDB/River Research Institute (RRI) RRI, WMI, BADC	PA
	d.	Water abstracted for own use	Volume	▪ By ISIC economic activity ▪ National ▪ Division ▪ District	WASA, DPHE, BMDA	NA
	e.	Water abstracted for distribution	Volume		WASA, DPHE, BMDA	A
	f.	Desalinated water	Volume	▪ National ▪ Division ▪ District	DPHE	PA
	g.	Reused water	Volume		DPHE, DOAE, BWDB	NA
	h.	Water use	Volume	▪ By ISIC economic activity ▪ By tourists ▪ National ▪ Division ▪ District	BWDB, WASA	PA
	i.	*Rainwater collection*	Volume	▪ National ▪ Division ▪ District	DPHE, BMD, NGOAB	NA
	j.	*Water abstraction from the sea*	Volume		DPHE, DOAE, BWDB	NA
	k.	Losses during transport	Volume	▪ By ISIC economic activity ▪ National ▪ Division ▪ District	WASA	NA
	l.	*Exports of water*	Volume	▪ National ▪ Division ▪ District	DPHE, DAE, BWDB, Port Authorities, NBR	PA
	m.	*Imports of water*	Volume		DPHE, DAE, BWDB, Port Authorities, NBR	NA
	n.	*Returns of water*	Volume	▪ By ISIC economic activity ▪ By destination (e.g., inland water, land, sea, ocean) ▪ National ▪ Division ▪ District	DPHE, DAE, BWDB, Port Authorities	NA

Component 3: Residuals

Concerned Theme/ Topic		Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Units	Computation Level	Data Source	Data Status
1		2	3	4	5	6
Component 3: Residuals						
Sub-component 3.1: Emissions to Air						
Topic 3.1.1: Emissions of greenhouse gases	a.	Total emissions of direct greenhouse gases (GHGs), by gas:		▪ By ISIC economic activity ▪ By tourists ▪ National ▪ Division ▪ District ▪ By IPCC source categories Sector Wise Per Capita		
		1. **Carbon dioxide (CO_2)**	Mass		DOE	A
		2. **Methane (CH_4)**	Mass		DOE	A
		3. **Nitrous oxide (N_2O)**	Mass		DOE	A
		4. Perfluorocarbons (PFCs)	Mass		DOE	A
		5. Hydrofluorocarbons (HFCs)	Mass		DOE	A
		6. Sulphur hexafluoride (SF_6)	Mass		DOE	A
	b.	Total emissions of indirect greenhouse gases (GHGs), by gas:				
		1. **Sulphur dioxide (SO_2)**	Mass		DOE	PA
		2. **Nitrogen oxides (NO_x)**	Mass		DOE	PA
		3. Non-methane volatile organic compounds (NM-VOCs)	Mass		DOE	PA
		4. Other	Mass		DOE	PA
Topic 3.1.2: Consumption of ozone depleting substances	a.	Consumption of ozone depleting substances (ODSs), by substance:		Division wise Daily and Annual basis		
		1. Chlorofluorocarbons (CFCs)	Mass		DOE	PA
		2. Hydro chlorofluorocarbons (HCFCs)	Mass		DOE	PA
		3. Halons	Mass		DOE	PA
		4. Methyl chloroform	Mass		DOE	PA
		5. Carbon tetrachloride	Mass		DOE	PA
		6. Methyl bromide	Mass		DOE	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		7. Other	Mass		DOE	PA
Topic 3.1.3: Emissions of other substances	a.	Emissions of other substances:				
		1. Particulate matter (PM)	Mass		Ministry of Industries	PA
		2. Heavy metals	Mass		Ministry of Industries	PA
		3. *Other*	Mass		Ministry of Industries	PA
Sub-component 3.2: Generation and Management of Wastewater						
Topic 3.2.1: Generation and pollutant content of wastewater	a.	**Volume of wastewater generated** (Industrial and Domestic)	Volume **Cubic meter**	▪ By ISIC economic activity ▪ By tourists ▪ National ▪ Division ▪ District	DOE, Municipalities, BGMEA, BKMEA , Dhaka WASA, ADB Report 2008/9, BEZPA, HBRI	PA
	b.	Pollutant content of wastewater	Mass	▪ By pollutant or pollution parameter (e.g., biochemical oxygen demand (BOD), chemical oxygen demand (COD), nitrogen, phosphorous, total suspended solids (TSS)) ▪ By ISIC economic activity ▪ National ▪ Division ▪ District		
		Biochemical oxygen demand (BOD),	PPM		DOE	PA
		Chemical oxygen demand (COD),			DOE	PA
		Nitrogen			DOE	PA
		Phosphorous			DOE	PA
		Total suspended solids (TSS)			DOE	PA
Topic 3.2.2: Collection and treatment of wastewater	a.	**Volume of wastewater collected (Domestic and Industrial)**	Volume	▪ **By location**	DOE, LGD, IWM, BUET, DPHE	NA
	b.	**Volume of wastewater treated (Industrial)**	Volume	▪ By treatment type (e.g., primary, secondary, tertiary) ▪ National ▪ Division	DOE, LGD, WASA, City Corporation	PA
		Primary			DOE	PA
		Secondary			DOE	PA
		Tertiary			WASA, DOE, LGD, City	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
				▪ District **By location**	Corporations, EPZ	
	c.	Total urban wastewater treatment capacity				
		1. Number of plants	Number		WASA, DOE, LGD, City Corporations, EPZ	NA
		2. Capacity of plants	Volume		WASA, DOE, LGD, City Corporations, EPZ	NA
	d.	Total industrial wastewater treatment capacity				
		1. Number of plants	Number		DOE, BGMEA, BKMEA, Ministry of Industries	PA
		2. Capacity of plants	Volume		DOE, BGMEA, BKMEA, Ministry of Industries	PA
Topic 3.2.3: Discharge of wastewater to the environment	a.	Wastewater discharge		▪ By treatment type (e.g., primary, secondary, tertiary) ▪ By recipient (e.g., surface water, groundwater, wetland, sea, land) ▪ By ISIC economic activity ▪ National ▪ Division ▪ District ▪ By source (point/non-point source)		
		1. **Total volume of wastewater discharged to the environment after treatment**	Volume		LGD, WASA (DWASA, CWASA, RWASA, KWASA), DOE, Ministry of Industries	PA
		Primary				
		Secondary				
		Tertiary				
		2. **Total volume of wastewater discharged to the environment without treatment**	Volume		LGD, WASA (DWASA, CWASA, RWASA, KWASA), DOE	PA
		Surface water				
		Groundwater				
		Wetland				
		Sea				
		Land				
	b.	Pollutant content of discharged wastewater	Mass	▪ By pollutant or pollution parameter (e.g., BOD, COD, nitrogen, phosphorous) ▪ National ▪ Division ▪ District ▪ Net emission by ISIC economic activity		
		BOD			DOE, BUET, IWM	PA
		COD			DOE, BUET, IWM	PA
		Nitrogen			DOE, BUET, IWM	PA
		Phosphorous			DOE, BUET, IWM	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
				▪ By source (point/non-point source) **By Location**		
Sub-component 3.3: Generation and Management of Waste						
Topic 3.3.1: Generation of waste	a.	**Amount of waste generated by source (Domestic, Hospital/Clinic Commercial, Industrial)**	Mass	▪ **District Location**	DOE, DG Health, City Corporations, Municipalities, LGED, Ministry of Industries	PA
	b.	Amount of waste generated by waste category	Mass	▪ By waste category (e.g., chemical waste, municipal waste, food waste, combustion waste) ▪ National ▪ Division ▪ District	City Corporations, Municipality, LGED DOE,BGMEA, BKMEA, Ministry of Industries	PA
		Chemical waste			LGD, DOE	PA
		Municipal waste			LGD, DOE	PA
		Food waste			LGD, DOE	PA
		Combustion waste			LGD, DOE	PA
	c.	**Amount of hazardous waste generated**	Mass	▪ By ISIC economic activity ▪ National ▪ Division ▪ District	DOE, City Corporations, Municipality, LGED	PA
Topic 3.3.2: Management of waste	a.	Municipal waste		▪ By type of treatment and disposal (e.g., reuse, recycling, composting, incineration, landfilling, other) ▪ By type of waste, when possible ▪ National ▪ Division ▪ District	LGD (City Corporations, Municipality, LGED) DOE, BGMEA, BKMEA, Ministry of Industries , Ministry of Water Resources	PA
		1. **Total municipal waste collected**	Mass		Municipalities	PA
		2. **Amount of municipal waste treated by type of treatment and disposal**	Mass		ADB Report	PA
		Reuse **(Agricultural Waste)**			DOE	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		Recycling			DOE	PA
		Composting			DOE	PA
		Incineration			DOE	PA
		Landfilling /Sanitary/Crude			DOE	PA
		Other			DOE	PA
		3. **Number of municipal waste treatment and disposal facilities**	Number		City Corporation and Municipalities	PA
		4. Capacity of municipal waste treatment and disposal facilities	Volume		City Corporation and Municipalities	PA
	b.	Hazardous waste				
		1. **Total hazardous waste collected**	Mass		DOE, DG Health	PA
		2. **Amount of hazardous waste treated by type of treatment and disposal**	Mass		DOE, City Corporations	PA
		3. **Number of hazardous waste treatment and disposal facilities**	Number		DOE, City Corporations	PA
		4. Capacity of hazardous waste treatment and disposal facilities	Volume		DOE, City Corporations	PA
	c.	Other/industrial waste				
		1. Total other/industrial waste collected	Mass		DOE, Ministry of Industries, City Corporations	PA
		2. Amount of other/industrial waste treated by type of treatment and disposal	Mass		DOE, Ministry of Industries, City Corporations	PA
		3. Number of other/industrial treatment and disposal facilities	Number		DOE, Ministry of Industries, City Corporations	PA
		4. Capacity of other/industrial waste treatment and disposal facilities	Volume		DOE, Ministry of Industries, City Corporations	PA
	d.	**Amount of recycled waste**	Mass	▪ By specific waste streams (e.g., e-waste, packaging waste, end of life vehicles) ▪ By waste category ▪ National ▪ Division ▪ District		
		E-waste			DOE	NA
		Packaging waste			DOE	NA
		End of life vehicles			DOE	NA
	e.	Imports of waste	Mass	▪ By waste category (e.g.,	DOE	NA
	f.	Exports of waste (Non-hazardous)	Mass		DOE	NA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
	g.	Imports of hazardous waste	Mass	chemical waste, municipal waste, combustion waste)	DOE	NA
	h.	Exports of hazardous waste (Led Battery)	Mass		DOE	NA
Sub-component 3.4: Release of Chemical Substances						
Topic 3.4.1: Release of chemical substances	a.	Total amount of fertilizers used		▪ National ▪ Division ▪ District ▪ By ISIC economic activity (forestry, agriculture) ▪ By type of fertilizer ▪ By type of pesticide **National**		
		1. Natural fertilizers(also in 2.5.1.b and 2.5.3.b)	Area, Mass, Volume		DAE/ BCIC	PA
		2. Chemical fertilizers (also in 2.5.1.b and 2.5.3.b)	Area, Mass, Volume		DAE/ BCIC	PA
	b.	Total amount of pesticides used (also in 2.5.1.b and 2.5.3.b) **(Need to consider the bottles of pesticides)**	Area, Mass, Volume		DAE	PA
	c.	*Total amount of pellets used* (also in 2.5.2.e)	Mass, Volume	▪ National ▪ Division ▪ District ▪ By ISIC economic activity (aquaculture)	DOF	PA
	d.	*Total amount of hormones used* (also in 2.5.2.e and 2.5.4.b)	Mass, Volume	▪ National ▪ Division ▪ District ▪ By ISIC economic activity (aquaculture, livestock production)	DOF	NA
	e.	*Total amount of colourants used* (also in 2.5.2.e)	Mass, Volume	▪ National ▪ Division ▪ District ▪ By ISIC economic activity (aquaculture)	DOF	NA
	f.	*Total amount of antibiotics used* (also in 2.5.2.e and 2.5.4.b)	Mass, Volume	▪ National ▪ Division ▪ District ▪ By ISIC economic activity (aquaculture, livestock production)	DOF	NA

Component 4: External Events and Disasters

Concerned Theme/ Topic		Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Units	Computation Level	Data Source	Data Status
1		2	3	4	5	6
Component 4: External Events and Disasters						
Sub-component 4.1: Natural Extreme Events and Disasters						
Topic 4.1.1: Occurrence of natural extreme events and disasters	a.	Occurrence of natural extreme events and disasters				
		1. **Type of natural extreme event and disaster** (geophysical, meteorological, hydrological, climatological, biological)	Description	▪ By event ▪ National ▪ Division ▪ District	DDM, BMD, BBS	A
		2. **Location**	Location		DDM, BMD	A
		3. Magnitude (where applicable)	Intensity		DDM, BMD	A
		4. Date of occurrence	Date		DDM, BMD	A
		5. Duration	Time period		DDM, BMD	A
Topic 4.1.2: Impact of natural extreme events and disasters	a.	People affected by natural extreme events and disasters				
		1. **Number of people killed**	Number		DDM	A
		2. Number of people missing	Number		DDM	A
		3. Number of people injured	Number			
		Major injuries	Number		DDM	A
		Minor injuries	Number		DDM	A
		4. Number of people are ill	Number			
		Major illness	Number		DDM	A
		Minor illness	Number		DDM	A
		5. Number of people homeless	Number		DDM	PA
		6. Number of people Evacuated	Number		DDM	A
		7. Number of people relocated	Number		DDM	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		8. Number of people displaces	Number		DDM	PA
		9. Number of people affected	Number		DDM, BBS	A
	b.	**Economic losses due to natural extreme events and disasters** (e.g., damage to buildings, transportation networks, loss of revenue for businesses, utility disruption)		▪ By event ▪ By ISIC economic activity ▪ National ▪ Division ▪ District ▪ By direct and indirect damage		
		Damage to buildings	Currency		DDM	PA
		Transport networks	Currency		DDM	PA
		Loss of revenue for business	Currency		DDM	PA
		Utility disruption	Currency		DDM	PA
	c.	Physical losses/damages due to natural extreme events and disasters (e.g., area and amount of crops, livestock, aquaculture, biomass)	Area, Description, Number			
		Area and amount of crop			DDM, BBS	PA
		Live stock			DDM, DOL, BBS	PA
		Aquaculture			DDM, DOF	PA
		Biomass			TBD by DOE	NA
	d.	Effects of natural extreme events and disasters on integrity of ecosystems		▪ By event ▪ By ecosystem ▪ National ▪ Division ▪ District		
		1. *Area affected by natural disasters*	Area		DDM, DOE	A
		2. *Loss of vegetation cover*	Area		DDM, DOE, DAE	PA
		3. *Area of watershed affected*	Area		DDM, DOE	PA
		4. *Other*	Description		DDM, DOE	NA
	e.	*External assistance received*	Currency	▪ By event ▪ National ▪ Division ▪ District	ERD, NGOAB	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
Topic 4.1.3. Direct loses of Jobs/ Occupations	a.	Direct losses of jobs/occupations in agriculture	Work-days	▪ National ▪ Division ▪ District	DDM	PA
	b.	Direct losses of jobs/occupations in industry and services	Work-days		DDM	NA
Topic 4.1.4. Direct Impact on Fixed Assets	a.	Dwelling				
		Dwelling destroyed	Number		DDM, BBS	PA
		Dwelling damaged	Number		DDM, BBS	PA
	b.	Structure				
		Critical building and structures	Number		DDM	PA
		Other building and structure	Number		DDM	PA
	c.	Machinery and equipment				
		Critical machinery and equipment	Number		DDM	NA
		Other machinery and equipment	Number		DDM	NA
	d.	Impacts on Agriculture land, livestock, fish stocks and managed forest				
		Agriculture land	Area		DDM, DAE, BBS	PA
		Livestock	Number		DDM, DOL, BBS	PA
		Fish stock	Number		DDM, DOF, BBS	PA
		Managed forest	Area		DDM, BFD, BBS	PA
Topic 4.1.5. Direct impacts on valuables (SNA asset definition)	a.	Art objects	Number	▪ National ▪ Division ▪ District	TBD	NA
	b.	Music instruments	Number		TBD	NA
	c.	Other valuables	Number		TBD	NA
Topic 4.1.6. Natural resource (SNA asset definition= Non-managed)	a.	Land including soil (Top Soil)	Area		TBD	NA
	b.	Primary forest	Area		TBD	NA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
	c.	Fish stock	Area		TBD	NA
	d.	Freshwater	Area		TBD	NA
	e.	Other natural resources	Area		TBD	NA
Topic 4.1.7. Critical goods and services	a.	Inventories (SNA asset definition)			TBD	NA
		Inventories/intermediate and final food products			TBD	NA
		Inventories/other products			TBD	NA
Topic 4.1.8. Critical infrastructures		Hospitals, health facilities	Number		DGHS, DDM	PA
		Education facilities	Number		DDM	PA
		Other critical public administration building	Number		PDB, LGED, DDM, BFD	PA
		Public monuments	Number		PDB, LGED, DDM, BFD	PA
		Roads	Number		PDB, LGED, DDM, BFD	PA
		Bridges	Number		PDB, LGED, DDM, BFD	PA
		Transport equipment	Number		PDB, LGED, DDM	PA
		ICT equipments	Number		DGICT, DDM	PA
		Dams	Number		DDM, BFD, BBS	NA
Topic 4.1.9. Direct impact on cultural heritage zone		UNESCO cultural heritage site	Number		Department of Archaeology	NA
		National cultural heritage designations	Number		Department of Archaeology	NA
		Urban heritage	Number		Department of Archaeology	NA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		Other heritage designations	Number		Department of Archaeology, BFD	NA
Topic 4.1.10. Direct impact on cultural heritage objects		Building and monuments	Number		Department of Archaeology	NA
		Other components	Number		Department of Archaeology	NA
Sub-component 4.2: Technological Disasters						
Topic 4.2.1: Occurrence of technological disasters	a.	Occurrence of technological disasters		▪ By event ▪ By ISIC economic activity ▪ National ▪ Division ▪ District	Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA	PA
		1. Type of technological disaster (industrial, transportation, miscellaneous)	Description			
		2. *Location*	Location		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA	PA
		3. *Date of occurrence*	Date		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA	PA
		4. *Duration*	Time period		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA	PA
Topic 4.2.2: Impact of technological disasters	a.	People affected by technological disasters		▪ By event ▪ National ▪ Division ▪ District		
		1. Number of people killed	Number		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA	PA
		2. *Number of people injured*	Number		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA	PA
		3. *Number of people homeless*	Number		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		4. *Number of people affected*	Number		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA	PA
	b.	Economic losses due to technological disasters (e.g., damage to buildings, transportation networks, loss of revenue for businesses, utility disruption)	Currency	▪ By event ▪ By ISIC economic activity ▪ National ▪ Division ▪ District ▪ By direct and indirect damage	Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA	PA
	c.	Physical losses/damages due to technological disasters (e.g., area and amount of crops, livestock, aquaculture, biomass)	Area, Description, Number		DAE, DOE, DOL, DOF, DDM	NA
	d.	Effects of technological disasters on integrity of ecosystems		▪ By event ▪ National ▪ Division ▪ District		
		1. *Area affected by technological disasters*	Area		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA, DAE, DOE, DOL, DDM	NA
		2. *Loss of vegetation cover*	Area		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA, DAE, DOE, DOL, DDM	NA
		3. *Area of watershed affected*	Area		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA, DAE, DOE, DOL, DDM	NA
		4. *Other* (e.g., for oil spills: volume of oil released into the environment, impact on ecosystem)	Description		Fire Service and Civil Defence, BRTA, Bangladesh Police, BIWTA, DAE, DOE, DOL, DDM	NA
	e.	*External assistance received*	Currency	▪ By event ▪ National ▪ Division ▪ District	ERD	NA
Sub-component 4.3: Direct Environmental Impact						
Topic 4.3.1. Direct impact on global		Emission of GHGs	Volume/ Mass		DOE	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Units	Computation Level	Data Source	Data Status
1	2	3	4	5	6
warming/ climate change	Loss of carbon sequestration capacity	Volume/ Mass		DOE, BFD	PA
	Other direct impact on global warming	Volume/ Mass		DOE	PA
Topic 4.3.2. Direct impacts on ecosystems by land cover	Urban and associated developed areas	Area		Urban Development Authority, DOE	PA
	Homogeneous herbaceous cropland	Area		DOE, DAE	PA
	Agriculture plantation, permanent issues	Area		DOE, DAE	PA
	Agriculture associations and mosaics	Area		DOE, DAE	NA
	Pastures and natural grassland	Area		DOE	NA
	Forest tree cover	Area		DOE, BFD	PA
	Shrub land, bush land, Herbaceous land	Area		DOE, BFD	PA
	Sparsely vegetated area			DOE, SPARSSO	PA
	Natural vegetation association and mosaics			DOE	PA
	Barren land			DOE	PA
	Open wetland			DOE	PA
	Inland water bodies			DOE, BWDB	PA
	Coastal water bodies and inter-tidal areas			DOE, BWDB	PA
Topic 4.3.3. Losses of natural water resources (quantitative and qualitative)	Losses due to pollution of natural surface water			DOE	NA
	Losses due to pollution of groundwater			DOE	NA
	Losses due to destruction of natural surface water reserve			DOE	NA
	Losses due to destruction of groundwater reserve			DOE	NA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
Topic 4.3.4. Loss of critical ecosystem		Man and Biosphere and other biological reserves (UNESCO, UNEP)			DOE	NA
		Other designated ecosystem/ habitat			DOE	NA
		Ecosystems hosting threatened species (IUCN Red list)			DOE	PA
		Other critical ecosystem			DOE	NA
Sub-component 4.4: Expenditure Account						
Topic 4.4.1. Activity expenditure account (current plus investment)		Disaster Risk Prevention			DDM/BBS	NA
		Disaster Risk Mitigation			DDM/BBS	NA
		Disaster Management			DDM/BBS	NA
		Disaster Recovery			DDM/BBS	NA
		General government Research and Development, Education			DDM/BBS	NA

