TRAINING MANUAL
ON
CLIMATE PERFORMANCE AUDIT PLANNING

Financial Management Academy (FIMA)

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AUDIT PLANNING

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Financial Management Academy (FIMA)
A/7, Lalasarai, Mirpur-14, Dhaka-1206
www.fima.gov.bd

The Training Manual on Climate Performance Audit Planning has been developed by the Office of the Comptroller and Auditor General (OCAG) and Financial Management Academy (FIMA) with support from Inclusive Budgeting and Financing for Climate Resilience (IBFCR) Project being implemented by Finance Division, Ministry of Finance with support from United Nations Development Programme (UNDP) Bangladesh.

Reviewed by
Ms. Monowara Habib, Director General, Financial Management Academy (FIMA)
Mr. Md. Saidur Rahman, Additional Secretary, Finance Division and NPD IBFCR Project
Mr. Md. Abdus Samad, Joint Secretary, Finance Division
Ms. Milia Sharmin, Deputy Secretary, Finance Division

Development Team
Mr. A.K.M. Mamunur Rashid, Climate Change Specialist, UNDP
Mr. Ranjit Kumar Chakraborty, Project Manager, UNDP
Mr. Bikash Chandra Mitra, Audit Expert, UNDP
Mr. Md. Abu Sumon, Climate Change Expert, UNDP

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PREFACE

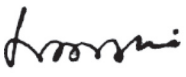
Bangladesh, because of its geographical location in a low-lying delta ecosystem, is highly prone to climate induced disasters which cause havoc on lives and livelihoods of its people almost every year. According to the Global Climate Risk Index 2020 released by Germanwatch, Bangladesh ranks seventh among the ten most climate vulnerable countries in the world. To address climate change issues, government of Bangladesh has spelled out a number of commitments in its Bangladesh Climate Change Strategy and Action Plan (BCCSAP). Under this plan, Finance Division, Ministry of Finance has been channelling resources to implement various projects and programmes. In this context, there is an overriding need to evaluate, using climate lens, whether we are achieving the best value for money from those projects/programmes. This prompts the need for developing a climate performance audit training manual.

This training manual has been developed with technical assistance from Inclusive Budgeting and Financing for Climate Resilience (IBFCR) Project of Finance Division supported by UNDP. The main objective of this manual is to assist prospective trainers in building and enhancing skills of auditors in conducing Climate Performance Audit (CPA). I do hope that this manual provides the readers with all necessary information to design effective and focused climate performance audit plan.

I am much delighted to introduce this training manual on Climate Performance Audit Planning for the prospective trainers. This manual has been finalised in consultation with the office of the Comptroller and Auditor General (OCAG), Financial Management Academy (FIMA) and other relevant stakeholders. Moreover, this manual has been formally cleared by the Technical Advisory Group of IBFCR project in its seventh meeting.

I would like to put on record my sincere thanks to the National Project Director (NPD) of IBFCR Project and the members of his team and my colleagues at FIMA and OCAG for their consistent support and cooperation in bringing out this publication.

Finally, I firmly believe that this manual will turn out to be a very useful and handy document for the auditors and senior officers of the department. The manual should be considered as a living document which is subject to change in response to stakeholders' needs. Suggestions from experts are always welcome.



Monowara Habib
Director General, FIMA

ACKNOWLEDGEMENTS

The overall guidance for developing this manual came from the Office of the Comptroller and Auditor General (OCAG) of Bangladesh. The Technical Advisory Group (TAG) of IBFCR Project reviewed the contents of the manual and provided feedback for its further improvement. We gratefully acknowledge their contributions.

IBFCR Project team, under the leadership of NPD, embarked on the task of developing the manual with outstanding support from Deputy Comptroller and Auditor General (Senior) and Deputy Comptroller and Auditor General (Accounts and Report) of OCAG. We acknowledge their generous support with deep gratitude.

We are grateful to the former Director General Mr. Sarooj Kanti Dev and the former Director Ms. Farmeen Mowla of Financial Management Academy (FIMA) for providing extensive support while piloting a training course using this manual in the academy premises in 2019. The Director General Ms. Monowara Habib and Director Mr. G.M. Mamunur Rashid, FIMA took particular interest in reviewing further the contents of the document and provided excellent editorial support. Their contributions and support are gratefully acknowledged.

The task of developing the manual was spearheaded by Mr. Bikash Chandra Mitra, Audit Expert of IBFCR Project who worked diligently to gather materials from different sources. His tenacity to take forward this arduous task with active support from Mr. Md. Abu Sumon, Climate Change Expert of IBFCR Project was outstanding. We deeply appreciate their contributions.

Mr. A.K.M. Mamunur Rashid, Climate Change Specialist of UNDP provided strong support to the team while developing the contents of the manual. Mr. Ranjit Kumar Chakraborty, Project Manager, IBFCR Project provided professional support to the team throughout the process of developing the manual. Their contributions are deeply appreciated.