Component 5: Human Settlement and Environment Health

Concerned Theme/ Topic		Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Units	Computation Level	Data Source	Data Status
1		2	3	4	5	6
Component 5: Human Settlement and Environment Health						
Sub-component 5.1: Human Settlements						
Topic 5.1.1: Urban and rural population	a.	Population living in urban areas	Number	▪ Urban ▪ Rural	BBS	A
	b.	Population living in rural areas	Number		BBS	A
	c.	Total urban area	Area		BBS	A
	d.	Total rural area	Area		BBS	A
	e.	Population living in coastal areas	Number		BBS/DDM	A
Topic 5.1.2: Access to selected basic services	a.	**Population using an improved drinking water source**	Number	▪ Urban ▪ Rural ▪ National ▪ Division ▪ District	DPHE, City Corporations, BBS	A
	b.	**Population using an improved sanitation facility**	Number		DPHE, City Corporations, BBS	A
	c.	**Population served by municipal waste collection**	Number		LGED, City Corporations, DOE	PA
	d.	*Population connected to wastewater collecting system*	Number	▪ By treatment type (e.g., primary, secondary, tertiary) ▪ National ▪ Division ▪ District	LGED, City Corporations, DOE	NA
	e.	**Population connected to wastewater treatment**	Number			
		Primary			WASA, DOE	NA
		Secondary			WASA, DOE	NA
		Tertiary			WASA, DOE	NA
	f.	**Population supplied by water supply industry**	Number	▪ National ▪ Division District	LGED, City Corporations, DOE	PA
	g.	Price of water	Currency	▪ By source (e.g., piped, vendor)		
		Piped			WASA, City Corporations,	A
		Vendor			BEB	PA
	h.	Population with access to electricity	Number		BEB/PD	A
	i.	Price of electricity	Currency		BEB	A
Topic 5.1.3: Housing conditions	a.	Urban population living in slums	Number		BBS	A
	b.	Area of slums	Area		BBS	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
	c.	Population living in hazard-prone areas	Number	▪ Urban ▪ Rural ▪ National ▪ Division ▪ District	DDM, BBS	A
	d.	Hazard-prone areas	Area		DDM, BBS	P
	e.	*Population living in informal settlements*	Number		BBS	NA
	f.	*Homeless population*	Number		DDM	PA
	g.	*Number of dwellings with adequacy of building materials defined by national or local standards*	Number		BBS	NA
Topic 5.1.4: Exposure to ambient pollution	a.	Population exposed to air pollution in main cities	Number	▪ By Station (e.g., SO_2, NOx, O_3)		
		SO_2			DOE, City Corporations, UDD	A
		NOx			DOE, City Corporations, UDD	A
		O_3			DOE, City Corporations, UDD	A
	b.	*Population exposed to noise pollution in main cities*	Number			PA
Topic 5.1.5: Environmental concerns specific to urban settlements	a.	Extent of urban sprawl	Area		DOE	PA
	b.	Available green spaces	Area		DOE, BFD, DAE	PA
	c.	**Number of private and public vehicles**	Number	▪ By type of engine or type of fuel	BRTA, BIWTA	A
	d.	Population using public modes of transportation	Number		BRTA, BIWTA	A
	e.	*Population using hybrid and electric modes of transportation*	Number		BRTA, BIWTA	A
	f.	Extent of roadways	Length		R&H, LGED	A
	g.	*Existence of urban planning and zoning regulations and instruments in main cities*	Description		Rajuk	A
	h.	*Effectiveness of urban planning and zoning regulations and instruments in main cities*	Description		Rajuk	A
Sub-component 5.2: Environmental Health						
Topic 5.2.1: Airborne diseases and conditions	a.	Airborne diseases and conditions		▪ By disease or condition		
		1. Incidence	Number		DPHE, DG Health Service, NIPORT	A
		2. Prevalence	Number	▪ National ▪ Division ▪ District ▪ Urban ▪ Rural ▪ By gender ▪ By age group ▪ By time period	DPHE, DG Health Service, NIPORT	A
		3. Mortality	Number		DPHE, DG Health Service, NIPORT	A
		4. *Loss of work days*	Number		DPHE, DG Health Service, NIPORT	NA
		5. *Estimates of economic cost in monetary terms*	Currency		DPHE, DG Health Service, NIPORT	NA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
Topic 5.2.2: Water-related diseases and conditions	a.	Water-related diseases and conditions				
		1. **Incidence**	Number		DPHE, DG Health Service, NIPORT	A
		2. **Prevalence**	Number		DPHE, DG Health Service, NIPORT	A
		3. **Mortality**	Number		DPHE, DG Health Service, NIPORT	A
		4. *Loss of work days*	Number		DPHE, DG Health Service, NIPORT	NA
		5. *Estimates of economic cost in monetary terms*	Currency		TBD by BBS	NA
Topic 5.2.3: Vector-borne diseases	a.	Vector-borne diseases				
		1. **Incidence**	Number		DPHE, DG Health Service, NIPORT	A
		2. **Prevalence**	Number		DPHE, DG Health Service, NIPORT	A
		3. **Mortality**	Number		DPHE, DG Health Service, NIPORT	A
		4. *Loss of work days*	Number		DPHE, DG Health Service, NIPORT	NA
		5. *Estimates of economic cost in monetary terms*	Currency		TBD by BBS	NA
Topic 5.2.4: Health problems associated with excessive UV radiation exposure	a.	Problems associated with excessive UV radiation exposure				
		1. *Incidence*	Number		BAEC, DG Health Service, NIPORT	NA
		2. *Prevalence*	Number		BAEC, DG Health Service, NIPORT	NA
		3. *Loss of work days*	Number		BAEC, DG Health Service, NIPORT	NA
		4.*Estimates of economic cost in monetary ters*	Currency		TBD by BBS	NA
Topic 5.2.5: Toxic substance- and nuclear radiation-related diseases and conditions	a.	Toxic substance-and nuclear radiation-related diseases and conditions		▪ By category of toxic substance ▪ By disease or condition ▪ National ▪ Division ▪ District ▪ Urban ▪ Rural ▪ By gender ▪ By age group		
		1. Incidence	Number		BAEC, DG Health Service, NIPORT	NA
		2. Prevalence	Number		BAEC, DG Health Service, NIPORT	NA
		3. *Loss of work days*	Number		BAEC, DG Health Service, NIPORT	NA
		4. *Estimates of economic cost in monetary terms*	Currency		TBD by BBS	NA

Component 6: Environmental Protection, Management and Engagement

Concerned Theme/ Topic		Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)	Units	Computation Level	Data Source	Data Status
1		2	3	4	5	6
Component 6: Environmental Protection, Management and Engagement						
Sub-component 6.1: Environmental Protection and Resource Management Expenditure						
Topic 6.1.1: Government environmental protection and resource management expenditure	a.	Government environmental protection and resource management expenditure		▪ By environmental activity ▪ By type of expenditure: current, investment ▪ By ministry ▪ National ▪ Division ▪ District ▪ By funding		
		1. **Annual government environmental protection expenditure**	Currency		DDM, DOE, BWDB, BBS	PA
		2. Annual government resource management expenditure	Currency		DDM, DOE, BWDB, BBS	PA
Topic 6.1.2: Corporate, non-profit institution and household environmental protection and resource management expenditure	a.	Private sector environmental protection and resource management expenditure		▪ By environmental activity ▪ By type of expenditure: current, investment ▪ By ISIC economic activity ▪ National ▪ Division ▪ District		
		1. Annual corporate environmental protection expenditure	Currency		DDM, DOE, BWDB, BBS	NA
		2. *Annual corporate resource management expenditure*	Currency		DDM, DOE, BWDB, BBS	NA
		3. *Annual non-profit institution environmental protection expenditure*	Currency		DDM, DOE, BWDB, BBS	NA
		4. *Annual non-profit institution resource management expenditure*	Currency		DDM, DOE, BWDB, BBS	NA
		5. *Annual household environmental protection expenditure*	Currency		DDM, DOE, BWDB, BBS	NA
		6. *Annual household resource management expenditure*	Currency		DDM, DOE, BWDB, BBS	NA
Sub-component 6.2: Environmental Governance and Regulation						
Topic 6.2.1: Institutional strength	a.	Government environmental institutions and their resources		▪ National ▪ Division ▪ District		
		1. Name of main environmental authority and year of establishment	Description		MoEF	A
		2. Annual budget of the main environmental authority	Currency		MoEF	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		3. Number of staff in the main environmental authority	Number		MoEF	A
		4. List of environmental departments in other authorities and year of establishment	Description		MoEF	A
		5. Annual budget of environmental departments in other authorities	Currency		MoEF	A
		6. Number of staff of environmental departments in other authorities	Number		MoEF	A
	b.	Other environmental institutions and their resources		▪ National ▪ Division ▪ District		
		1. Name of institution and year of establishment	Description		MoEF	A
		2. Annual budget of the institution	Currency		MoEF	A
		3. Number of staff in the institution	Number		MoEF	A
Topic 6.2.2: Environmental regulation and instruments	a.	Direct regulation		▪ By media (e.g., water, air, land, soil, oceans) ▪ By ISIC economic activity ▪ National ▪ Division ▪ District		
		1. **List of regulated pollutants and description** (e.g., by year of adoption and maximum allowable levels)	Description, Number			
		Water			BWDB, WARPO	A
		Air			DOE	A
		Land,			DAE, DOE, BFD	A
		Soil			SRDI	A
		Oceans			TBD	A
		2. Description (e.g., name, year established) of licensing system to ensure compliance with environmental standards for businesses or other new facilities	Description		DOE	A
		3. Number of applications for licences received and approved per year	Number		DOE	A

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		4. List of quotas for biological resource extraction	Number		DOE	PA
		5. Budget and number of staff dedicated to enforcement of environmental regulations	Currency, Number		DOE	PA
	b.	Economic instruments				
		1. *List and description* (e.g., year of establishment) *of green/environmental taxes*	Description, Currency		DOE	NA
		2. *List and description* (e.g., year of establishment) *of environmentally relevant subsidies*	Description, Currency		DOE	NA
		3. *List of eco-labelling and environmental certification programmes*	Description		DOE	NA
		4. Emission permits traded	Number, Currency		DOE	PA
Topic 6.2.3: Participation in MEAs and environmental conventions	a.	Participation in MEAs and other global environmental conventions				
		1. **List and description** (e.g., country's year of participation[(d)]) **of MEAs and other global environmental conventions**	Description, Number		DOE	A
(d)Participation means that the country or area has become party to the agreements under the treaty or convention, which is achieved through various means depending on the country's circumstances, namely: accession, acceptance, approval, formal confirmation, ratification and succession. Countries or areas that have signed but not become party to the agreements under a given convention or treaty are not considered to be participating.						
Sub-component 6.3: Extreme Event Preparedness and Disaster Management						
Topic 6.3.1: Preparedness for natural extreme events and disasters	a.	National natural extreme event and disaster preparedness and management systems		▪ National ▪ Division ▪ District		
		1. Existence of national disaster plans/programmes	Description		DDM	A
		2. Description (e.g., number of staff) of national disaster plans/programmes	Description		DDM	A
		3. Number and type of shelters in place or able to be deployed	Description, Number		DDM	A
		4. *Number and type of internationally certified emergency and recovery management specialists*	Description, Number		DDM	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		5. *Number of volunteers*	Number		DDM	A
		6. *Quantity of first aid, emergency supplies and equipment stockpiles*	Number		DDM	PA
		7. *Existence of early warning systems for all major hazards*	Description		DDM	PA
		8. *Expenditure on disaster prevention, preparedness, clean-up and rehabilitation*	Currency		DDM	PA
Topic 6.3.2: Preparedness for technological disasters	a.	National technological disaster preparedness and management systems				
		1. *Existence and description* (e.g., number of staff) *of public disaster management plans/programmes (and private when available)*	Description		DDM, Fire Service and Fire Defence	A
		2. *Expenditure on disaster prevention, preparedness, clean-up and rehabilitation*	Currency		DDM, Fire Service and Fire Defence	PA
Sub-component 6.4: Environmental Information and Awareness						
Topic 6.4.1: Environmental information	a.	Environmental information systems		▪ National ▪ Division ▪ District		
		1. Existence of publicly accessible environmental information system	Description		DOE	A
		2. Annual number of visits/users of specific environmental information programmes or environmental information systems	Number		DOE	PA
	b.	Environment statistics				
		1. Description of national environment statistics programmes (e.g., existence, year of establishment, lead agency, human and financial resources)	Description		DOE, DDM, BBS	PA
		2. *Number and type of environment statistics products and periodicity of updates*	Description, Number		DOE, DDM, BBS	PA
		3. Existence and number of participant institutions in inter-agency environment statistics platforms or committees	Number		DOE, DDM, BBS	A
Topic 6.4.2: Environmental education	a.	Environmental education				
		1. *Allocation of resources by central and local authorities for environmental education*	Currency		DOE	PA

Concerned Theme/ Topic	Variable/ Indicator (**Bold Text - Core Set/Tier 1**; Regular Text - Tier 2; *Italicized Text - Tier 3*)		Units	Computation Level	Data Source	Data Status
1	2		3	4	5	6
		2. *Number and description of environmental education programmes in schools*	Description, Number		DOE, MOPE	PA
		3. *Number of students pursuing environment-related higher education* (e.g., science, management, education, engineering)	Number		MOE, UGC	PA
Topic 6.4.3: Environmental perception and awareness	a.	Public environmental perception and awareness				
		1. *Knowledge and attitudes about environmental issues or concerns*	Description		DDM, DOE, BBS	PA
		2. *Knowledge and attitudes about environmental policies*	Description		DDM, DOE, BBS	PA
Topic 6.4.4: Environmental engagement	a.	Environmental engagement				
		1. Existence of pro-environmental NGOs (number of NGOs and their respective human and financial resources)	Currency, Number		DDM, DOE, BFD	PA
		2. *Number of pro-environmental activities*	Number		DOE, BFD	PA
		3. *Number of pro-environmental programmes*	Number		DOE, BFD	PA

Annex 3: Sustainable Development Goals[38] (SDGs), associated Targets with Indicators and 7th FYP Targets of Bangladesh

Goal 1. End poverty in all its forms everywhere

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[2]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)	*Lead:* CD (leading the NSSS); *Co-Lead:* GED (as NPFP)	ERD; FD; BB; BFID; LGD; MoA; MoF; MoDMR; MoEWOE; MoFL; MoInd; MoLE; MoSW; MoYS; PMO; RDCD; SID; MoWCA, MoCHTA; MoLWA	• The 7th FYP aims to reduce extreme poverty by about 4.0 percentage points to around 8.9% by FY20 • Replication of successful targeted livelihoods programmes • Support for human capital development for the extreme poor • Undertaking measures for preventing and mitigating shocks • Further expansion of microcredit & micro savings • Expanded and inclusive social protection programmes for the extreme poor	BBS
1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	1.2.1 Proportion of population living below the national poverty line, by sex and age	*Lead:* CD (leading the NSSS); *Co-Lead:* GED (as NPFP)	ERD; FD; LGD; MoA; MoF; MoCHTA; MoDMR; MoEWOE; MoFL; MoHFW; MoInd; MoRA; MoLE; MoSW; MoWCA; MoYS; PMO; RDCD; SID	• The 7th Plan seeks to reduce poverty rate to 18.6% by FY20 • Creating good jobs for the large pool of under-employed and new labour force entrants by increasing the share of employment in the manufacturing sector from 15 percent to 20 percent • Enhanced focus on food productivity and food security • Emphasis on agricultural diversification • Efforts concentrating on labour intensive manufacturing with focus on export diversification • Emphasis to formal services including exports of non-factor services (tourism, shipping and ICT) • Emphasis on worker service exports in order to increase the inflow of remittances with efforts to expand the opportunities to less served areas	BBS
	1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	Ditto	Ditto	Ditto	BBS

[38] Data Gap Analysis of Sustainable Development Goals (SDGs): Bangladesh Perspective, GED, Planning Commission, January 2017

[39] On the basis of the agreed SDG mapping, actions and activities for each SDG target will be devised according to the 7FYP targets by Ministries/Divisions/ Agencies which will be coordinated by GED for preparing "7FYP Action Plan to Implement SDGs".

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[2]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	1.3.1 Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, new-borns, work-injury victims and the poor and the vulnerable	*Lead:* CD (leading the NSSS); *Co-Lead:* GED (as NPFP)	BFID; FD; BB; ICTD; LGD; MoA; MoF; MoEWOE; MoCHTA; MoCA; MoDMR; MoE; MoFL; MoHFW; MoLE; MoLWA; MoPME; MoSW; ; SID MoWCA; MoYS; RDCD	• Spending on Social Protection as a share of GDP to be increased from 2.02% of GDP in FYI5 to 2.3% of GDP by FY20 • Child grant for children of poor and vulnerable family • School stipend for all primary and secondary school going children belonging to the poor and vulnerable households • Strengthening education and training programmes to motivate the adolescent and youth • Supporting workfare programme for the unemployed poor • Programme of financial support to vulnerable women (widows, divorced, destitute, single mother, and unemployed single women) • Old Age Allowance for senior • citizens who are aged 60 years and above and belong to the poor and • vulnerable population • Disability benefit for children suffering from disability • Disability benefit for working age population suffering from disability • Exploring possibilities to establish a National Social Insurance Scheme (NSIS) • Supporting grants to Micro-savings for the poor & vulnerable groups	BBS, DWA, DDM, DSS, DPE, DHE,
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services	*Lead:* CD *Co-Lead:* RDCD	BFID; BB; FD; ICTD; LJD; LPAD; LGD; MoA; MoEF; MoFL; MoL; MoWR; MoYS; MoEWOE; MoWCA; MoInd; MoCHTA; MoLWA; SID	• Special attention to further closing the gap between the rich and the poor in accessing basic services with special focus on the bottom 20 percent where the gap is the highest	BBS, LGED, DAE, DOE, MRA, BFID
	1.4.2 Proportion of total adult population with secure tenure	Ditto	Ditto	The Digital land market reforms will enhance public access to land records, transparent land	BBS, LGED, DAE, DOE, MoL

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[2]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
	rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure			transactions and efficient collection of land revenue through modernization of all land records. Marginalized citizens will be allowed to establish their legal rights on khas land through transparent distribution mechanism.	
1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	1.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 people	*Lead:* MoEF *Co-Lead:* MoDMR	MoHA; MoInf; PTD; MoE; MoEWOE; MoF; MoHFW; MoSW; MoFL, MoWR; LGD; MoLWA; MoWCA; BB; SID; MoA	• Minimizing the climate impact, investment has to be made on the development of new agricultural seeds that would be stress tolerant and be able to grow in such inclement conditions. • More arsenic free tube-wells have to be made available in high level arsenic contamination areas for ensuring safe health of the people • Besides the impact on agricultural production due to floods, short-term measures are needed to help the victims of those disasters immediately. • Increase investment and build more centres where the climate victims can take shelters. This will in turn help any relief activity that would be taken after the disaster. • Prioritize should be given in drought prone areas in terms of inputs (e.g. irrigation, etc.) for agriculture that would help them to tackle droughts. • Extension services to disseminate newly developed technologies and building materials which will be agriculture and environment friendly, disaster resilient and affordable. • Ensuring that the Social Security system supports an effective disaster response system.	DAE, DPHE, DWA, LGED, DDM, BBS
	1.5.2 Direct disaster economic loss in relation to global gross domestic product (GDP)	Ditto	Ditto	Ditto	DDM, BBS
	1.5.3 Number of countries with national and local disaster risk reduction strategies	Ditto	Ditto	Ditto	DDM
1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means	1.a.1 Proportion of resources allocated by the government directly to poverty reduction programmes	*Lead:* FD	ERD; MoFA; PD; IRD; GED	• Undertaking programmes on agriculture, employment generation and rural infrastructure for reducing poverty • Continue and expand people-oriented afforestation Programme for poverty alleviation and increased employment opportunities including women	FD, ERD, IRD, GED, BBS, BFD, DDM, LGED,

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[2]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions				• Scaling up of Poverty Reduction Action Plan (PRAP) for addressing poverty with lessons learnt from the relevant ongoing projects • Increase spending on social protection from 2.0% of GDP in FY2015 to 2.3% in FY2020	
	1.a.2 Proportion of total government spending on essential services (education, health and social protection)	*Lead:* FD	MoE; MoHFW; CD; GED;	• Increase spending on education 2.2% of GDP in FY2015 to 3.0% in FY2020 • Rise Govt. spending on health from 0.8% of GDP in FY2015 to 1.2% in FY2020 • Increase spending on social protection from 2.0% of GDP in FY2015 to 2.3% in FY2020	FD, DGHS, GED, BBS
1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions	1.b.1 Proportion of government recurrent and capital spending to sectors that disproportionately benefit women, the poor and vulnerable groups	*Lead:* GED	MoEF; BFID (BB); ERD; FD; MoFA	• Implementation of Social Security Policy Support Programme	MoFA, ERD, BB, GED, BBS

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	2.1.1 Prevalence of under-nourishment	*Lead:* MoA; *Co-Lead:* MoFL *Co-Lead:* MoF	MoDMR; MoHFW; MoInd; MoWCA; MoInf; MoE; MoPME; SID;	• increasing agriculture-product diversification and consumption for improving nutrition • food security for the national populace including availability, access, utilization and stability • Production and consumption diversification with high value crops including vegetables, fruits, has to be the ideal target for food production in the country. • Implement Bangladesh National Nutrition Policy 2014 • Continue operational plan for National Nutrition Services (NNS) under Health Sector Programme • Implementation of the Children Act 2013 for child nutrition • Pre & Post-Natal Child Care for up to 4 years in order to ensure healthy future generation (free from stunting and mal-nutrition) • Support small and marginal farmers in producing diversified crop suitable for both markets and household consumption to improve their nutritional status.	DGFood, DDM, DOF, DOLS, BBS
	2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)	Ditto	MoDMR; MoHFW; MoInd; MoWCA; MoInf; MoE; MoPME; SID		
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	2.2.1 Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under 5 years of age	*Lead:* MoHFW *Co-Lead:* MoF	MoA; MoDMR; MoFL; MoInd; MoSW; MoWCA; MoInf; MoE; MoPME; SID	• Pre & Post-Natal Child Care for up to 4 years in order to ensure healthy future generation (free from stunting and mal-nutrition) • Implementation of the Children Act 2013 for child nutrition • Implement Bangladesh National Nutrition Policy 2014 • Continue operational plan for National Nutrition Services (NNS) under Health Sector Programme	BBS
	2.2.2 Prevalence of malnutrition (weight for height >+2 or <-2 standard deviation from the	*Lead:* MoHFW *Co-Lead:* MoF	MoA; MoDMR; MoFL; MoInd; MoSW;		BBS

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
	median of the WHO Child Growth Standards) among children under 5 years of age, by type (wasting and overweight)		MoWCA; MoInf; MoE; MoPME; SID		
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size	*Lead:* MoA; *Co-Lead:* MoFL	FD; BFID; BB LGD; MoCHTA; MoDMR; MoF; MoHFW; MoInd (SMEF); MoL; MoSW; MoWCA; MoEF	• creation of secured environment for crop production that ensured food security of the country • rural employment generation • protection of agricultural land, towns, human settlements from river erosion • reclamation of land • better communication • security from water-borne hazards (like flood, cyclone, storm-surges, saline water intrusion, water logging, drought) • Enhancement of agro-based economic activities is a flood-free secured environment. • ensure water supply for agricultural production • ensure public/private funding for agricultural production	DAE, LGED, DDM, DWA, BBS
	2.3.2 Average income of small-scale food producers, by sex and indigenous status	*Lead:* MoInd	MoE; MoA; MoFL; SID		TBD by BBS
2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality	2.4.1 Proportion of agricultural area under productive and sustainable agriculture	*Lead:* MoA	MoEF; MoL; MoWR; MoDMR; MoInd; MoF; LGD; SID	• promote sustainable environment management • primary defence against possible sea level rise resulting from climate change • Expand application of technology and mechanized cultivation. • Encourage research on adaptation to climate change, and proper use of genetically modified technology in agriculture. • develop 'climate-smart food systems' • allowing inclusive bottom-up participation in adaptation decision making • Mainstream poverty-environment-climate-disaster nexus in the project design phase, budgetary process, project implementation and monitoring processes • Promote multiple land use technology like agro-forestry to ensure increased productivity and supplement agricultural production • Continue and expand people-oriented	DAE, DDM, DOE, LGED, BBS

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
				afforestation Programme for poverty alleviation and increased employment opportunities including women • ensure timely supply of fertilizers • emphasis/support will be given for the production of bio-fertilizers and facilitating their increased use • Rebalancing of fertilizer subsidy for encouraging balanced use of fertilizers • programme to encourage farmers to adopt pragmatic measure using balanced fertilizers to maintain soil fertility	
2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed	2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities	*Lead:*MoA *Co-Lead:* MoFL	MoC; MoEF; MoFL; MoFA	• implement seed policy 1993 • private sector involvement in research and development of hybrid and HYV seed • agencies under the MOA, BADC and Horticulture Centres of DAE, will be further strengthened • seed production activities through biotechnology will be expanded • emphasis will be given on creating facilities and infrastructure support for hybrid seed production, marketing and development • Farmers will be given training and technical assistance to extend improved methods of seed production, testing, storage and post-harvest management. • research on crop enrichment and diversification • Recruit more women agricultural workers and increase their participation in the technology innovation;	DAE, DOE, BFD, BADC
	2.5.2 Proportion of local breeds classified as being at risk, not-at-risk or at unknown level of risk of extinction	Ditto	Ditto		DAE, DOE, BFD, BADC
2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services,	2.a.1 The Agriculture Orientation Index (AOI) for Government Expenditures	*Lead:* MoA	FD; LGD; ERD; MoFL; MoFA; PD; GED	• creation of secured environment for crop production that ensured food security of the country • rural employment generation • protection of agricultural land, towns, human	DAE, ERD, GED, BBS

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries				settlements from river erosion • reclamation of land • better communication • security from water-borne hazards (like flood, cyclone, storm-surges, saline water intrusion, water logging, drought) • Enhancement of agro-based economic activities is a flood-free secured environment. • ensure water supply for agricultural production • ensure public/private funding for agricultural production	
	2.a.2 Total official flows (official development assistance plus other official flows) to the agriculture sector	*Lead:* ERD	LGD; MoFL; MoA		ERD
2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round	2.b.1 Producer Support Estimate	*Lead:* MoC	FD; MoA; MoFA; MoFL	• Rural areas of lagging districts would get special priority in agricultural credit disbursement and agricultural subsidy Programme. • Reducing anti-export bias of the trade regime – export bias of the current import, tariff and subsidy regime that favours import-substituting production over exports • Continuing price support and input subsidy to farmers	FD, MoFA, DAE, Tariff Commission, MoC BFID (BB)
	2.b.2 Agricultural Export Subsidies	*Lead:* FD	MoA; MoC		MoC, FD, BFID (BB)
2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility	2.c.1 Indicator of food price anomalies	*Lead:* MoC *Co-Lead* MoF	MoInf; MoPA; SID	• food storage, distribution, and access will be ensured • 'Climate-smart food systems', ensuring that climate threats to other elements of food systems beyond agriculture, such as storage, distribution and access are taken into consideration. • Improved private storage and transportation facilities will be motivated for ensuring spatial and seasonal availability of foods • Measures for maintaining improved public stock management; keeping adequate pubic storage facilities and enhanced effectiveness of Open Market Sale are the important strategies for maintaining a non-discretionary food grain market.	BBS, Bangladesh Tariff Commission, MoC

Goal 3. Ensure healthy lives and promote well-being for all at all ages

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2 -	- 3	4	5	6
3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents	3.6.1 Death rate due to road traffic injuries	*Lead:* RTHD	BD; MoE; MoHA; MoInf; LGD; CD; MoPME; MoHFW	• Take measures to maintain the roads • Provide special attention while planning and designing for construction of a road • Gradual increase in socio-economic activities of the growing population for road widening • Improving on transport safety standards to reduce incidence of accidents by implementing safety audit periodically. • Improvement of road safety engineering in rural roads to minimize road accidents. • achieving 50% reduction in road traffic accident fatalities by 2020 in line with the UN Decade • of Action for Road Safety	BRTA, BP, DGHS MoHFW, RTHD
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	3.9.1 Mortality rate attributed to household and ambient air pollution	*Lead:* MoEF	MoHFW; MoLE; SID	• Expanding air quality management activities, focusing on gross diesel polluters, and the extension of air quality monitoring to major cities. • Strict enforcement to control dust and other emissions at the construction site • Strict enforcement of Brick Kiln Act 2013 for phasing out of traditional brick Kiln. • Introduce cleaner fuel & transport standards to achieve environmental sustainability. • Facilitate greater investment in public, mass transit options for cities	DGHS, Inspection for Factories and Establishments, MoLE, NIPORT
	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)	*Lead: LGD*	MoHFW; MoEF; MoInf; MoPME	• Protecting surface water resource base of greater Dhaka • Encouraging future industrial development only in designated industrial development zones • Drainage rehabilitation of Dhaka city through excavation of canals • Shifting the dependence on water supply from groundwater to surface water, with improvement in surface water quality	DGHS, MoHFW, BBS, DOE, NIPORT
	3.9.3 Mortality rate attributed to unintentional poisoning	*Lead:* MoHFW	MoInf; MoRA		DGHS, NIPORT, DOE

Goal 6. Ensure availability and sustainable management of water and sanitation for all

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1 Proportion of population using safely managed drinking water services	*Lead:* LGD	MoInf; MoPME; MoInd (BAB); SID	• Ensuring safe water facilities for all through the development of different water supply options • the development of different water supply options in affected areas • Ensuring safe water facilities in the hydro-geologically difficult and problematic areas • Establishment of WSS HRD centre in DPHE to ensure adequate supply of trained and skilled manpower • Establishment of the NAWASIC (National Water Supply & Sanitation Information Centre) in DPHE • Establishment of water quality examination, monitoring and surveillance systems • Update and strengthen "Organizational Setup" of DPHE to orient it to support the LGIs. • Continue with hydrological and hydro-geological investigation for ground and surface water • DPHE has to carry out and look after information management and R&D activities of the WSS sector to support policy making and strategic planning • Gradual shift of DPHE from its exclusive role of "Service provider" to the role of "Service provider and Facilitator". • Modern water management technology to be promoted to enhance irrigation efficacy and water productivity through optimal use of available water resources	BBS
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	6.2.1 Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water	*Lead:* LGD	MoE; MoInf; MoPME; MoWCA; PMO; MoF; MoHFW; MoEF; SID	• Ensuring sanitation facilities for all through the development of different sanitation options • Sustaining & replication of Total Sanitation Campaign with a variety of water supply initiatives. • Ensuring sanitation facilities in the hydro-geologically difficult and problematic areas • Ensuring safe sanitation facilities for all through	BBS

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
				the development and up- gradation of different sanitation options • Increase access to sanitation facilities to all rural people.	
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.1 Proportion of wastewater safely treated	*Lead:* LGD *Co-Lead:* MoEF	MoInd; MoFA; MoTJ; MoF; MoWR; MoS	• Urban areas need integrated water treatment and efficient water supply facilities. • Shifting the dependence on water supply from groundwater to surface water with improvement in surface water quality • Construction, operation and maintenance of water treatment plants, water abstraction facilities and water distribution system for providing drinking water to public, industries and commercial organizations,	DOE, DPHE, LGD (WASA for City Corporations)
	6.3.2 Proportion of bodies of water with good ambient water quality	Ditto	Ditto	Ditto	DPHE, LGD, DoE
6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	6.4.1 Change in water-use efficiency over time	*Lead:* LGD; *Co-Lead:* MoA *Co-Lead:* MoInd	MoS; MoWR; MoFA;	• Monitor, control and prevent environmental pollution and degradation related to water • Undertake environmental assessment • Implementation of emission, effluent and waste management strategy • Expansion of small scale irrigation technology and surface water for irrigation • Implement Water Act 2013 • Implement programmes of BDP 2100 • Design and implement different Water Management Programme • programme for dry season irrigation coverage • efficient use of irrigation water • increase surface water use for irrigation • limit ground water use for irrigation	BWDB, WARPO, DOE, DPHE, LGD
	6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	Ditto	Ditto	Ditto	BWDB, WARPO, DOE, DPHE, LGD

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
6.5 By 2030, implement integrated water resources management at all levels, including through trans boundary cooperation as appropriate	6.5.1 Degree of integrated water resources management implementation (0-100)	*Lead:* MoWR *Co-Lead:* MoFA	GED; LGD	• Strategies required for improvement of water resource management for supporting agriculture growth. • Enhanced water management to emphasize the sustained and balanced use of water resources for irrigation, drinking water and water transport • A comprehensive long term water resource management plan is in place under the umbrella of the Bangladesh Delta Plan. • Introduced Participatory Water Management approach • Basin-wide Water Resources Development Initiative • The Ganges Barrage Project with ancillary infrastructure • River dredging to be carried out	MoFA, BWDB, WARPO, DOE, JRC, DPHE, LGD
	6.5.2 Proportion of trans boundary basin area with an operational arrangement for water cooperation	Ditto	Ditto	Ditto	MoFA, BWDB, WARPO, JRC, DOE, DPHE, LGD
6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	6.6.1 Change in the extent of water-related ecosystems over time	*Lead:* MoWR	CD; MoCHTA; MoEF; MoFL; MoFA	• The DoE has to apply its legal authority to recognize and manage any ecosystem as an Ecologically Critical Area (ECA). • Maintain the inland river systems and ecosystems for fishery, sediment transport, and inland shipping, • protecting dry season water flows, restoration of habitat and fish species; • Integrated Coastal Fisheries Resource Management; • Maintenance of ecosystem health and management of pollution; • Coping with climate changes has yielded positive results • Conserve and protect forest ecosystems for biodiversity and overall environmental stability, • Efforts will be made to reduce the coverage of eucalyptus trees which are not deemed suitable	MoFA, BWDB, WARPO, BFD, DOE

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
				for Bangladesh. • Programmes will be taken to protect the threatened and endangered species of flora and fauna and the fragile ecosystems. • Half/reduce rate of salinity intrusion and mitigate impacts of salinity on human health and agro-ecosystem production. • Proper ecosystem management is required to ensure the sustainability of natural resources without hampering the livelihood of people dependent on the goods and services. • Conduct assessment of ecosystem degradation in terms of heavy metal contamination and nutrient loss. • Identification of wetland ecosystems significant for biodiversity to be declared and managed as ECAs. • Assessment of ecosystem degradation and mitigate impacts of drought in dry land Barind ecosystem • Valuation of goods and services provided by ecosystem and biodiversity will be accomplished towards integration of the values into the national accounting system. • Polluting the ecosystems from all sources will, wherever possible, be stopped or minimized • An appropriate IT/ITeS business ecosystem has to be established • An innovation ecosystem comprising of required infrastructure, well trained human resources and supportive policy regime need to be established • Use of Science and Technology as a means of sustainable use of Environment, Ecosystem and Resources contribute to world pool of knowledge in Science and Technology • Support product innovation & creation ecosystem	

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
6.a By 2030, expand international cooperation and capacity-building support to developing countries in water-and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	6.a.1 Amount of water-and sanitation-related official development assistance that is part of a government-coordinated spending plan	*Lead:* ERD, *Co-Lead:* MoWR	LGD; MoEF; MoFA; MoInd	• Generation of adequate resource allocation through ensuring GoB fund, resource mobilization from other sources • Explore the strategies to encourage the Public-Private partnership in the development of infrastructure for adequate WSS service and its subsequent O&M	ERD, MoFA, MoInd, BWDB, WARPO
6.b Support and strengthen the participation of local communities in improving water and sanitation management	6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management	*Lead:* LGD	MoPA; AWRRID; LGD; MoWR	• Local Government will be charged to expand the role of citizen committees and strengthening participation of citizens from different groups • Creation of water reservoir/ rain water harvesting in rain fed/coastal/hilly areas to be encouraged, • Ensured implementation of provisions of community participation under the Social Forestry Rules, Water Management Policy, Forestry Sector Policy, WATSAN Policy and so on. • Community participation in relevant associations and groups would be ensured and monitored	LGED, LGD, BWDB, DPHE

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Proportion of population with access to electricity	*Lead:* PoD	EMRD; MoST; MoFA	• Government's target to ensure electricity reaches every household by FY2021. • Power generation capacity targets of 23,000 MW by FY2020 (end of Seventh Plan); 24,000 MW by 2021; and 40,000 MW by 2030. • Projected share of coal based power from only 3 percent (FY2015) to 21 percent by the end of the Seventh Plan and subsequently to 50 percent by FY2030 • Expansion/up-gradation of 1,50,000 (km) electric distribution line • Construction/Up-gradation of 480 sub-station • New 70,00,000 consumer connection • 30,000 Village electrification • 40 Switching station construction • 40 (Set) River crossing tower construction • Replacement of 1,90,000 Overloaded Distribution transformer • Replacement of 75,00,000 electromechanical/digital meter by pre-paid meter • Rehabilitation and Intensification of 25,000 (Km) Distribution System • Establish Gas Allocation Policy (incl. LPG and Biogas Alternative policy) • Domestic Gas Exploration Policy • Domestic Coal Export Policy • Develop Energy Subsidy Policy • Promote Use of LPG in Domestic and Transport Sector • Import LNG Strategy • Planning for Import Coal Facilities	PoD, PDB, REB
	7.1.2 Proportion of population with primary reliance on clean fuels and technology	*Lead:* PoD	MoST; MoInf;	• Price policy needs to be adjusted to minimize the difference between LPG and pipelined gas tariffs • Biogas can also be considered as the alternative	SREDA, PD

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
				of pipeline natural gas. • Bangladesh urgently needs to focus on investment for gas exploration and development. Subsequently, LNG import should be considered to ensure smooth supply of natural gas. • Both onshore and offshore oil and gas options should be pursued. • Obtaining extra LNG buying power, co-purchasing with India or other South Asian countries could be sought; • Periodical contract review to seek more favourable conditions of a contract and domestic resource development could also be pursued. • Implement the planned study to design coal Centre with the capacity of 12 million ton in Matarbari area. • Implementation of Demand Side Management (DSM) and Energy Conservation • Dissemination of Improved Cooking stove (ICS). • Institutional Reforms in Energy: Improvements are needed in the technical and negotiation capacity of the Ministry and associated energy agencies.	
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	7.2.1 Renewable energy share in the total final energy consumption	*Lead:* PoD	ERD; MoFA; EMRD	• 500WM Solar Programme (340MW commercial purpose and 160MW social sector) • Commercial Projects: (a) Solar Park (grid connected); (b) Solar Irrigation; (c) Solar Mini-grid/micro-grid; and (d) Solar rooftop. • Social projects: (a) Rural health centres; (b) Remote educational institutes; (c) Union e-Centres; (d) Remote Religious Establishment; (e) Off-grid Railway Stations; and (f) Government & Semi-Government Offices in the off-grid areas. • 15 MW Wind Power Plant • IPPs (100 MW & 60 MW) (after Wind Resource Assessment) • Installation of 15,000 Solar Irrigation Pump • Total 800MW of power generate through renewable energy by FY2017 with a target of 10% of the total electricity to be met from renewable resources by FY2020	SREDA, PD

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
7.3 By 2030, double the global rate of improvement in energy efficiency	7.3.1 Energy intensity measured in terms of primary energy and GDP	*Lead:* PoD; *Co-Lead:* EMRD	ERD; MoFA; BERC	• Energy Efficiency and Conservation Programme • Financial Incentive Mechanism for Improved Cooking Stove	SREDA, PD, BERC, EM, HCU, EMR, RD, ERD, BBS
7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	7.a.1 Mobilized amount of United States dollars per year starting in 2020 accountable towards the $100 billion commitment	*Lead:* ERD	EMRD; MoEF; MoFA; PoD; MoST; PD; BB		ERD, MoE, DOE, BB
7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support	7.b.1 Investments in energy efficiency as a percentage of GDP and the amount of foreign direct investment in financial transfer for infrastructure and technology to sustainable development services	*Lead:* PoD; *Co-Lead:* EMRD	ERD; IED; MoFA; PID, MoInd (BSTI); MoST		PoD, SREDA, Petro Bangla, GSB, BBS, BERC, PD, BIDA, PMO

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries	8.1.1 Annual growth rate of real GDP per capita	FD	BFID (BB); GED; MoA; MoCAT; MoC; MoFL; MoInd; PD; MoEWOE; SID; BD; PMO (PPPA); LGD; ICTD; MoE	• Maintain long term overall prudent macroeconomic management through an appropriate mix of fiscal, monetary and exchange rate policies • Investment rate needs to expand from 28.9% in FY2015 to around 34.4% by FY 2020 • Composition of investment in favour of infrastructure and manufacturing • Adoption of improved technology for improving total factor productivity • Enhancing the quality of the workforce thru investment in education and skills development of labour force • Trade reforms are essential to eliminate the bias against an export-led growth strategy	FD, GED, BBS
8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors	8.2.1 Annual growth rate of real GDP per employed person	*Lead:* MoC; *Co-Lead:* MoInd; *Co-Lead:* MoA;	MoLE; MoEWOE; MoST; MoTJ; MoFL; ICTD; BB; MoE; SID	• Investment in technology that contributes to improvement in capital efficiency • Spending on research and development (R&D) in order to technological development, innovation and adoption of technological change • Strengthen combined effect of market orientation, deregulation, and trade liberalization	BBS, DoL
8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10 Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead	8.4.1 Material footprint, material footprint per capita, and material footprint per GDP	*Lead: ERD* *Co-Lead:* GED	MoA; MoFL MoF; MoEF; BB; MoFA; MoInd		ERD, GED, DoE, BBS

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products	8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate	*Lead:* MoCAT; *Co-Lead:* MoCA	MoE; MoInf; LGD; MoR; RTHD; MoEF; MoCHTA; BB; SID	• Ecotourism and community-based tourism to be encouraged as a means of income generation for the local people • Introduce measures to address issues pertaining to the supply and quality of workforce in the tourism industry • Substantial investments in education and tourism infrastructure • Adopt a proper strategy and policies to address inadequacy of domestic air connectivity combined with heavily congested land transport to boost growth of the tourism industry • Preparation of short Term, Mid-Term and Long-Term Tourism Master Plan for the country for guiding development activities for tourism	BBS
	8.9.2 Number of jobs in tourism industries as a proportion of total jobs and growth rate of jobs, by sex	Ditto	Ditto		BBS

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	9.1.1 Proportion of the rural population who live within 2 km of an all-season road	*Lead:* RTHD	BD; MoHPW; MoR; MoS; SID; PID; MoInd; LGD; EMRD; MoCAT; MoDMR; MoL; MoFA; PMO (BEZA, PPPA)	• Continue to repair, maintain, improve and expand existing roads on a priority basis • Construction of Padma Multipurpose Bridge to be completed by 2018 • Conversion of nationally important highways into four lanes gradually • Connect important economic activity hubs such as Payra Port and Economic Zones to National Highways. • Continuation of investment to reform and modernise railways. • Construction of circular rail road track around Dhaka city. • Construction of the 3rd Sea port at Payra in Patuakhali. • Construction of a sea port and an LNG terminal at Moheshkhali • Construction of third terminal at Hazrat Shah Jalal International Airport (HSIA) • Construction of a new airport named Khan Jahan Ali Airport • Feasibility study for construction of Bangabandhu Sheikh Mujib International Airport. • Feasibility study for construction of a road-rail tunnel underneath the river Jamuna. • Strengthen Fleet capacity while making Biman a profitable organisation by improving its management and enhancing the capacity of passenger transport. • The development of a balanced 3R (Rail, River & Road) based multimodal transport infrastructure system. • Timely completion of critical transport links (roads, bridges, railways and river waterways) related to regional and multi-regional connectivity. • Combining inland water transport with the existing road transport system as well as ensuring a healthy road alignment. • Priority to regional transport connectivity • Reducing maintenance frequency and thereby	RTHD, MoCAT, BD, BBS, LGED, LGD

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
				recurring cost of roadways, utmost attention should be given to make road infrastructure durable. • Develop middle-income enabled quality infrastructures with high-speed mobility facilities. • Emphasis should be given to build necessary access control infrastructures as well as to enforce different conflicting usages of right of way (r.o.w.) throughout the transport corridor. • Construction of 300 km four lane roads • Construction of 340 km roads other than four lane • Improvement/ Rehabilitation of 2,500 km roads • Construction of 7, 000 meter Flyover/Overpass • Construction of 14,800 meter bridges/culverts • Reconstruction of 6,800 meter bridges/culverts • Improvement of the Upazila Road (5000 Km). • Double lane/Widening/ Up gradation/Rehabilitation of selected Upazila /Union Roads that needs up-gradation being used by a large number of commercial vehicles (10000 Km) • Improvement of the selected Union Road. (8000 Km) • Improvement of prioritized Village Road (12000 Km) • Re-construction/Double lane of Bridges and Culverts on Upazila Road, Union Roads (12000 Meter) being used by a large number of commercial vehicles • Construction of Bridges and Culverts on Upazila Road, Union Roads (140000 Meter) • Construction of Bridges and Culverts on prioritized Village Road (50000 M) • Development of Growth Centres and Rural Markets -1200 Nos • Construction of all remaining Union Parishad Complexes (1900 Nos) • Extension of Upazila Complexes (400 Nos) • Construction and rehabilitation of Cyclone Shelters and killas (1238 Nos) • Land Use Planning and Management Project	

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
				in the Upazillas of Bangladesh • Periodic and Routine maintenance of Paved and Herring Bone Bond (HBB) roads & structures on rural roads • Coordinate the Roads, Railway and inland water cargo linkages to strengthen the performance of Chittagong Port and the competitiveness of the manufacturing sector.	
	9.1.2 Passenger and freight volumes, by mode of transport	*Lead:* RTHD	MoR; MoS; MoCAT		BRTA, RTHD, BIWTC, MoS, MoCAT, BBS
9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	9.4.1 CO_2 emission per unit of value added	*Lead: MoInd* *Co-Lead: MoLE* *Co-Lead: MoC* *Co-Lead: MoTJ*	BD; LGD; MoS; RTHD; MoR; MoA; MoFA	• The growth strategies of the 7th FYP are broad-based enough to emphasize eradicating poverty as well as sustained economic growth while maintaining the healthy functioning of the Earth's ecosystems. • Incentives for adoption of improved fuel use efficiency and energy conservation technology in industry; • Produce environment friendly organic Bio-fertilizers, Bio- gas that will reduce fuel consumption, increase sugar cane production and also consider using molasses to produce alcohol/spirit. • DoE should have strong role as National Designated Entity (NDE) of International Climate Technology Centre and Network (CTCN) in order to facilitate transfer of climate and environment friendly technologies and know how to Bangladesh through CTCN • Special emphasis should be given for extension services to disseminate newly developed technologies and building materials which will be agriculture and environment friendly, disaster resilient and affordable. • Research and development for innovation of environment friendly sustainable technology for the economically constrained communities • Harnessing technology and innovation to fast track development • The productivity of both labour and capital can be raised through adoption of better technology and efficiency improvements. • Developing women friendly technology and business environment	BD, LGED, DOE, DAE

Goal 10. Reduce inequality within and among countries

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 percent of the population at a rate higher than the national average	10.1.1 Growth rates of household expenditure or income per capita among the bottom 40 per cent of the population and the total population	*Lead:* GED	FD; LGD; MoA; MoCHTA; MoCA; MoFL; MoHFW; MoLE; MoEWOE; MoLWA; MoSW: MoWCA; PD	• Adoption of long-term income inequality reduction strategy in order to reduce the initial gap of income inequality • Lagging region would get priority while setting up special economic zones. • Implementation of human development strategy with emphasis on alleviating the access gap for the poor • Facilitation of asset accumulation through better access to credit for the poor for reducing income inequality • Operationalization of strategy for social inclusion by eliminating physical and social barriers • Increased public spending on social sectors • Manufacturing activity needs to be promoted in the lagging districts.	BBS
10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	10.2.1 Proportion of people living below 50 per cent of median income, by age, sex and persons with disabilities	*Lead:* GED	FD; LGD; MoA; MoCHTA; MoCA; MoFL; MoHFW; MoLE; MoLWA; MoPA; MoRA; MoSW; MoWCA; PD; SID; MoInd (BITAC); MoFA;	• Adoption of long-term income inequality reduction strategy in order to reduce the initial gap of income inequality • Implementation of human development strategy with emphasis on alleviating the access gap for the poor • Facilitation of asset accumulation through better access to credit for the poor for reducing income inequality • Operationalization of strategy for social inclusion by eliminating physical and social barriers • Increased public spending on social sectors	BBS

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing	*Lead:* MoHPW	LJD; LPAD; LGD; SID	• Improvement of Slums: All relocation/resettlement of dwellers of untenable slums/informal settlements should be implemented in accordance with the Resettlement guidelines as prepared. • Improve inclusive housing and other civic services for urban inhabitants including for people living in informal settlements and slums • Providing housing for all including shelter less and implanting the goals and objectives of the Housing Policy through construction of 7000 residential flats, and 5000 plots during the 7th Plan • For Sustainable water supply strategy, WASA should increase water production ratio where 70% will come from surface water and 30% from ground water. • Improving sanitation services ensuring sanitation facilities for city dwellers by increasing the existing coverage from 40% to 60% during the 7th plan period. • Increasing the existing coverage of drainage system from 60% to 80%. • Basic leases should be used along with group tenure arrangements, whereby block is registered under a lease agreement to the group or a local authority. • Providing collective tenure security for communities can eliminate the need for individual titling and will ameliorate land speculation and price increases; • Private land-owners should be encouraged to set up lease contracts with occupiers which protect the interest of all parties; • Activities involving urban infrastructure contribute to the sustainability of the manufacturing and services sector growths through the urbanization strategy.	LGED, BBS

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities	*Lead:* RTHD, *Co- Lead:* MoR	LGD; MoHA; BD; MoS; MoSW; MoWCA; MoInf	• Implementation of the MRT Line-6 project from Uttara to Motijheel under the supervision of Dhaka Transport Coordination Authority (DTCA). • Construction of the 46.73 km. long Dhaka elevated express way from Hazrat Shah Jalal International Airport to Kutubkhali of Dhaka-Chittagong highway. • 42 km long Dhaka-Ashulia elevated express way from Hazrat Shah Jalal (Ra) International Airport to Chandra Dhaka East-West expressway • Bus rapid transit (BRT) for mass transit • Implementation of revised STP for Dhaka,- two BRT and 5 MRT lines Feasibility study for construction of Sub-way (underground railway) in Dhaka city • Construction of a multi-lane tunnel underneath the river Karnaphuli in Chittagong • Construction of circular rail road track around Dhaka city.	BRTA, BRTC, BIWTA, BIWTC, BR, CAAB, BBS
11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.1 Ratio of land consumption rate to population growth rate	*Lead:* MoHPW	LGD; MoL	• Ensuring better utilization of land resources and mitigating increased demand for housing and urban services; • Protecting, preserving and improving the urban environment, particularly those of the water bodies; • Devolving authority at the local urban level and strengthening local governments through transfer of appropriate powers, governance improvement programme, capacity development activities • Improve resource mobilization, provide better service delivery and regulatory functions	MoL, PWD, LGED, BBS (RAJUK, CDA, KDA etc.)
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of	*Lead:* MoCA	MoE; MoPME; MoRA; MoYS; MoFA; MoCAT	• Enriching the intellectual status of the nation through preservation, research and development of culture, history, heritage, arts and literature • Preserve and promote language, arts and culture of ethnic communities through cultural centres in tribal areas. • Restore and preserve many of the intangible cultural heritages that are on the verge of extinction, digitization efforts should be implemented.	MOE, DDM, Department of Archaeology (DOA), BFD, BBS

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
	expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)			• Reiterate the importance of archaeological sites by conducting national surveys and programmes for further development. • The Antiquities Act should be amended to strengthen protection of archaeological sites and historical monuments. • Programmes should be undertaken to develop museums and folk art. • Preserve and present national history, culture and heritage; • Protect copy rights of intellectual property.	
11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	11.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 people	*Lead:* MoDMR	MoHA; MoS; MoWR, MoD; MoHFW;	• Strengthen national early warning systems regarding cyclones, storm surge and floods to enable more accurate forecasts. • Improvement of quick communication system between the reverie and costal belt of southern zone of the country and capital city especially in the time of natural disaster. • Assessment of disaster situation and recommendation to declare state of disaster emergency and issuance of evacuation notices and monitor disaster early warning dissemination. • Identification and implementation of preventive, emergency and post-disaster mitigation measures will be made; • Coordination of all activities in relation to disaster management and relief incorporating disaster risk reduction and emergency response management. • Mainstreaming Disaster Risk Reduction across line ministries and agencies at all levels, local governments, NGO, CBOs, civil society and all other stakeholders. • Implementation of the refugee related programmes.	DDM, BBS, DGHS, BFD
	11.5.2 Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of basic services	*Lead:* MoDMR	MoHA; MoS; MoWR, MoD; MoHFW; SID	Ditto	DDM, BBS

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities	*Lead:* LGD	MoEF; MoInd; PoD	• Ensuring cities are sustainable and more efficient with promotion of environment friendly activities in development of interventions. • Disseminate newly developed technologies and building materials which will be agriculture and environment friendly, disaster resilient and affordable. On a pilot basis, steps should be taken for construction of 75 low cost multi-storeyed residential building at different villages during the 7th Plan period.	DOE, LGD (City Corporations), BBS
	11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	Ditto	Ditto	Ditto	DOE, LGED
11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities	*Lead:* LGD	MoEF; MoHPW; MoL; MoSW; MoWCA	• In urban and peri-urban areas the government should preferably not transfer land in freehold to occupants, rather choose leases as the instrument for granting tenure for publicly-owned land and especially local authority land; • Leases with various conditions of title should be utilized and this may vary according to the capacity of the authority, the urban area and the residents; • Implementation of the revised Master Plan of Urban Local Bodies	LGD (City Corporations), MoHPW (Development Authorities, i.e. RAJUK, CDA, KDA etc.) DOE, BFD, MoL, BBS
11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	11.a.1 Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city	*Lead:* LGD; *Co-Lead:* MoHPW	AWRRID; GED; IED; MoEF; PID; PD; SEID; RDCD	• Ensuring legitimate comprehensive development plans for future development of urban areas of Bangladesh • Ensuring regionally balanced urbanization through polycentric decentralized development and hierarchically structured urban system;	LGD (City Corporations) MoHPW (Development Authorities), GED, BBS
11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all	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	*Lead:* LGD; *Co-Lead:* MoDMR	AWRRID; MoEF; MoHA; MoFA; MoHPW	• Undertake responsibility for planning and implementing a wide range of infrastructure provision in urban and peri-urban areas. • Development of Growth Centre centric Urban centres in selected Upazillas of Bangladesh-300 Nos • Implementation of the disaster related programmes/projects undertaken due to adverse impacts of climate change. • Approval, administration and monitoring of safety net programmes.	DDM, LGED

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
levels				• Construction and Maintenance of small bridges/culverts, multi-purpose disaster shelters, cyclone shelters, flood shelters with a view to eliminating/ reducing disaster risks. • Establish, strengthen and improve the national disaster response mechanism.	
	11.b.2 Number of countries with national and local disaster risk reduction strategies	*Lead:* MoDMR	LGD		DDM, LGED
11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials	11.c.1 Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilizing local materials	*Lead:* ERD	MoEF; MoFA; MoHPW	• Liaison with regional and international organizations and matters related to treaties and agreements with other countries and world bodies relating to subjects allotted to this Ministry.	ERD, DOE, BFD

Goal 12. Ensure sustainable consumption and production patterns

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 12.1 Implement the 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	12.1.1 Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies	*Lead:* GED *Co-Lead:* MoFA	MoEF; MoInd; FD; MoA; MoFL; MoF		DOE, GED
12.2 By 2030, achieve the sustainable management and efficient use of natural resources	12.2.1 Material footprint, material footprint per capita, and material footprint per GDP	*Lead:* MoEF	EMRD; MoWR; MoInd; MoL		DOE, BFD, BBS
	12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	Ditto	Ditto		DOE, BFD, BBS
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	12.3.1 Global food loss index	*Lead:* MoF *Co-Lead:* MoA	MoInf; MoC; MoFL; SID;		TBD by BBS
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement	*Lead:* MoEF	LGD; MoA; MoInd; MoHFW; MoTJ		LGED, DOE
	12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment	*Lead:* LGD *Co-Lead:* MoEF	MoInd; MoST; MoHFW		LGED, DOE, MoST
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	12.5.1 National recycling rate, tons of material recycled	*Lead:* LGD	MoEF; MoInd; SID		LGED, DOE

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	12.6.1 Number of companies publishing sustainability reports	*Lead:* MoInd;	MoEF; MoC; MoFA		MoInd, DoE
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	12.8.1 Extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	*Lead:* MoE, *Co-Lead:* MoPME	GED; MoEF; PMO; MoInd (BIM); MoInf		MoEF, MoPME
12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	12.a.1 Amount of support to developing countries on research and development for sustainable consumption and production and environmentally sound technologies	*Lead:* ERD *Co-Lead:* MoFA	MoEF; MoInd; MoC		ERD, DOE
12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	12.b.1 Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools	*Lead:* MoCAT	MoCA; MoEF; MoCHTA	• Promoting and revitalize tourism industries, an integrated land use and transport planning for all the potential water front sites viz. Cox's Bazar, Jaflong, Kuakata etc. should be adopted in an urgent basis.	MoCA, DOE, BFD MoCAT
12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	12.c.1 Amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels	*Lead:* FD	IRD; EMRD; PoD	• proper pricing of gas for domestic use in order to minimize the energy subsidy pressure on the budget	FD, PoD, EMRD

Goal 13. Take urgent action to combat climate change and its impacts

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	13.1.1 Number of countries with national and local disaster risk reduction strategies	*Lead:* MoDMR	MoEF; MoHA (FSCD); LGD, MoPA, MoD	• Mainstream poverty-environment-climate-disaster nexus in the project design phase, budgetary process, project implementation and monitoring processes. • Policy measures should be taken to attract microfinance in environmentally vulnerable areas such as cyclone prone coastal areas, land locked and other flood prone areas and disaster prone areas. • Formulation, review and execution of legislation, policies, plans, procedures, standing orders and guidelines in relation to overall disaster risk reduction and emergency response management including relief rehabilitation and safety net programmes. • Relief and disaster risk reduction programmes, planning, and monitoring. • Disaster Management Framework and Key Policies/Programmes • Develop risk assessment and CCA inclusion guideline and promote DRR and CCA inclusion in development planning process. • Promote structural and non-structural investment • Encourage different hazard based contingency planning • Establish the National Emergency Operations Centre (EOC) and fully operationalise it.	DDM

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
	13.1.2 Number of deaths, missing persons and persons affected by	Ditto	Ditto	Ditto	DDM, BBS, DGHS, BFD
13.2 Integrate climate change measures into national policies, strategies and planning	13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)	*Lead:* GED	MoEF; AWRRID MoDMR; MoFA; PD	• Promote a whole-of government approach for climate change readiness to develop a national institutional framework. • Enhance understanding, knowledge, capacity and coordination for better CC management. • Adopt planned development approach integrating CCA into development so that co-benefits may be accrued from development spending.	GED, DDM, DOE, BFD
13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula	*Lead:* MoEF, *Co-Lead:* MoDMR	MoE; MoPME; MoHA; MoInf; MoInd (BIM); MoD; LGD	• Design skill-focused training for resilient agriculture, industry, infrastructure, trade and other fields on principles of practical resilience • Initiate research to understand how resilience principles could be used to improve education at different levels in Bangladesh. • Mainstream poverty-environment-climate-	DOE, DDM, BFD, LGED, MoE, BMD
	13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer,	*Lead:* MoEF, *Co-Lead:* MoDMR	MoE; MoPME; MoHA; MoInf; MoInd (BIM); MoPA; MoD; LGD	• Ensure effective environmental management activities by allowing inclusive bottom-up participation in adaptation decision making, especially at the community level • Promote participatory, community-based	DOE, BFD, DDM, LGED

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
	and development actions			environmental resource management and environmental protection (considering the access for the poor, equity, as well as gender issues) along with community based adaptation.	
13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	13.a.1 Mobilized amount of United States dollars per year starting in 2020 accountable towards the $100 billion commitment	*Lead:* MoEF	ERD; MoFA; BB	• one of the key strategies of the Seventh Five Year Plan will be to ensure effective partnership with development partners to ensure better use and results of foreign assistance.	ERD, BB, DOE, BFD
13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	13.b.1 Number of least developed countries and small island developing States that are receiving specialized support, and amount of support, including finance, technology and capacity-building, for mechanisms for raising capacities for effective climate change-related planning and management, including focusing on women, youth and local and marginalized communities	*Lead:* MoEF	ERD; GED; MoInd	• Support from development partners may be sought to analyse potential NIEs and to enhance their respective capacities including fiduciary capacities and practices.	ERD, GED, DOE, BFD

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	14.1.1 Index of coastal eutrophication and floating plastic debris density	*Lead:* MoWR	MoD (BN); MoEF; MoFA; MoST; MoS; MoD; MoHA; MoFL	• Coastal zone policy and coastal zone strategy to be put to use • Establish proper Waste Reception Facilities at port(s) and contingency plan to fight against oil spillage. • Declaration of Marine Ecological Critical Area	BWDB, WARPO, BMD, SPARRSO, Coast Guard, DOF, DLS, DOE, BN, MoD
14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	14.2.1 Proportion of national exclusive economic zones managed using ecosystem-based approaches	*Lead:* MoWR; *Co-Lead:* MoS	MoEF; MoST; MoD; MoHA (Coast Guard); MoFL; MoFA	• Coastal Green Belt will be created • Involve local community with allocating appropriate property rights in the management of the SMF	DOE, BFD
14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations	*Lead:* MoEF	MoST; MoFL; MoFA; EMRD; MoS;MoInd; MoD		DOE
14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	14.4.1 Proportion of fish stocks within biologically sustainable levels	*Lead:* MoFL	MoD (BN); MoHA; SID	• Formation of National Marine Fisheries Policy during the 7th FYP • Inventory of Marine Biological Resources and development of management plan for resources. • Rapid assessment of fisheries stocks by species in recently resolved South-West waters of EEZ (19,467 sq. km) • Creation of alternative livelihood opportunities for the people, depending on the SMF, to lessen population pressure. • Promote development of technology for production of seed for culturing marine fish and seaweed. Community organizations of shrimp farmers and other primary stakeholders will be supported with technology, input, financing and market linkage by contract growing system run by the processing plants and monitored by the DOF and partner NGOs. • Promote development of technology for production of seed for culturing marine fish, and seaweed.	DOE, BFD, BN, Coast Guard, DOF, DLS

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	14.5.1 Coverage of protected areas in relation to marine areas	*Lead:* MoEF; *Co-Lead:* MoFL	MoD (BN); MoFA; MoHA; MoS	• 5% of coastal and 1.34% of marine areas are targeted to be protected by 2020.	DOF, MoS, DOE, BFD, BN, Coast Guard
14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation (Taking into account on going World Trade Organization negotiations, the Doha Development Agenda and the Hong Kong ministerial mandate).	14.6.1 Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing	*Lead:* MoFL *Co-Lead:* MoD (BN)	FD; MoC; MoFA; MoHA	• Programme on protection of IUU (illegal, unreported and unregulated) fishing in Bangladesh waters	DoF, BN, MoD, Coast Guard
14.7 By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	14.7.1 Sustainable fisheries as a percentage of GDP in small island developing States, least developed countries and all countries	*Lead:* MoFL	LGD; MoCAT; SID	• extending fishing areas using new technologies and methods even beyond EEZ in the international waters	LGED, DOF, BBS
14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of	14.a.1 Proportion of total research budget allocated to research in the field of marine technology	*Lead:* MoST; *Co-Lead:* MoS	MoD; MoE; MoFL; MoFA; MoHA; FD	• Institutional capacity building of the concerned agencies, strengthening of monitoring, Control and Surveillance system in the Bay of Bengal • Promote development of technology for production of seed for culturing marine fish and seaweed. • Identify conservation needs and methods that	FD, MoST, BN, Coast Guard, DOE, DOF,

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries				can be effectively administered and regularly monitored.	
14.b Provide access for small-scale artisanal fishers to marine resources and markets	14.b.1 Progress by countries in the degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries	*Lead:* MoFL	MoD; MoHA (CG)		DOF, BN, Coast Guard
14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of "The future we want"	14.c.1 Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nation Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources	*Lead:* MoFA	MoEF; MoHA; MoS; MoFL		MoFA, DOE, BFD, BN, DOF, Coast Guard

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

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Target 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	15.1.1 Forest area as a proportion of total land area	*Lead:* MoEF	MoA; MoCHTA; MoL; MoWR; MoFL; MoS	• Increase productive forest coverage to 20% by 2020 • 15% of land covered by forestry with 70% tree density • At least 15% of the wetland in peak dry season is protected as aquatic sanctuary. • Restore 20,000 acres of denuded Chokoria – Sundarbans Reserve Forest	MoCHTA, BFD, BWDB, WARPO, MoL, MoS
	15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	Ditto	Ditto	• .Maintaining the coastal polders is a major challenge, while ensuring community level climate sustainability is also important. • Resolving social conflicts and disputes regarding community level water management • Ensure effective environmental management activities by allowing inclusive bottom-up participation in adaptation decision making, especially at the community level • Promote participatory, community-based environmental resource management and environmental protection	MoCHTA, BFD, BWDB, WARPO, MoL, MoS
15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 Progress towards sustainable forest management	*Lead:* MoEF	MoL; LGD; CD; MoInf	• Strengthen forestry extension activities to transfer improved technology and research information to the end-users. • Conserve the Sundarbans Mangrove Forest (SMF) without any further deforestation and forest degradation. • Ensure no forest land shall be converted for non-forest use • Ensure no commercial plantation in protected forest areas where only native species for	MoL, LGED, BFD, DOE

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
				enrichment and restoration purposes can be undertaken. • Creation of alternative livelihoods to lessen pressure on the SMF • Rivers and canals of the SMF will not be used for transporting goods and materials and other business purposes. • Enhance social forestry programmes	
15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	15.3.1 Proportion of land that is degraded over total land area	*Lead:* MoEF *Co-Lead:* MoL	MoA; MoWR; LGD, MoDMR	• Promote science-led agriculture technology systems and encourage research and adoption of modern agricultural practices for development of drought, submergence and saline prone agriculture considering water and time economy, adaptation to climate change, proper use of genetically modified technology in agriculture, and promote adoption of modern agricultural practices in dry land, wetland, hills and coastal areas including use of environment friendly green technologies (e.g. IPM, INM, AWD, etc.) and climate-smart/resilient technologies; • introduce salinity, submergence and other stress tolerant varieties specially in the Southern regions; • Establish national drought monitoring system • Assessment of ecosystem degradation and mitigate impacts of drought in dry land *Barind* ecosystem.	DOE, BFD, BWDB, WARPO, LGED, DDM, MoA, MoL
15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable	15.4.1 Coverage by protected areas of important sites for mountain biodiversity	*Lead:* MoEF	MoA; MoCHTA; MoCAT; MoL; LGD		DOE, BFD, MoL, LGED, MoCHTA, MoCAT

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
development					
	15.4.2 Mountain Green Cover Index	*Lead:* MoEF	MoCHTA;		BFD, DOE, MoCHTA MoL, LGED,
15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	15.5.1 Red List Index	*Lead:* MoEF	MoFL; MoA; MoInf	• Initiative will be undertaken to update NBSAP in line with the Aichi Biodiversity Targets and implement the NBSAP as global commitments. • Ensure integration of biodiversity into National Adaptation Plan (NAP) and nationally appropriate mitigation action (NAMA). • Assess and benefits sharing mechanisms will be established as well as Nagoya Protocol on ABS will be ratified with enactment of Bangladesh Biological Biodiversity Act. • National capacity will be built to address the research and development on genetic resources. • Create awareness and education on biodiversity • Use indigenous and traditional knowledge on Biodiversity • Stop and minimise ecosystem pollution from all sources.	DOE, BFD, IUCN
15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed	15.6.1 Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits	*Lead:* MoEF	MoA; MoFL MoST		MoA, DOE, BFD
15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products	15.7.1 Proportion of traded wildlife that was poached or illicitly trafficked	*Lead:* MoEF	LJD; MoFL; MoHA	• Undertake special protection measures to minimise the existing threats • Review IUCN Red list and other documents on the state of endangered and threatened species • Keep the Sundarbans' bio-physical characteristics intact through all sorts of protective measures.	BFD, IUCN, DoE
15.8 By 2020, introduce measures to prevent the introduction and	15.8.1 Proportion of countries adopting relevant national	*Lead:* MoEF	MoA; MoFL	• - Ensure no commercial plantation in protected forest areas where only native species for	DOE, BFD

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	legislation and adequately resourcing the prevention or control of invasive alien species			enrichment and restoration purposes can be undertaken. • - Bangladesh Biological Diversity Act will be enacted as well as necessary rules will be framed.	
15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	15.9.1 Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020	*Lead:* MoEF	GED; LGD; SID	• Value goods and services provided by ecosystem and biodiversity to accomplish integration of these values into the national accounting system. • Enhance PES with appropriate strategies and policies for poverty reduction	DOE, BFD, LGED
15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems	15.a.1 Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems	*Lead:* ERD *Co-Lead:* FD	MoFA; MoEF		DOE, BFD, ERD, FD
15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation	15.b.1 Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems	*Lead:* ERD	FD; MoEF; MoFA		DOE, BFD, ERD, FD
15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities	15.c.1 Proportion of traded wildlife that was poached or illicitly trafficked	*Lead:* MoEF; *Co-Lead:* MoFA	LGD; MoHA; MoD	• Review IUCN Red list • Apply global commitments as a party to the United National Convention on Biological Diversity. • Bring new areas under forest coverage through social forestry • Sustain and replicate community based resource management • Enhance reforestation and forest protection under carbon credit and REDD	LGED, DOE, BFD

Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Sustainable Development Goal and associated Targets	SDGs (Environment-related) Indicators for Measurement	Lead Ministries/ Divisions	Associate Ministries/ Divisions	[1]Actions to achieve the SDG targets during 7th FYP (2016-2020)	Data Producing Ministries/Divisions/ Departments/Org.
1	2	3	4	5	6
Finance Target 17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection	17.1.1 Total government revenue as a proportion of GDP, by source	*Lead:* IRD	ERD; FD; GED; SID; MoFA	• 7FYP stipulates that all aid data be made public and the Aid Information Management System (AIMS) should be the principal means of data sharing by DPs in Bangladesh	NBR, IRD, BBS
	17.1.2 Proportion of domestic budget funded by domestic taxes	*Lead:* FD	IRD	• A major part of the ADP will be financed from domestic sources comprising fiscal savings and borrowing from the domestic banking and nonbank sources.	FD, IRD, BBS
17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of gross national income for official development assistance (ODA/GNI) to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries	17.2.1 Net official development assistance, total and to least developed countries, as a proportion of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee donors' gross national income (GNI)	*Lead:* ERD	FD; MoFA	• Foreign assistance as percentage of ADP and budget support TARGET not fixed for 2020 • Percentage of (a) concessional loan and (b) grants to total foreign assistance not fixed • Net foreign assistance received by Bangladesh, as percentage of OECD/DAC donor's GNI	FD, ERD
Data, monitoring and accountability 17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts	17.18.1 Proportion of sustainable development indicators produced at the national level with full disaggregation when relevant to the target, in accordance with the Fundamental Principles of Official Statistics	*Lead:* SID (BBS)	BB; ERD; FD; IRD; MoE; MoPME; MoEF; MoHFW; EMRD; ICTD; PTD; LGD; MoA; MoF; MoCHTA; MoHA; MoPA; MoWCA; MoEWOE; MoHPW; MoFA; MoFL; GED		GED, BBS

Annex 4: All Committees

1. Inter-Ministerial Technical Working Committee

Sl. No.	Name, Designation and Office (Not according to seniority)	Designation in the Committee
1	2	3
1.	**Mr. Md. Amir Hossain,** Director General (Additional Secretary), Bangladesh Bureau of Statistics (BBS)	**Chairperson**
2.	**Mr. M. A. Mannan Howlader,** Additional Secretary (Dev.), Statistics and Informatics Division, Ministry of Planning	Member
3.	**Mr. Md. Baitul Amin Bhuiyan,** Deputy Director General (Additional Secretary), Bangladesh Bureau of Statistics (BBS)	Member
4.	**Dr. Quayyum Ara Begum,** Director (Joint Secretary), Statistical Staff Training Institute (SSTI), BBS	Member
5.	**Dr. Mohammad Rezaur Rahman,** Professor, Institute of Water and Flood Management (IWFM), BUET, Dhaka	Member
6.	**Dr. Md. Maksudur Rahman, Professor,** Department of Geography and Environment, University of Dhaka, Dhaka	Member
7.	**Dr. Md. Mustafizur Rahman,** Joint Chief (cc), General Economics Division (GED), Planning Commission	Member
8.	**Dr. Nurun Nahar,** Deputy Chief, Programming Division, Planning Commission, Sher-E-Bangla Nagar, Dhaka	Member
9.	**Mr. Pradip Kumar Mahottam,** Deputy Chief, Socio Economic Infrastructure Division, Planning Commission	Member
10.	**Mr. Md. Ziaul Haque,** Director, Department of Environment, Paribesh Bhaban, Agargaon,, Dhaka	Member
11.	**Dr. Md. Abdus Salam,** Principal Scientific Officer, Bangladesh Space Research and Remote Sensing Organization, Agargaon, Dhaka	Member
12.	**Dr. Shamal Chandra Das,** Executive Engineer, Bangladesh Water Development Board (DWDB), WAPDA Building, Motijheel, Dhaka	Member
13.	**Dr. Md. Taibur Rahman,** Chief Scientific Officer, Soil Resource Development Institute (SRDI), Dhaka	Member
14.	**Dr. S. M. Mustafizur Rahman,** DPM, NCDC, Director General of Health Services (DGHS), Mohakhali, Dhaka	Member
15.	**Dr. Md. Aminul Haque,** Chairman, Department of Population Sciences, University of Dhaka, Dhaka	Member
16.	**Mr. Muhammad Humayun Kabir,** Deputy Secretary, Branch: NORDIC-1, Economic relations Division (ERD)	Member
17.	**Mr. S.M. Abdul Malek,** General Manager, Environment & Safety Division, Petrobangla, Kawran Bazaar C/A, Dhaka	Member
18.	**Mr. Kazi Mofizul Hoq,** Statistical Officer, Department of Fisheries, Ramna, Dhaka	Member
19.	**Mr. Abul Kalam Azad,** Director, National Accounting Wing, BBS	Member
20.	**Mr. Ghose Subabrato,** Director, Industry & Labour Wing, BBS	Member
21.	**Mr. Md. Zahidul Hoque Sardar,** Director (Deputy Secretary), Census Wing, BBS	Member
22.	**Mr. Jafor Ahmed Khan,** Director (Deputy Secretary) (Addtl. Charge), Agriculture Wing, BBS	Member

Sl. No.	Name, Designation and Office (Not according to seniority)	Designation in the Committee
1	2	3
23.	**Mr. Md. Nazrul Islam,** Director (In-charge), Computer Wing, BBS	Member
24.	**Mr. Mashud Alam,** Director (Deputy Secretary), Demography and Health Wing, BBS	Member
25.	**Mr. Mohammad Abdul Kadir Mia**, Director, FA & MIS Wing, BBS	Member
26.	**Ms. Mitali Parvin,** Research Associate, Bangladesh Institute of Development Studies (BIDS), Agargaon, Dhaka	Member
27.	**Mr. Md. Zaheer Iqbal,** Deputy Conservator of Forests, RIMS Unit, Department of Forest	Member
28.	**Mr. Mohammad Ashraful Kamal,** Deputy Director, Geological Survey of Bangladesh, Pioneer Road, Segunbagicha, Dhaka	Member
29.	**Ms. Kamrun Nahar,** Office in Charge (EOC), Department of Disaster Management, Mohakhali, Dhaka	Member
30.	**Mr. Md. Mahbubur Rahman,** ICT Specialist, Information & Communication Technology, New DOHS, Mohakhali, Dhaka	Member
31.	**Ms. Zakia Yasmin Joarder,** Deputy Director (Training), Department of Women Affairs, Dhaka	Member
32.	**Mr. Mohammad Samsul Alam,** Lecturer, Institute of Statistical Research and Training (ISRT), University of Dhaka	Member
33.	**Mr. Golam Rabbani,** Senior Fellow, Bangladesh Centre for Advanced Studies (BCAS), Gulshan-1, Dhaka	Member
34.	**Ms. Shakil Arvin Zomo,** Additional Deputy Director, Crops Wing, Department of Agriculture Extension, Farmgate, Dhaka	Member
35.	**Dr. Md. Golam Rabbani,** Livestock Officer (Reserve), Depart of Livestock Service (DLS), Farm Gate, Dhaka	Member
36.	**Mr. Md. Bazlur Rashid,** Climatologist, Storm Forecast Centre, Department of Meteorology, Agargaon, Dhaka.	Member
37.	**Mr. Md. Izazul Haque,** Lecturer, Department of Disaster Science and Management, University of Dhaka	Member
38.	**Mr. Sarder Shafiqul Alam,** Senior Research Coordinator International Centre for Climate Change and Development (ICCCAD), Bashundhara R/A, Dhaka	Member
39.	**Ms. Sharmin Nahar Nipa,** Lecturer, Centre for Climate Change and Environmental Research (C3ER), Brac University, Mohakhali, Dhaka	Member
40.	**Deputy Director (All),** National Accounting Wing, Bangladesh Bureau of Statistics (BBS)	Member
41.	**Mr. Md. Rafiqul Islam,** Deputy Director and National Focal Point Officer, ECDS Cell, BBS	**Member-Secretary**

2. Report Review Committee

Sl. No.	Name, Designation and Office (Not according to seniority)	Designation in the Committee
1	2	3
1.	**Mr. A B M Zakir Hossain,** Additional Secretary (Dev.), (Addtl. Charge), Statistics and Informatics Division (SID), Ministry of Planning	**Chairman**
2.	**Ms. Shahanun Nesha,** Joint Secretary, Statistics and Informatics Division (SID), Ministry of Plann	Member
3.	**Dr. Quayyum Ara Begum,** Director (Joint Secretary), Statistical Staff Training Institute (SSTI), BBS	Member
4.	**Mr. Md. Solaiman Mondol,** Deputy Secretary (Devlopment), Statistics and Informatics Division (SID), Ministry of Planning	Member
5.	**Mr. Md. Tarikul Alam,** Deputy Secretary (Budget ,Financial management and co-ordination), Statistics and Informatics Division (SID), Ministry of Planning	Member
6.	**Mr. Jafor Ahmed Khan,** Director (Deputy Secretary) (Addtl. Charge), Agriculture Wing, BBS	Member
7.	**Mr. Md. Mir Hossain,** Deputy Secretary (Development-3), Statistics and Informatics Division (SID), Ministry of Planning	Member
8.	**Ms. Nurjahan**, Deputy Secretary (Dev.-1), Statistics and Informatics Division (SID), Ministry of Planning	Member
9.	**Mr. Md. Maniruzzaman Khan,** Deputy Secretary (Budget), Statistics and Informatics Division (SID), Ministry of Planning	Member
10.	**Ms. Sufia Akhter Rumi,** Senior Assistant Secretary (Development), Statistics and Informatics Division (SID), Ministry of Planning	Member
11.	**Mr. Mohammad Anowar Hossain,** Senior Assistant Secretary, Statistics and Informatics Division (SID), Ministry of Planning	Member
12.	**Mr. Md. Rafiqul Islam,** Deputy Director and National Focal Point Officer (NFPO), ECDS Cell, BBS	**Member-Secretary**

3. Monitoring Committee

Sl. No.	Name, Designation and Office (Not according to seniority)	Designation in the Committee
1	2	3
1.	**Mr. A B M Zakir Hossain,** Additional Secretary (Admin), Statistics and Informatics Division, Ministry of Planning	**Chairman**
2.	**Mr. Md. Tarikul Alam,** Deputy Secretary, Statistics and Informatics Division, Ministry of Planning	Member
3.	**Mr. Md. Maniruzzaman Khan,** Deputy Secretary (Budget), Statistics and Informatics Division, Ministry of Planning	Member
4.	**Mr. Mohammad Anowar Hossain,** Senior Assistant Secretary, Statistics and Informatics Division (SID)	Member
5.	**Mr. Showmitra Kumar Paul,** Administrative Officer (Admin-2), Statistics and Informatics Division, Ministry of Planning	Member
6.	**Mr. Md. Jahurul Islam,** (Admin-2), Statistics and Informatics Division, Ministry of Planning	Member
7.	**Mr. Md. Rafiqul Islam,** Deputy Director and National Focal Point Officer (NFPO), ECDS Cell, BBS	**Member-Secretary**

4. Editor's & PD's Forum

Sl. No.	Name, Designation and Office (Not according to seniority)	Designation in the Committee
1	2	3
1.	**Mr. Jafor Ahmed Khan,** Director (Deputy Secretary) (Addtl. Charge), Agriculture Wing, BBS	**Convenor**
2.	**Dr. Quayyum Ara Begum,** Director (Joint Secretary), Statistical Staff Training Institute (SSTI), BBS	Member
3.	**Mr. Mohammad Abdul Kadir Mia**, Director, FA & MIS Wing, BBS	Member
4.	**Mr. Satya Ranjan Mondal**, Deputy Project Director (Deputy Secretary), National Household Database (NHD) Project, BBS	Member
5.	**Mr. Md. Zahidul Hoque Sardar,** Director (Deputy Secretary), Census Wing, BBS	Member
6.	**Mr. Ghose Subobrata,** Director, Industry and Labour Wing, BBS	Member
7.	**Mr. Md. Mashud Alam,** Director, Demography and Health Wing, BBS	Member
8.	**Mr. Md. Nazrul Islam,** Director (In-Charge), Computer Wing, BBS	Member
9.	**Mr. Kabir Uddin Ahmed,** Project Director, Labour Market Information System (LMIS) Project, BBS	Member
10.	**Mr. Bidhan Baral,** Project Director, Agriculture Market Information System (AMIS) Project, BBS	Member
11.	**Dr. Dipankar Roy,** Project Director (Deputy Secretary), Household Income and Expenditure Survey (HIES) Project, BBS	Member
12.	**Mr. Md. Dilder Hossain,** Project Director, Economic Census 2013 Project, BBS	Member
13.	**Mr. A K M Ashraful Haque**, Project Director, Monitoring the Situation of Vital Statistics of Bangladesh Project, BBS	Member
14.	**Mr. Jatan Kumar Saha,** Project Director, Optical Data Archive and Networking (ODAN) Project, BBS	Member
15.	**Mr. Md. Alamgir Hossen,** Project Director, Census of the Undocumented Myanmar Nationals Staying in Bangladesh Project, BBS	Member
16.	**Mr. Md. Moyazzem Hossain,** Project Director, Digitization of BBS Publications Project, BBS	Member
17.	**Mr. Md. Rafiqul Islam,** Deputy Director, ECDS Cell, BBS	Member
18.	**Mr. Abul Kalam Azad,** Director, National Accounting Wing, BBS	**Member-Secretary**

Annex 5: Designated Focal Points Officers/Members

SL. No	Total FPO	Name of the Focal Points Officers/Members from different Ministries/ Divisions/ Dept./ Org. with designation and contact
1	2	3
1.	**Ministry of Disaster Management and Relief (MoDMR):**	
	1	**Mr. Sultan Mahmud** Additional Secretary Ministry of Disaster Management and Relief (MoDMR) Bangladesh Secretariat Cell: +88 01711391067 Email: m_sultan_s@yahoo.com, jsbudget@modmr.gov.bd
	2	**Ms. Julekha Sultana** Joint Secretary (DM Admin) Ministry of Disaster Management and Relief (MoDMR) Bangladesh Secretariat Cell: +88 01720676277 Email: jsdmadmin@modmr.gov.bd
2.	**Ministry of Finance (Finance Division and Economic relations Division):**	
	3	**Mr. Muhammad Humayun Kabir** Deputy Secretary Branch: NORDIC-1 Economic relations Division (ERD) Room # 14, Block # 07, T&T 9145466 (Off) Cell: +88-01716227673 E-mail: ds-nordic1@erd.gov.bd sasd1power@gov.bd
3.	**General Economics Division (GED), Planning Commission:**	
	4	**Dr. Md. Mustafizur Rahman** Joint Chief (cc) Poverty Analysis and Monitoring Wing General Economics Division (GED) Planning Commission Cell: +88-01726-224804 T & T: 9117115 Email: imustafiz@yahoo.com
	5	**Mr. Md. Monirul Islam** Deputy Chief Poverty Analysis and Monitoring Wing General Economics Division (GED) Planning Commission Cell: +88-01711-464513 T & T: 9117334 Email: monirulislam.71@gmail.com
4.	**Programming Division, Planning Commission:**	
	6	**Dr. Nurun Nahar** Deputy Chief Socio-economic Wing Programming Division Planning Commission Sher-E-Bangla Nagar, Dhaka-1207 Cell: +88-01777-330644 T & T: 9114076 Email: n.nurun@gmail.com

SL. No	Total FPO	Name of the Focal Points Officers/Members from different Ministries/ Divisions/ Dept./ Org. with designation and contact
1	2	3
5.	Agriculture Water Resources and Rural Institutions Division, Planning Commission:	
	7	**Ms. Yasmin Pervin** Deputy Chief Forest, Fisheries And Livestock Wing, Planning Commission Sher-E-Bangla Nagar, Dhaka-1207 Phone: +88-02-9180973 Cell: 01751-596740 Email: yasmeenparveen@yahoo.com
6.	Socio Economic Infrastructure Division, Planning Commission:	
	8	**Mr. Pradip Kumar Mahottam** Deputy Chief Socio Economic Infrastructure Division Planning Commission Sher-E-Bangla Nagar, Dhaka-1207 Cell: +88-01715-401885 Email: pkmahottam@gmail.com
7.	Department of Environment (DOE):	
	9	**Mr. Mohmmed Solaiman Haider** Director Department of Environment Paribesh Bhaban, E/16 Agargaon,Sher-e-Bangla Nagar Dhaka-1207 Email: haider@doe.gov.bd Cell: +88-01817-116050
	10	**Mr. Md Ilias Mahmud** Assistant Director Department of Environment Paribesh Bhaban, E/16 Agargaon,Sher-e-Bangla Nagar Dhaka-1207 Email: etac-du@yahoo.com Cell: +88-01557-026301
8.	Department of Disaster Management (DDM):	
	11	**Mr. Md. Anisur Rahman** Director (E & M) Department of Disaster Management Cell: +88-01711-056098 Email: rohmananisur@yahoo.com
	12	**Mr. S. M. Shafiqul Islam** Deputy Director (E & M) Department of Disaster Management Cell: +88-01715-446559
	13	**Ms. Kamrun Nahar** Office in Charge (EOC) Department of Disaster Management Email: kamrunddm@gmail.com Cell: +88-01728362227
9.	Bangladesh Forest Department (BFD):	
	14	**Mr. Md. Zaheer Iqbal** Deputy Conservator of Forests, RIMS Unit Department of Forest Cell: +88-01711443750 Email: z.iqbal60@gmail.com dcf-rims@bforest.gov.bd

SL. No	Total FPO	Name of the Focal Points Officers/Members from different Ministries/ Divisions/ Dept./ Org. with designation and contact
1	2	3
10.	**Bangladesh Climate Change Trust (BCCT)**	
	15	**Mr. Md. Mizanur Rahman** Director (Monitoring & Evalution) Bangladesh Climate Change Trust (BCCT) Ministry of Environment and Forests Old "Ban Bhaban" (5th and 6th floor) 101 Mohakhali, Dhaka-1212 Phone: +88-02-9890959 Cell: 01715-049699 Fax: +88-02-9898031 Email: md@bcct.gov.bd, mizanur5924@gmail.com
11.	**Palli Karma-Sahayak Foundation (PKSF)**	
	16	**Dr. Taufiq Hassan** Deputy General Manager (Research) Palli Karma-Sahayak Foundation (PKSF) E-4/B, Agargaon Administrative Area, Sher-e-Bangla Nagar, Dhaka-1207 Phone:+88-01719-016292 Email: mashrif08@gmail.com, pksf@pksf-bd.org
12.	**Department of Agriculture Extension (DAE):**	
	17	**Ms. Shakil Arvin Zomo** Additional Deputy Director Crops Wing Department of Agriculture Extension (DAE) Farmgate, Dhaka Cell: +88-01712-573788 Email: zomo.dae@gmail.com
13.	**Bangladesh Agricultural Research Council (BARC)**	
	18	**Dr. Md. Mosharraf Uddin Molla** Principal Scientific Officer (AERS) Bangladesh Agricultural Research Council (BARC) Farmgate, Dhaka-1215 Cell: +88-01552-434792 Email: mmumolla@yahoo.com, ec-barc@barc.gov.bd
14.	**Bangladesh Agricultural Research Institute (BARI)**	
	19	**Dr. Md. Azim Uddin** Chief Scientific Officer Agricultural Statistics and Information and Communication Technology (ASICT) Division Bangladesh Agricultural Research Institute (BARI) Chowrasta Joydebpur Road, Joydebpur, Gazipur Phone: +88-01674-327491 Email: azim.asict@bari.gov.bd Email: dg.bari@bari.gov.bd
15.	**Bangladesh Rice Research Institute (BRRI)**	
	20	**Dr. Md. Ismail Hossain** PSO & Chief, Agriculture Statistics Division Bangladesh Rice Research Institute (BRRI) Joyebpur, Gazipur-1701 Phone: +88-02- 9263815 cell: 01716124943 Email: dg@brri.gov.bd; mihossain2@yahoo.com
16.	**Agriculture Information Service (AIS)**	
	21	**Md. Manzur Hossain** Information Officer (Agriculture) Agriculture Information Service (AIS), Farmgate, Dhaka Phone: +88-02- 9112260 Cell: 01911-019610 Email: dirais@ais.gov.bd, manzur_1980@yahoo.com

SL. No	Total FPO	Name of the Focal Points Officers/Members from different Ministries/ Divisions/ Dept./ Org. with designation and contact
1	2	3
17.	**Department of Agricultural Marketing (DAM)**	
	22	**Mr. Md. Abdur Rashid** Deputy Director (Market Intelligence & Statistics) Head office Department of Agricultural Marketing (DAM) Khamarbari, Front Building, 4th Floor Tejgaon, Dhaka Cell: +88-01552-336164 Email: rashid-dam@yahoo.com, dg@dam.gov.bd
18.	**Department of Fisheries (DOF)**:	
	23	**Mr. Kazi Mofizul Hoq** Statistical Officer Department of Fisheries (DOF) Fisheries Bhaban, Ramna, Dhaka-1000 Cell: +8801819220614 Email: mofizsodof@gmail.com
19.	**Department of Livestock Services (DLS):**	
	24	**Dr. Md. Golam Rabbani** Livestock Officer (Reserve) Depart of Livestock Service (DLS) Cell: +88-01965-289259 Email: grabbi2004@yahoo.com
20.	**Bangladesh Space Research and Remote Sensing Organization (SPARRSO):**	
	25	**Dr. Md. Abdus Salam** Principal Scientific Officer Bangladesh Space Research and Remote Sensing Organization Cell: +88-01715-042585, T&T: 9137886 Email: salam2bd@yahoo.com
21.	**Bangladesh Institute of Development Studies (BIDS):**	
	26	**Ms. Mitali Parvin** Research Associate Bangladesh Institute of Development Studies (BIDS) Agargaon, Dhaka-1207 E-mail: mitali@bids.org.bd PABX Extn. 880-2-9143441-8(279)
	27	**Ms. Kashfi Rayan** Research Associate Bangladesh Institute of Development Studies (BIDS) Agargaon, Dhaka-1207 Cell: +8801776443991 Email: kashfi@bids.org.bd
22.	**Bangladesh Water Development Board (BWDB):**	
	28	**Dr. Shamal Chandra Das** Executive Engineer Bangladesh Water Development Board (DWDB) WAPDA Building, Motijheel, Dhaka Cell: +8801759693375 Email: shamal1967@yahoo.com
23.	**Bangladesh Institute of International and Strategic Studies (BIISS)**	
	29	**Mr. Abu Salah Md Yousuf** Senior Research Fellow 1/46, Elephant Road, (West Ramna Thana), Dhaka-1000 Cell: +88-01718-872990 Email: abuyousuf167@gmail.com
24.	**Institute of Water Modelling (IWM)**	
	30	**Mr. Md. Mahbubur Rahman** ICT Specialist Information & Communication Technology House # 496, Road # 32, New DOHS, Mohakhali, Dhaka-1206 Cell: +88-01841-930084, Email: mhb@iwmbd.org

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1	2	3
25.	**Bangladesh Meteorological Department (BMD):**	
	31	**Mr. Md. Bazlur Rashid** Meteorologist Storm Warning Center Bangladesh Meteorological Department Agargaon,Dhaka-1207, Bangladesh Phone: +88-02-9135742 Cell: +88-01716-762472 E-mail: bazlur_rashid76@yahoo.com
	32	**Mr. Md. Abdul Hamid Mia** Meteorologist Bangladesh Meteorological Department Agargaon,Dhaka-1207, Bangladesh Cell: +88-01558-311937 Email: abdulhamid14@gmail.com
26.	**Soil Resource Development Institute (SRDI):**	
	33	**Dr. Md. Taibur Rahman** Chief Scientific Officer Soil Resource Development Institute (SRDI) Cell: +88-01552-306698 Email: mtrahman63@gmail.com
27.	**Department of Women Affairs (DOWA):**	
	34	**Ms. Zakia Yasmin Joarder** Deputy Director (Training) Department of Women Affairs (DOWA) Cell: +88-01552-438023 Email: zyasmin_18@yahoo.com
27.	**Department of Social Services (DSS):**	
	35	**Mr. Md. Jahangir Kabir** Research Officer Department of Social Services Shamajseba Bhaban E-8/B-1, Agargaon, Sher-e-Bangla Nagar Dhaka-1207, Bangladesh Cell: +88-01726-269222 Email:
29.	**Director General of Health Services (DGHS):**	
	36	**Dr. S. M. Mustafizur Rahman** DPM, NCDC Director General of Health Services (DGHS), Mohakhali, Dhaka Cell: +8801712866804 Email: smdabir@yahoo.com
30.	**Department of Public Health Engineering (DPHE)**	
	37	**Mr. Md. Moriruzzaman** Superintending Engineer Store Circle Department of Public Health Engineering (DPHE) DPHE Bhavan, 14, Shaheed Captain Mansur Ali Sarani, Kakrail, Dhaka-1000, Bangladesh. Cell:+ 88-01712-203356 E-mail: se.store@dphe.gov.bd Fax: + 88-02-9343375 E-mail: ce@dphe.gov.bd
31.	**Institute of Statistical Research and Training (ISRT):**	
	38	**Mr. Mohammad Samsul Alam** Lecturer Institute of Statistical Research and Training (ISRT) Cell: +88-01670-321551 Email: msalam@isrt.ac.bd

SL. No	Total FPO	Name of the Focal Points Officers/Members from different Ministries/ Divisions/ Dept./ Org. with designation and contact
1	2	3
32.	**Institute of Water and Flood Management (IWFM):**	
	39	**Dr. Mohammad Rezaur Rahman** Professor Institute of Water and Flood Management (IWFM) Bangladesh University of Engineering and Technology (BUET) Dhaka-1000, Bangladesh. Cell: +88-01714-337758 Email: rezaur@iwfm.buet.ac.bd
33.	**Department of Geography and Environment, University of Dhaka :**	
	40	**Dr. Md. Maksudur Rahman** Professor Department of Geography and Environment University of Dhaka Cell: +88-01732-464767 Email: mmrahman2000bd@yahoo.com
34.	**Department of Disaster Science and Management, University of Dhaka:**	
	41	**Mr. Md. Izazul Haque** Lecturer Department of Disaster Science and Management University of Dhaka Cell: +88-01829-685510, +88-01717-656198 Email: izazul@du.ac.bd
35.	**International Centre for Climate Change and Development (ICCCAD):**	
	42	**Mr. Sarder Shafiqul Alam** Senior Research Coordinator International Centre for Climate Change and Development (ICCCAD) Level 5, House 27, Road 1, Block A Bashundhara R/A, Dhaka 1220, Bangladesh Email: sarder.shafiqul@bcas.net
36.	**Centre for Climate Change and Environmental Research (C3ER):**	
	43	**Ms. Sharmin Nahar Nipa** Lecturer Centre for Climate Change and Environmental Research (C3ER) Brac University, Mohakhali, Dhaka Cell: +8801794758973 Email: sn.nipa@bracu.ac.bd
37.	**Bangladesh Centre for Advanced Studies (BCAS):**	
	44	**Dr. Md. Golam Rabbani** Senior Fellow Bangladesh Centre for Advanced Studies (BCAS) House # 10, Road # 16A, Gulshan-1, Dhaka-1212, Bangladesh Email: golam.rabbani@bcas.net
	45	**Dr. Samarendra Karmakar** Fellow, BCAS Bangladesh Centre for Advanced Studies (BCAS) House # 10, Road # 16A, Gulshan-1, Dhaka-1212, Bangladesh Cell: +8801736672043 Email: karmakarsamarendra@gmail.com
38.	**Institute of Disaster Management and Vulnerability Studies (IDMVS) Dhaka University**	
	46	**Dr. Dilara Zahid** Assistant Professor Institute of Disaster Management and Vulnerability Studies (IDMVS) Lecture Theatre Building (1st Floor) University of Dhaka-1000, Bangladesh Phone +88-02-9661900-73 (Ext :4727, 4728) Cell: 01726-266666 Email: dola.786@gmail.com

SL. No	Total FPO	Name of the Focal Points Officers/Members from different Ministries/ Divisions/ Dept./ Org. with designation and contact
1	2	3
39.	**Transparency International Bangladesh (TIB)**	
	47	**Mr. Mohammad Zakir Hossain Khan** Senior Program Manager, Climate Finance Governance Transparency International Bangladesh (TIB) MIDAS Centre (Level 4 & 5), House-5, Road-16 (New) 27 (Old), Dhanmondi, Dhaka -1209 Cell: +88-01713-065546 Email: zhkhan@ti-bangladesh.org Phone: (+880-2) 9124789, 9124792, 9124792 Email: edtib@ti-bangladesh.org, info@ti-bangladesh.org
40.	**Centre for Policy Dialogue (CPD)**	
	48	**Mr. Mostafa Amir Sabbih** Research Associate Centre for Policy Dialogue (CPD) House # 6/2 (7th and 8th Floor) Block – F, Kazi Nazrul Islam Road Lalmatia Housing Estate, Dhaka – 1207, Bangladesh Cell: +88-01730-018090 Email: info@cpd.org.bd, Towfiq.khan@gmail.com
41.	**Network on Climate Change, Bangladesh (NCC, B)**	
	49	**Mr. Mizanur Rahman Bijoy** Coordinator Network on Climate Change, Bangladesh (NCC, B) 29 Ring Road, 6/1/A, Shyamoli, Dhaka-1207 Cell: +88-01718-703327 Email: bijoyrahmanbd@gmail.com
42.	**Center for Participatory Research and Development (CPRD)**	
	50	**Mr. Md Shamsuddoha** Chief Executive House 221, Flat B 3, Road 3, Mirpur DOHS, Dhaka Cell: +88-01729-259491 Email: m.shamsuddoha@hotmail.com doha@cprdb.org
43.	**Water Resources Planning Organization (WARPO)**	
	51	**AKM Khusrul Amin** Senior Scientific Officer (SSO) Water Resources Planning Organization (WARPO) WARPO Bhaban 72,Green Road, Dhaka 1215 Cell:-01718-488955 Phone: +88 02 9131091 Email: dg@warpo.gov.bd, khusrulamin@yahoo.com
44.	**Department of Geography and Environment, Dhaka University**	
	52	**Dr. A.Q.M. Mahbub** Professor Department of Geography and Environment Dhaka University Tel: +880 1716581694 Email: aqmahbub@yahoo.com
45.	**Bangladesh Oil, Gas & Mineral Corporation (Petro Bangla)**	
	53	**Mr. S.M. Abdul Malek** General Manager Environment & Safety Division Bangladesh Oil, Gas & Mineral Corporation (Petrobangla) Petrocentre, 3 Kawran Bazaar C/A, Dhaka 1215 Tel: +88-02-8189063 Email: esd@petrobangla.org.bd

SL. No	Total FPO	Name of the Focal Points Officers/Members from different Ministries/ Divisions/ Dept./ Org. with designation and contact
1	2	3
46.	**Geological Survey of Bangladesh (GSB)**	
	54	**Mr. Mohammad Ashraful Kamal** Deputy Director Geological Survey of Bangladesh 153 Pioneer Road, Segunbagicha, Dhaka-1000 Phone:+880-2-9349502, Fax: +88 02 9339309 Cell:- 01912-675180 Email: akamalbd@gmail.com
47.	**Federation of Bangladesh Chambers of Commerce and Industry (FBCCI)**	
	55	**Mr. Mohammad Musleh Uddin** Assistant Secretary Federation of Bangladesh Chambers of Commerce and Industry (FBCCI) 60, Motijheel C/A, Dhaka, Bangladesh. Tel: 88-02-9560102-3, 9560482 Cell: 01670-001224 E-mail: fbcci@bol-online.com., adnan.cu06@gmail.com URL: www.fbcci-bd.org
48.	**ICDDR'B**	
	56	**Mr. Md. Ali Ahmed** Senior Research Officer ICDDR'B Cell:- 01710-531353 Email: aliahmed@icddrb.org
49.	**National University of Bangladesh**	
	57	**Dr. Md. Anowar Hossain Bhuiyan** **Faculty Member** National University of Bangladesh Cell:- 01712-514054 Email: anowaranu@yahoo.com

Annex 6: Resource Person (Not according to seniority)

1. Professor Dr. Shamsul Alam, Member (Senior Secretary), General Economics Division (GED), Planning Commission.
2. Mr. K M Mozammel Hoq, Secretary, Statistics and Informatics Division, Ministry of Planning.
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Glossary[40]

This glossary aims to provide an easily accessible alphabetic list of selected terms used in the BESF. These terms originate in the UN-FDES with particular or distinct attributes. They occur at different levels of complexity and provide context and supplementary information in diverse ways. The terms are presented here along with the paragraph numbers in which they appear in the text of the UN-FDES. Each term is accompanied by an explanation which may represent an actual definition or a simple description or may provide other relevant contextual information considered useful in furthering understanding.

In some cases, terms which have been separated from their original context have a re-contextualized explanation or supplemental content found in other paragraphs in order to enrich the explanation provided. The wording in this list may thus vary slightly from that used in the text of the BESF under the guidance of the UN-FDES.

A

Adaptation: It means the adjustment in natural or human systems in response to actual or expected climactic stimuli or their effects, which moderates harm and exploits beneficial opportunities[41] .

Afforestation is the establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest. It implies a transformation from non-forest to forest. From a resource accounting perspective, afforestation is defined by SEEA-CF as the increase in the stock of forest and other wooded land either due to the establishment of new forest on land that was previously not classified as forest land, or as a result of silvicultural measures such as planting and seeding.

Agri-environmental indicators (AEI) are indicators able to describe and assess state and trends in the environmental performance of agriculture to furnish useful indications to scientists and policymakers about the state of the environment, about the effects of different policies, as well as about the efficiency in the use of budgets in terms of environmental outcomes.

Airborne diseases and conditions associated with the environment are caused or worsened by exposure to unhealthy levels of pollutants (such as PM, SO2 or O3), usually found in urban settlements and, in particular, in cities with weaker air quality regulations and/or enforcement capabilities.

Aquaculture is the farming of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants. Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc.

Aquatic resources comprise fish, crustaceans, molluscs, shellfish, aquatic mammals and other aquatic organisms that are considered to live within the boundaries of the Exclusive Economic Zone (EEZ) of a country throughout their lifecycles, including both coastal and inland fisheries. Migrating and straddling fish stocks are considered to belong to a given country during the period when those stocks inhabit its EEZ.

Awareness: The process of informing the community as to the nature of the disaster and actions needed to save lives and property prior to and in the event of disaster. This is especially important for the responsible government officers and the public mandated for the protection of resources from any kind of disaster. Programs directed towards public awareness play an important role in safeguarding the lives and property from the risks and hazards. It is also related to information, transmission and broadcasting of information through electronic media, and community networking[42].

B

Biodiversity is the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part, including diversity within species, between species and of ecosystems. It is also a measure of ecosystem health.

Biological resources are renewable resources that are capable of regeneration through natural (non-managed or managed) processes. Biological resources include timber and aquatic resources and a range of other animal and plant resources (such as livestock, orchards, crops and wild animals), fungi and bacteria.

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[40] United Nations Framework for Development of Environment Statistics (UN-FDES) 2013

[41] National Plan for Disaster Management 2010-2015: Ministry of Disaster Management and Relief, Government of the People's Republic of Bangladesh.

[42] National Plan for Disaster Management 2010-2015: Ministry of Disaster Management and Relief.

Biome: A biome is a distinct community of plants, animals or fungi that occupy a distinct region. It is often referred to as an ecosystem.

Biota is defined as all animal and plant life of a particular region or time. Biotic (living) factors function with the abiotic (non-living) factors to form a complex unit such as an ecosystem

C

Climate: Weather features/data of a particular area/region involving temperature, humidity, atmospheric pressure, wind, precipitation, and other meteorological elements measured as average for longer periods, usually minimum of 30 years. It is simply the average weather condition for longer period of time. Geographic location and natural environment of a country may also dictate the climate of that particular area/region/country[43].

Climate of Bangladesh: Bangladesh is a small country in terms of its territory with an area of about 147,570 sq. km. It is located in the tropics between 20°34′ to 26° 38′ north and 88°01′ to 92°41′ east in South Asia and is bounded by India on the west, the north and the northeast and Myanmar on the south-east. The Bay of Bengal demarcates the southern border with a long coastline. The Himalayas is close to the northern border of Bangladesh. The country consists of low and flat land except the hilly regions in the northeast, the southeast, and some areas of highlands in the north and northwestern part. About 80% of the country is floodplain, 12% is hills, and about 8% is terrace or uplifted blocks. Bangladesh currently has 19,467 sq. km of marine area. Three major rivers – the Ganges, the Brahmaputra and the Meghna (GBM), which bring inflow from India - meet inside Bangladesh before discharging into the Bay of Bengal through a single outfall. The mean annual temperature is about 25OC within the country. The mean monthly temperature ranges between 18OC in January and 30OC from April to May. The highest temperatures throughout the year range between 40OC and 43OC in the west. The average annual rainfall in the country is about 2,200 mm. About 80% of the total rainfall occurs during May to September[44].

Climate change is a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. Climate change occurs through a chain of events and can be observable at all levels, from local to global. Climate process drivers are GHG emissions associated with current production and consumption patterns, which depend heavily on fossil fuels for energy and transportation.

Climate change adaptation is an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Climate change evidence refers to the different processes that substantiate the occurrence of changing climate patterns at the global, regional and local levels. The evidence of global warming and climate change is unequivocal, including global temperature rise, extreme events, sea level rise, shrinking ice sheets and glacial retreat.

Climate change mitigation refers to efforts to reduce or prevent greenhouse gas emissions and may involve using new technologies, incorporating and increasing renewable energies, making older equipment more energy efficient and changing management practices or consumer behaviour. Protecting natural carbon sinks like forests and oceans, or creating new sinks through silviculture or green agriculture, are also elements of mitigation.

Climate change-related statistics (according to UNECE) refer to environmental, social and economic data that measure the human causes of climate change, the impacts of climate change on human and natural systems, and the efforts by humans to avoid and adapt to these consequences.

Corporate, non-profit institution and household environmental protection and resource management expenditure includes corporate, non-profit institution and household environmental expenditure whose

primary aim is to protect the environment and manage its resources. Statistics on this topic usually require the use of specific surveys of establishments in different sectors and industries.

Crops refer to plants or agricultural produce grown for food or other economic purposes, such as clothes or livestock fodder (ISIC Rev. 4, Section A, Division 01).

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[43] ibid

[44] Durjog Kosh (Disaster Dictionary) 2009: Ministry of Disaster Management and Relief, Government of the People's Republic of Bangladesh.

Cultivated biological resources cover animal resources yielding repeat products and tree, crop and plant resources yielding repeat products whose natural growth and regeneration are under the direct control, responsibility and management of an institutional unit.

Cyclone: A large-scale closed circulation system in the atmosphere with low barometric pressure and strong winds that rotate counter clockwise in the northern hemisphere and clockwise in the southern hemisphere. The system is referred to as a cyclone in the Indian Ocean and South Pacific, hurricane in the western Atlantic and eastern Pacific and typhoon in the western Pacific. Cyclones are the most devastating of the natural disasters. Generally, the disasters faced by the coastal areas are related to tides, river flows and weather conditions leading to cyclonic winds. A major hazard that occurs in the coastal areas is mostly due to weather conditions associated with depressions of varying severity. The hazards due to cyclones are associated with elements such as depressions, cyclone surges, effect of wind speed, hazard areas, etc. High winds cause rough conditions and high waves during the time of depression over the sea and cause damage and loss throughout the land they pass over. In Bangladesh, the main cause of damage and loss is the severe cyclonic storm with Hurricane intensity. In Bangladesh, most of the cyclones occur during the pre-monsoon (April/ May/ early-June) and post-monsoon (late-September/ October/ November) period. The pre-monsoon period is the sowing or broadcasting season for Aus rice and the post monsoon season is the harvesting season for Aman rice in the coastal areas. Hence, the impact of cyclones is severe in terms of economic loss, as well as loss of lives and property.

D

Damage: Damage is defined as the total or partial destruction of physical assets. This includes building and their contents, infrastructure, stocks etc. Typically damages to housing and homestead goods, agricultural lands, pond/wetland, homestead land, homestead forestry etc. Damages typically occur during or i mmediately after disaster. Damages typically measures in physical terms and a monetary replacement value is assigned to it.

Deforestation is the conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 per cent threshold. Deforestation implies the long-term or permanent loss of forest cover and implies transformation into another land use. Such a loss can only be caused and maintained by a continued human-induced or natural perturbation. Deforestation includes areas of forest converted to agriculture, pasture, water reservoirs and urban areas. The term specifically excludes areas where the trees have been removed as a result of harvesting or logging, and where the forest is expected to regenerate naturally or with the aid of silvicultural measures. From a resource accounting perspective, deforestation is defined by SEEA-CF as the decrease in the stock of forest and other wooded land due to the complete loss of tree cover and transfer of forest land to other uses (e.g., use as agricultural land, land under buildings, roads, etc.) or to no identifiable use.

Depletion, in physical terms, is the decrease in the quantity of the stock of a natural resource over an accounting period that is due to the extraction of the natural resource by economic units occurring at a level greater than that of regeneration.

Disaster: Disaster means any such incidents mentioned below created by nature or human or created due to climate change and its massiveness and devastation cause such damage to cattle, birds and fisheries including life, livelihood, normal life, resources, assets of community and the environment of the damaged area or create such level of hassle to that community whose own resources, capability and efficiency is not sufficient to deal this and relief and any kind of assistance is needed to deal that situation, such as: (a) Cyclone, northwester, tornado, sea high tides, abnormal tides, earthquake, tsunami, excessive rains, shortfall of rains, flood, erosion of river, erosion of coastal area, drought, excessive salinity, excessive pollution of arsenic, building slide, landslide, hill slide, gushing water from hills, hailstorm, heat wave, cold wave, long term water logging etc.; (b) Explosion, fire, capsize of vessel, massive train and road accident, chemical and nuclear radiation, pilferage of oil or gas, or any mass destruction incident; (c) Disease causing pandemic, such as pandemic influenza, bird flue, anthrax, diarrhea, cholera, etc.; (d) Harmful microorganism, poisonous materials and infection of life active object including infection by bio based or biological infectious object; (e) Ineffectiveness or damage of essential service or disaster protection infrastructure; and (f) Any unnatural incident or a misfortune causing massive life loss and damage[45].

Disaster Management: Disaster Management means methodical institutional structure and program for disaster risk reduction and immediate response after disaster, through which following steps and programs may be taken to deal disaster, such as:- (a)

[45] Disaster Management Act 2012: Ministry of Disaster Management and Relief, Government of the People's Republic of Bangladesh.

determination of danger, scale and duration of disaster; (b) management including adoption of plans, coordination and implementation; 173444 Bangladesh Gazette, additional issue, September 24, 2012 (c) provide early warning, caution, danger or extreme danger signal and arrange for propagation and transfer of life and assets to secure places; (d) conducting search and rescue after disaster, determination of estimation and demand of life and assets damaged, under humanitarian aid program distribution of relief, rehabilitation and reconstruction and adoption programs for essential service, rescue and development; and (e) conducting relevant other programs[46].

Disaster Risk Management: The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards[47].

Disaster Risk Reduction (DRR): Disaster Risk Reduction is development & application of policies and practices that minimizes risks to vulnerabilities and disasters, applies to managing and/or responding to current disaster risks[48] .

Dissipative losses are material residues that are an indirect result of production and consumption activity.

Dissipative uses of products cover products that are deliberately released to the environment as part of production processes.

Drought: Bangladesh faces unpredictable drought hazard in the dry monsoon due to inadequate and uneven rainfall. It varies from place to place, however, and the northwestern region/ districts of Bangladesh suffers most from the drought almost regularly in two-year cycle. It is unusual dryness of soil, resulting in crop failure and shortage of water for other uses, caused by significantly lower rainfall than average over a prolonged period. Hot dry winds, shortage of water, high temperatures and consequent evaporation of moisture from the ground can contribute to conditions of drought. This may have initiated the process of desertification in those districts where the affected areas maintain high temperatures, non-availability of surface water due to drying out of water sources, crops die out and there is a crisis of fodder as well. For people who are directly dependent on rainwater, drought is a big problem.

Driving Force-Pressure-State-Impact-Response (DPSIR) framework is an analytical framework that is based on the causal relationship between its D-P-S-I-R components. Driving forces are the socio-economic and socio-cultural forces driving human activities, which increase or mitigate pressures on the environment. Pressures are the stresses that human activities place on the environment. State, or state of the environment, is the condition of the environment. Impacts are the effects of environmental degradation. Responses refer to the responses by society to the environmental situation.

E

Early Warning System: It is a major element of disaster risk reduction. It prevents loss of life and reduces the economic and material impact of disasters. To be effective, early warning systems need to actively involve the communities at risk, facilitate public education and awareness of risks, effectively disseminate alerts and warnings and ensure there is constant state of preparedness[49].

Economic territory is the area under the effective control of a single government. It includes the land area of a country, including islands, airspace, territorial waters and territorial enclaves in the rest of the world. Economic territory excludes territorial enclaves of other countries and international organizations located in the reference country.

Ecosystem is a dynamic complex of plant, animal and microorganism communities and their non-living environment interacting as a functional unit.

Ecosystem services are the benefits supplied by the functions of ecosystems and received by humanity.

Emissions are substances released to the environment by establishments and households as a result of production, consumption and accumulation processes.

Emissions to air are gaseous and particulate substances released to the atmosphere by establishments and households as a result of production, consumption and accumulation processes.

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[46] ibid.

[47] National Plan for Disaster Management 2010-2015: Ministry of Disaster Management and Relief, Government of the People's Republic of Bangladesh.

[48] ibid

[49] ibid

Emissions to water are substances released to water resources by establishments and households as a result of production, consumption and accumulation processes.

Energy production refers to the capture, extraction or manufacture of fuels or other energy products in forms which are ready for general consumption. Energy products are produced in a number of ways, depending on the energy source. Total energy production originates from sources that can be classified as non-renewable or renewable. (paras. 3.97 and 3.98) Energy production includes the production of primary and secondary energy. Primary energy refers to energy sources as found in their natural state, as opposed to derived or secondary energy, which is the result of the transformation of primary sources.

Environment statistics are environmental data that have been structured, synthesized and aggregated according to statistical methods, standards and procedures. The scope of environment statistics covers biophysical aspects of the environment and those aspects of the socio-economic system that directly influence and interact with the environment.

Environmental awareness involves the gradual understanding of environmental issues, and the recognition of the connections among human actions, development, sustainability and human responsibility in these processes. Environmental awareness involves the realization that humans and ecosystems co-exist in a shared environment, which is ultimately the biosphere. Awareness fosters pro-environmental attitudes and predispositions for action and changed behaviour.

Environmental data are large amounts of unprocessed observations and measurements about the environment and related processes.

Environmental education refers to the process of sharing and constructing environmental information and knowledge, as well as information on how humans interact with the environment. Environmental education is carried out through a variety of programmes, including formal and informal education and training, directed towards different audiences. It may be curriculum- and classroom-based or experiential, and may be provided on-site or in community settings by government agencies or NGOs. Environmental education is integral to education for sustainable development.

Environmental engagement involves the transformation of perceptions and attitudes into concrete, pro-environmental actions. Individual and social participation and engagement in environmental processes intended to improve and protect the local and global environment are a concrete manifestation of understanding and motivation of, and commitment to protecting and improving the environment, expressed through behaviour.

Environmental Goods and Services Sector (EGSS) consists of a heterogeneous set of producers of technologies, goods and services that: (i) measure, control, restore, prevent, treat, minimise, research and sensitise environmental damages to air, water and soil as well as problems related to waste, noise, biodiversity and landscapes. This includes "cleaner" technologies, goods and services that prevent or minimise pollution; and (ii) measure, control, restore, prevent, minimise, research and sensitise resource depletion. This results mainly in resource-efficient technologies, goods and services that minimise the use of natural resources.

Environmental health focuses on how environmental factors and processes impact and change human health. It can be defined as an interdisciplinary field that focuses on analysing the relationship between public health and the environment. From the health perspective, WHO states that "environmental health addresses all the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments.

Environmental indicators are environment statistics that have been selected for their ability to depict important phenomena or dynamics. Environmental indicators are used to synthesize and present complex environment and other statistics in a simple, direct, clear and relevant way.

Environmental indices are composite or more complex measures that combine and synthesize more than one environmental indicator or statistic and are weighted according to different methods.

Environmental information includes quantitative and qualitative facts describing the state of the environment and its changes as described in the different components of the FDES. Quantitative environmental information is generally produced in the form of data, statistics and indicators, and is generally disseminated through databases, spreadsheets, compendia and yearbooks. Qualitative environmental information consists

of descriptions (e.g., textual or pictorial) of the environment or its constituent parts that cannot be adequately represented by accurate quantitative descriptors. Geographically referenced environmental information provides facts on the environment and its components using digital maps, satellite imagery and other sources linked to a location or map feature.

Environmental perception refers to individuals' and groups' notions of, attitudes towards and evaluations of the environment, both as a whole or with respect to specific environmental issues. Individuals and communities make decisions and judgments, and take actions based on subjective perceptions of environmental information and experiences. Values and attitudes thus "filter" information and transform it into perception in a culturally specific manner.

Environmental protection activities are those activities whose primary purpose is the prevention, reduction and elimination of pollution and other forms of degradation of the environment. These activities include the protection of ambient air and climate, wastewater management, waste management, protection and remediation of soil, groundwater and surface water, noise and vibration abatement, protection of biodiversity and landscapes, protection against radiation, research and development for environmental protection and other environmental protection activities.

Environmental regulation and instruments refer to policy responses to regulate and establish acceptable limits for protecting the environment and human health. It entails both direct regulatory and economic instruments. Direct regulatory instruments include environmental and related laws, standards, limits and their enforcement capacities. These can be described using statistics on regulated pollutants, licensing systems, applications for licences, quotas for biological resource extraction, and budget and the number of staff dedicated to enforcement of environmental regulations. Economic instruments may comprise the existence and number of green/environmental taxes, environmental subsidies, eco-labelling and certification and emission permits.

Environmental resources (assets) are the naturally occurring living and non-living components of the Earth, together constituting the biophysical environment, which may provide benefits to humanity. Environmental resources include natural resources (such as sub-soil resources (mineral and energy), soil resources, biological resources and water resources) and land. They may be naturally renewable (e.g., fish, timber or water) or non-renewable (e.g., minerals).

Extreme events are events that are rare within their statistical reference distribution at a particular location. An extreme event is normally as rare as or rarer than the 10th or 90th percentile.

F

Fauna: The animal life of a particular region or time. It is generally regarded as that which is naturally occurring and indigenous.

Flora: The plant life of a particular region or time. It is generally regarded as that which is naturally occurring and indigenous.

Flood: Flood is one of the major natural disasters in Bangladesh. In general the normal inundation of flood-free areas by water caused by excessive rain and spillage from the over flown riverbanks is called flood. Floods bring about immense havoc to the lives of the people. Flooding is a natural phenomenon in Bangladesh and occurs on an annual basis. The rivers are huge by global standards, and can inundate over 30% of the land mass at a time. Bangladesh is prone to serious and chronic flooding. Even in an average year, 18% of the landmass is inundated and previous floods have affected 75% of the country (as in 1988). 75% of the country is below 10m above sea level and 80% is classified as floodplain as Bangladesh is principally the delta region of South Asia's great rivers. Bangladesh floods on a regular basis, recent notable and catastrophic floods have occurred in 1988, 2004, 2007 and 2010. Floods cause erosion of chars (islands) by flooding rivers, cause landlessness amongst Bangladesh's poor; environmental refugees, loss of property, lives, epidemic, other water borne diseases, lack of drinking water, loss of agricultural land and crops, communication disruption are some of the major effects of this natural disaster.

Forest is land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 per cent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

G

Genetic resources are defined as genetic material of plants, animals or microorganisms containing functional units of heredity that are of actual or potential value as a resource for future generations of humanity.

Geographic information system (GIS) is an integrating technology that helps to capture, manage, analyse, visualize and model a wide range of data with a spatial or locational component.

Geospatial information presents the location and characteristics of different attributes of the atmosphere, surface and sub-surface. It is used to describe, display and analyse data with discernible spatial aspects, such as land use, water resources and natural disasters. Geospatial information allows for the visual display of different statistics in a map-based layout, which can make it easier for users to work with and understand the data. The ability to overlay multiple data sets using software, for instance on population, environmental quality, and environmental health, allows for a deeper analysis of the relationship among these phenomena.

Global Warming: The GHGs trap and build-up of heat in the atmosphere (troposphere) near the Earth's surface. Some of the heat flowing back toward space from the Earth's surface absorbed by water vapor, carbon dioxide, ozone, and several other gases in the atmosphere and then reradiated back toward the Earth's surface. If the atmospheric concentrations of these greenhouse gases rise, the average temperature of the lower atmosphere gradually increases. Global warming refers to a gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, chlorofluorocarbons, and other pollutants[50].

Government environmental protection and resource management expenditure includes government expenditure whose primary aim is to protect the environment and manage its resources.

Groundwater comprises water that collects in porous layers of underground formations known as aquifers.

Greenhouse Gas (GHG): Our atmosphere comprises a mixture of several gases; prominent among them are nitrogen and oxygen. Other than these two, several other gases are also present in trace amounts like carbon dioxide, methane, nitrous oxide, ozone, and water vapours. All these are GHG as they are capable of trapping heat. Apart from the natural gases some gases are produced due to human activities like chlorofluorocarbons, hydro chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride are also GHGs[51].

H

Hailstorm: Hailstorm is a very curious geographical and climatic phenomenon. A hailstorm is named such, because during the storm, hail or balls of ice fall in huge quantities on the Earth. It is nothing but irregular lumps or balls of ice. The specialty of a hailstorm is that both hail, i.e. balls of ice, and rainwater fall during the storm, at the same time. The hailstorms are not exactly storms, but are a side effect of a much bigger storm, the thunderstorm. In fact, this phenomenon originates from thunderclouds that are known as Cumulonimbus clouds. When the existing temperature of a mass of air currents falls down rapidly over decreasing altitude, it results in a hailstorm. The hailstones are formed due to the process of freezing and grow over time. They are carried by the updrafts or the air currents moving in the upward direction, until they become large for these currents to continue carrying them. Hailstones must have at least ¾ inch of diameter to become severe, and cause a substantial amount of damage and loss to life and property. Being a nature's phenomenon and a type of natural disaster, hailstorms are unavoidable. The impact of hailstones can cause widespread damage and loss to vulnerable plant, agricultural crops, infrastructure and equipment that is stored outside. Hailstones have the potential to destroy animals and human life upon impact if strong enough.

Hazard: Hazard means any unnatural incident which is created by natural law, due to technical faults or by humans and as a result bring down the normal lifestyle of peoples in to danger and risk through occurring devastation and create sorrows and sufferings including devastating and irreparable damages to necessary items to maintain livelihood[52].

Household: A household means a group of persons normally living together and eating in one mess (i.e. with common arrangement of cooking) with their dependents, relatives, servants, and other members. A household may be a one-person household or may have more persons. In case of a household with a group of persons, living together and taking meals from the same kitchen generally maintain a family or family like relation. A household usually described as 'khana'. In some instances, there may be more than one household in a single house or in one dwelling arrangement. Similarly, a household may have more than one house or structure or shed. The household is to be distinguished from family, which comprises members having blood relationship. Members of a family may live in different places but members of household must live in the same place and share the same kitchen.

[50] ibid

[51] Durjog Kosh (Disaster Dictionary) 2009: Ministry of Disaster Management and Relief, Government of the People's Republic of Bangladesh.

Human settlements refer to the totality of the human community, whether people live in large cities, towns or villages. They encompass the human population that resides in a settlement, the physical elements (e.g., shelter and infrastructure), services (e.g., water, sanitation, waste removal, energy and transport), and the exposure of humans to potentially deleterious environmental conditions.

I

Improved drinking water source includes the use of: piped water into dwelling, plot or yard; public tap or standpipe; borehole or tube well; protected dug well; protected spring; rainwater collection and bottled water (if a secondary available source is also improved).

Improved sanitation facility is defined as one that hygienically separates human excreta from human contact. Improved facilities include flush/pour flush toilets or latrines connected to a sewer, -septic tank, or -pit, ventilated improved pit latrines, pit latrines with a slab or platform of any material which covers the pit entirely, except for the drop hole and composting toilets/latrines.

Institutional dimension of environment statistics refers to the institutional factors necessary to develop and strengthen the sustained production, dissemination and use of environment statistics. It comprises the legal framework that establishes the mandates and roles of the main partners, the institutional setting and institutional development level of environment statistics units, and the existence and effectiveness of inter-institutional cooperation and coordination mechanisms at the national level and with specialized international agencies.

Institutional strength: Government and citizen engagement in environmental and sustainable development public policy is reflected in the extent to which institutions that manage and regulate the environment exist and function properly at the national and sub-national levels.

In-stream water use refers to the use of water without moving it from its source or to the use when water is immediately returned with little or no alteration.

K

Known mineral deposits include commercially recoverable deposits, potential commercially recover able deposits and non-commercial and other known deposits.

L

Land provides space for natural ecosystems, human habitats and human activities. As this space is finite, the expansion of human activities can reduce the space occupied by natural ecosystems, thus reducing ecosystems' capacity to yield ecosystem goods and services for all living beings. From the resource perspective, land is a unique environmental resource that delineates the space in which economic activities and environmental processes take place and within which environmental resources and economic assets are located.

Land cover is the observed (bio) physical cover on the earth's surface.

Land use reflects both the activities undertaken and the institutional arrangements put in place for a given area for the purposes of economic production, or the maintenance and restoration of environmental functions. Land being "used" means the existence of some kind of human activity or management. Consequently, there are areas of land that are "not in use" by human activities.

Landslide: Landslides are a complex-disaster phenomenon that can be caused by earthquakes, volcanic eruptions, heavy rainfall (typhoons, hurricanes), sustained rainfall, heavy snowmelt, unregulated anthropogenic developments, mining, and others. In Bangladesh, landslides are mostly triggered by heavy rainfall. However, underlying causes of landslide include deforestation, hill cutting, unregulated development work, etc. Moreover, poverty and landlessness force poor people to live in the risky hill-slopes. However, recently landslide has emerged as a major hazard, particularly after the Chittagong Landslide 2007. Due to heavy rainfall during 10 -11 June 2007, landslides and collapsed walls caused widespread damages in six areas of Chittagong city and in different Upazilas of the District

Livestock are animal species that are raised by humans for commercial purposes, consumption or labour (ISIC Rev. 4, Section A, Division 01).

Loss is defined as changes in economic flows caused by disaster. Examples, include losses in agricultural (crops, livestock, fishery, poultry etc.). Losses typically

[52] Disaster Management Act 2012: Ministry of Disaster Management and Relief, Government of the People's Republic of Bangladesh.

occur from the time of disaster until economic recovery and reconstruction of assets are achieved and are measured in monetary terms at current price.

M

Multilateral Environmental Agreements address, via international cooperation, environmental problems, especially those which have a transboundary nature or are global in scope. For the most relevant MEAs, participant or signatory countries are usually expected to report on progress periodically, either on a mandatory or voluntary basis.

N

Natural Disaster: A natural disaster is a major adverse event resulting from natural processes of the Earth; examples include cyclones, drought, floods, erosion, volcanic eruptions, earthquakes, tsunamis, and other geologic processes. A natural disaster can cause loss of life or property loss and damages, and typically leaves some economic loss and damages, the severity of which depends on the affected population's resilience, or ability to recover. Following is the description of some of the natural disasters (with their code number) in Bangladesh[53].

Natural biological resources consist of animals, birds, fish and plants that yield both once-only and repeat products for which natural growth and/or regeneration is not under the direct control, responsibility and management of institutional units.

Nuclear radiation-related diseases and conditions: The related diseases and health conditions may be acute or chronic. They include, but are not limited to, thermal burns from infrared heat radiation, beta and gamma burns from beta and gamma radiation, radiation sickness or "atomic disease", leukaemia, lung cancer, thyroid cancer and cancer of other organs, sterility and congenital anomalies or malformations, premature aging, cataracts, and increased vulnerability to disease and emotional disorders. Exposure to nuclear radiation could occur from a nuclear explosion or an accident involving a nuclear reactor.

O

Other non-cultivated biological resources: These resources may include wild berries, fungi, bacteria, fruits, sap and other plant resources that are harvested (ISIC Rev. 4, Section A, class 0230), as well as wild animals that are trapped or killed for production, consumption and trade (ISIC Rev. 4, Section A, class 0170).

Other wooded land is land not classified as "Forest", spanning more than 0.5 hectares; with trees higher than 5 metres and a canopy cover of 5-10 per cent, or trees able to reach these thresholds in situ; or with a combined cover of shrubs, bushes and trees above 10 per cent. It does not include land that is predominantly under agricultural or urban land use.

P

Paurashava (Municipality): According to Paurashava Ordinance 1977, Paurashava is an urban area demarcated by a defined area map and location. The Paurashava is a local government body headed by a Mayor. The Paurashava authority administers the area under its jurisdiction, and is responsible for the well-being of the residents. Ensuring the necessary civil amenities for the people is its important functions.

Protected Area Management Categories are based on the strictness of protection and serve as the classification for protected areas. The main categories are strict nature reserve; wilderness area; national park; natural monument or feature; habitat/species management area; protected landscape/seascape; and protected area with sustainable use of natural resources. (para. 3.38)

Preparedness: Measures that are designed to ensure that communities will have the knowledge and understanding of their risk environment to enable them to better cope with potential hazard impact[54].

R

Recovery: Measures that are designed to develop the systems required to support affected communities in the reconstruction of their physical infrastructure and restoration of their emotional, economic and physical well-being[55].

Remote sensing is the science of obtaining information about objects or areas from a distance, typically from aircraft or satellites.

Renewable energy is captured from sources that replenish themselves. It includes solar (photovoltaic and

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[53] Standing Orders on Disaster (SOD) 2010: Ministry of Food and Disaster Management Disaster Management & Relief Division, Disaster Management Bureau, Government of the People's Republic of Bangladesh.

[54] ibid

[55] ibid

thermal), hydroelectric, geothermal, tidal action, wave action, marine (non-tidal currents, temperature differences and salinity gradients), wind and biomass energy, all of which are naturally replenished, although their flow may be limited.

Renewable water resources of a country are generated by precipitation and inflows of water from neighbouring territories and reduced by evapotranspiration.

Residuals are flows of solid, liquid and gaseous materials, and energy that are discarded, discharged or emitted by establishments and households through processes of production, consumption or accumulation.

Resource management activities are those activities whose primary purpose is preserving and maintaining the stock of natural resources and hence safeguarding against depletion. These activities include, but are not limited to, reducing the withdrawals of natural resources (including through the recovery, reuse, recycling and substitution of natural resources); restoring natural resource stocks (increases or recharges of natural resource stocks); the general management of natural resources (including monitoring, control, surveillance and data collection); and the production of goods and services used to manage or conserve natural resources. They cover the management of mineral and energy resources; timber resources; aquatic resources; other biological resources; water resources; research and development activities for resource management; and other resource management activities.

Reused water is wastewater supplied to a user for further use with or without prior treatment.

River/Coastal Erosion: A combination of natural processes, including weathering, dissolution, abrasion, corrosion, and transportation, by which material is worn away from the earth's surface. The energy in a river causes erosion. The bed and banks can be eroded making it wider, deeper and longer. River erosion and submerging of the coastal lands are the natural phenomenon being one of the main natural disasters. River and coastal erosion causes much more destruction to the socioeconomic mechanism than any other natural disasters. Loss of life may not happen due to erosion but it makes people undone. It causes a massive financial loss and damages. The immense pressure of the downwards tide, current force and twirl, waves and tides, storm, tidal surges, lack of trees on the riverbank causes erosion to the coastal islands every year. The collision between downwards current of fresh water and uprising sea level creates strong twirling that cause erosion to the coast. Moreover, due to combined sudden flood, heavy rain, and downwards freshwaters causes collision to the riverbank and cause erosion to the riverbanks and coastal areas. Deforestation and lack of plantation in the riverbanks and coastal areas also complement to riverbank and coastal erosion.

S

Salinity: Saline water intrusion is mostly seasonal in Bangladesh; in winter months the saline front begins to penetrate inland, and the affected areas rise sharply from 10 percent in the monsoon to over 40 percent in the dry season. Coastal districts such as Satkhira, Khulna, Bagerhat, Barguna, Patuakhali, Barisal are the victims of salinity intrusion. Agricultural production, fisheries, livestock, and mangrove forests are affected by higher salinity in the dry season. It is observed that dry flow trend has declined as a result of which sea flow (saline water) is traveling far inside the country resulting in contamination both in surface and ground water. The population of pure freshwater fish species decline and species that are more tolerant survive and dominate changing the composition of the ecosystem and affecting the livelihoods of the people dependent of the freshwater resources.

Slums are housing lacking one or more of the following conditions: access to improved water; access to improved sanitation; sufficient living area; durability of housing; or security of tenure.

Soil provides the physical base to support the production and cycling of biological resources, provides the foundation for buildings and infrastructure, constitutes the source of nutrients and water for agriculture and forestry systems, provides a habitat for diverse organisms, plays an essential role in carbon sequestration and fulfils a complex buffering role against environmental variability, ranging from dampening diurnal and seasonal change in temperature and water supply to the storage and binding of a range of chemical and biological agents. The main environmental concerns about soil pertain to its degradation through soil erosion or nutrient depletion, among other processes.

Soil resources comprise the top layers (horizons) of soil that form a biological system.

Stocks of non-renewable energy resources are defined as the amount of known deposits of mineral energy resources.

Stocks of mineral resources are defined as the amount of known deposits of non-metallic and metallic mineral resources.

Storm/Tidal Surge: Storms are caused by atmospheric disturbance involving perturbations of the prevailing pressure and wind fields, on scales ranging from tornadoes (1 km across) to extra-tropical cyclones (2000-3000 km across). This causes a rise in sea level that result in the inundation of areas along coastlines. The movement of ocean and sea currents, winds and major storms causes these phenomena.

Sub-soil resources are underground deposits of various minerals that provide raw materials and energy sources for humans. When considered as resources for human use, these sub-soil elements differ fundamentally from ecosystems in that they are non-renewable. Their use thus results in permanent depletion.

Surface water comprises all water that flows over or is stored on the ground's surface, regardless of its salinity levels. Surface water includes water in artificial reservoirs, lakes, rivers and streams, snow, ice and glaciers.

Sustainable Development: The Brundtland Commission defines sustainable development as "the development that meets the need of the present, without compromising the ability of the future generation to meet their own needs". It also implies the concerns of social equity between generations, a concern that must logically be extended to equity within each generation". Sustainable development ensures "a harmonious process of social and economic betterment that satisfies the needs and values of all stakeholders while maintaining future opportunities and conserving natural resources and biological diversity"[56].

T

Technological disasters may arise as a result of human intent, negligence or error, or from faulty or failed technological applications. The three types of technological disasters are: industrial accidents which cover accidents associated with chemical spill, collapse, explosion, fire, gas leak, poisoning, radiation and other; transport accidents which cover accidents associated with air, road, rail, and water; and miscellaneous accidents which cover accidents associated with collapse, explosion, fire, and other disasters of varied origin.

Timber resources are defined by the volume of trees, living and dead, which can still be used for timber or fuel.

Thunderstorm: A thunderstorm, also known as an electrical storm, a lightning storm, or a thundershower, is a type of storm characterized by the presence of lightning and its acoustic effect on the Earth's atmosphere known as thunder. Thunderstorms occur in association with a type of cloud known as a cumulonimbus. They are usually accompanied by strong winds, heavy rain and sometimes hail, or, in contrast, no precipitation at all. Thunderstorms result from the rapid upward movement of warm, moist air. They can occur inside warm, moist air masses and at fronts. As the warm, moist air moves upward, it cools, condenses, and forms cumulonimbus clouds that can reach heights of over 20 km (12.45 miles). As the rising air reaches its dew point, water droplets and ice form and begin to fall through the clouds towards the Earth's surface. As the droplets fall, they collide with other droplets and become larger. The falling droplets create a downdraft of cold air and moisture that spreads out at the Earth's surface, causing the strong winds commonly associated with thunderstorms, and occasionally fog.

Tornado: The two transitional periods between southwest and northeast monsoons over the Indian sub-continent are characterized by local severe storms. The transitional periods are usually referred to as pre-monsoon (March-May), and post-monsoon (October-November). It is the pre-monsoon period when most of the abnormal rainfall or drought conditions frequently occur in different parts of Bangladesh. Also there are severe local seasonal storms, popularly known as nor'westers (kalbaishakhi). Severe nor'westers are generally associated with tornadoes. Tornadoes are embedded within a mother thundercloud, and moves along the direction of the squall of the mother storm. The frequency of devastating nor'westers usually reaches the maximum in April, while a few occur in May, and the minimum in March. Nor'westers and tornadoes are more frequent in the afternoon.

Toxic substances include toxic pesticides (e.g., pesticides that have teratogenic, carcinogenic, tumorigenic and/or mutagenic effects), and toxic industrial chemicals (e.g., lead, arsenic, mercury and nickel, among others).

Toxic substance-related diseases and health problems include, but are not limited to, chronic illnesses of the respiratory system (such as pneumonia,

[56] Defining Sustainable Development: the World Commission on Environment and Development (Brundtland Commission), Milton Park: earthscan/Routledge, 2014

upper and lower respiratory diseases, asthma and chronic obstructive pulmonary diseases), cancer, infertility, and congenital anomalies or malformations.

V

Vector borne diseases: Bangladesh Climate Change Strategy and Action Plan (BCCSAP 2009) highlighted the importance of addressing the emerging public health risks associated with three vector borne diseases: malaria, dengue fever, and kala-azar. The focus on the links between climate conditions and the incidence of vector borne diseases in Bangladesh are extremely limited. However, the impact of climate variability on the incidence of many vector-borne and waterborne diseases can be significantly modified by local environmental conditions and human adaptation responses. For example, in a tropical region such as Bangladesh, drought can lead to an increase in dengue fever because more people may store water in open containers in areas where access to piped water is limited, thus increasing the number of breeding sites for mosquitos[57].

Vulnerability: Vulnerability means any such existing socio-economic, geographical and environmental condition of any community, which may make expected capability of the community vulnerable, weak, unskilled and limited to adapt with affect of natural or human created hazard or any adverse reaction[58].

W

Waste covers discarded materials that are no longer required by the owner or user.

Water borne diseases: Water-borne Diseases are transmitted or spread through contaminated water. Pathogenic microbes (bacteria and viruses) and some parasitic organisms are responsible for various diseases of man and other animals. Such infectious pathogens survive and spread in the environment using various strategies. Three main routes of spread are recognised - air, water and person-to-person contact. The most common category of water-borne diseases is represented by diarrhoea. There are two major types, watery diarrhoea and dysentery. Cholera is the prototype of severe watery diarrhoea caused by the bacteria Vibrio cholerae. Certain other bacteria (bacilli) such as shigellae cause dysentery type of diarrhoea commonly called bacillary dysentery. A group of salmonella bacteria that enter the gut through water may or may not cause diarrhoea at the onset of infection but their actual clinical manifestation is a type of fever called enteric fever, the prototype of which is typhoid fever[59].

Water Logging: Bangladesh's high vulnerability to frequently occurring natural disaster is known worldwide, a lesser-known new phenomenon - water logging - has been disrupting livelihoods of people during the past two decades. The phenomenon involves deterioration of drainage condition in a number of southern coastal rivers leading to temporary to permanent inundation of floodplains along those rivers, causing enormous difficulties towards maintaining livelihoods and disrupting land-based productive system including agricultural crops. The problem has become severe in the southwestern parts of Bangladesh, especially along the Kapataksma river system covering parts of Jessore, Khulna and Satkhira districts. Water logging is also becoming an issue in central southern Noakhali district, where gradual chocking of the Noakhali rivulet (i.e., khal) has given rise to temporary water logging every year.

Wastewater is discarded water that is no longer required by the owner or user.

Water abstraction is the amount of water that is removed from any source, either permanently or temporarily, in a given period of time. Water is abstracted from surface water and groundwater resources by economic activities and households. Water can be abstracted for own use or for distribution to other users.

Water-related diseases and conditions result from micro-organisms and chemicals in the water that humans drink. They include, but are not limited to, diseases caused by biological contamination, such as gastroenteritis infections caused by bacteria, viruses and protozoa, and water-borne parasite infections.

Water resources consist of freshwater and brackish water, regardless of their quality, in inland water bodies, including surface water, groundwater and soil water.

Weather: Weather is the atmospheric condition at any given time or place. It is measured in terms of things such as wind, temperature, humidity, atmospheric pressure, cloudiness, and precipitation. In most places, weather can change from hour-to-hour, day-to-day, and season-to-season. It generally refers to the state of day to day atmosphere[60].

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[57] Climate Change and Health Impacts 2014: Disaster Risk and Climate Change Unit, Sustainable Development Department, South Asia Region.

[58] National Strategy On The Management Of Disaster And Climate Induced Internal Displacement (Nsmdciid), Ministry of Disaster Management and Relief.

[59] Banglapedia: National Encyclopedia of Bangladesh.

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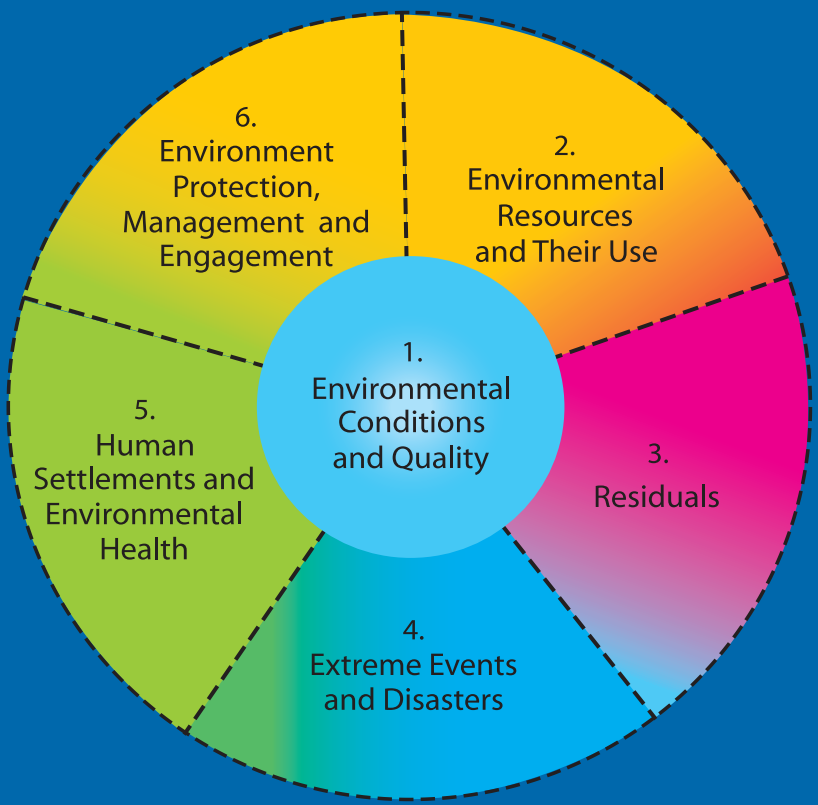
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