Md. Saidur Rahman
Additional Secretary
Finance Division
and
National Project Director
Inclusive Budgeting and Financing for Climate Resilience (IBFCR) Project

ABBREVIATIONS AND ACRONYMS

AAU	Assigned Amount Units
ACE	Action for Climate Empowerment
AR	Assessment Reports
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BECA	Bangladesh Environment Conservation Act
BECCS	Bioenergy with Carbon Capture and Storage
BUET	Bangladesh University of Engineering and Technology
CC	Climate Change
CCS	Carbon Capture and Storage
CCTFA	Climate Change Trust Fund Act 2010
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CIPCC	Country Investment Plan for Climate Change
COP	Conference of the Parties
CPEIR	Climate Public Expenditure and Institutional Review
CSA	Sector-Specific Actions
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EIT	Economies In Transition
EU	European Union
FOLU	Forestry and Other Land Use
GCF	Green Climate Fund
GDP	Gross Domestic Product
GHG	Greenhouse Gases
IPCC	Intergovernmental Panel on Climate Change
KTP	Key Teaching Point
LDC	Least-Developed Countries
LULUCF	Land Use, Land Use Change and Forestry
MBF	Ministry Budget Framework
NAMA	Nationally Appropriate Mitigation Action
NAPA	National Adaptation Programme of Action
NDC	Nationally Determined Contributions
NGO	Non-Government Organisation

OCAG	Office of the Comptroller and Auditor General
OECD	Organisation for Economic Cooperation and Development
RCP	Representative Concentration Pathways
SAARC	South Asian Association of Regional Cooperation
SDG	Sustainable Development Goals
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States of America
WMO	World Meteorological Organisation

CONTENTS

INTRODUCTION

1 INTRODUCTION

1.1 BACKGROUND

Climate change has become one of the most topical issues of global concern as it brings in its wake many adverse consequences. It is a critical developmental issue for Bangladesh as the climate induced disasters almost every year cause havoc on the country's economy affecting mostly the lives and livelihoods of the people living in different climate hotspots. In response, the Government as part of its commitment to address the adverse effects of climate change has enacted enabling laws and framed relevant policies and strategies in line with the protocols and agreements signed at the international level. It has also been investing resources to implement different projects to lessen the impact of climate change.

As the Supreme Audit Institution of the country, the Office of the Comptroller and Auditor General (OCAG) of Bangladesh can play an important role in aiding the government to intensify its response to climate change by providing necessary advisory services. Therefore, it is incumbent upon the OCAG to conduct effective audit to ensure that the government is adequately and effectively responding to climate change and its investments are achieving the best value for money. Auditing government's response to climate change require an understanding of climate science, impacts of climate change on the country's economy and society and international conventions, protocols and agreements together with the national policies, plans and strategies. This requires that the OCAG auditors are adequately trained to apply the auditing tools and techniques for evaluating the government's response to climate change and climate investments.

1.2 SCOPE OF THE TRAINING COURSE

This training course is primarily designed to address the capacity enhancement needs of the OCAG officers and staffs who are directly involved in audit. It may also be used by other staffs who are responsible for controlling, monitoring and above all ensuring quality of audit.

1.3 OBJECTIVES OF THE TRAINING COURSE

The broad objectives are to:

a) Provide broad understanding about the current discourse on climate changes

b) Make the participants familiar with the climate change related international conventions, protocol, agreements and government's response to climate change as reflected in its policies, strategies and priorities and relevant legal framework

c) Instill skills required to apply the techniques and procedures, for preparing climate inclusive plan for conducting performance audit of government's actions related to climate change and its investment in climate relevant projects and programmes.

1.4 TRAINING METHODOLOGY

a) **Enhancing theoretical understanding:** In the first session, the participants will be given basic foundation on climate science, climate change and vulnerability arising from climate change. In the subsequent two sessions, the participants will learn the responses to climate change globally and nationally. Based on this knowledge, they will be taught how to select suitable audit topic on climate issues for conducting performance audit. They will also be equipped with the tools and techniques to be applied for preparing performance audit plan using climate lens.

b) **Deepening theoretical understanding:** Participant's theoretical understanding from each session will be deepened through group exercises, discussion and quiz.

c) **Evaluation**

1.5 TRAINING LOGISTICS

a) Multimedia

b) Laptop

c) Training Module

d) Power Point Presentation Slides, Flip Chart, White Board, Board Marker

e) Exercises and/or Case Studies.

1.6 DURATION OF TRAINING

4 (four) days

1.7 TRAINER'S RESPONSIBILITY

Trainers should fully understand the importance and objectives of training and strive to instill the skills into the minds of the participants on the techniques and procedures. They should -

- be very knowledgeable on the subject-matter and skilled in applying modern technique and tools.
- supply reading and study materials to the participants.
- make sure that the lecture sessions are interactive.
- understand group dynamics, prepare the groups accordingly and make sure that each participant actively participates in the group work.
- make sure that the participants fully understand the process and techniques required to prepare climate inclusive performance audit plan.

1.8 CHECKLIST FOR THE TRAINER

The trainers will need to prepare themselves adequately for the sessions. The following checklist may guide them:

i. Collect reference books, documents and notes.

ii. Prepare handouts and slides and put them in hard and soft copies.

iii. Develop exercises, suggestive solutions, checklists, and course evaluation sheet.

iv. Read the hand-outs and grasp the contents.

v. Discuss with the co-trainer about the session before delivering the session.

vi. Ensure that necessary logistics needed for the session are in place.

vii. Check the physical settings i.e., sitting arrangement, lighting, sound system, multimedia etc. before conducting the session.

1.9 TRAINING SCHEDULE

Day and Time	Session No	Session Topic	Delivery Method	Responsibility
Day 1				
09:30 – 10:00		Registration		▪ Organisation/FIMA ▪ Resource persons
10:00 – 10:30		Inauguration		▪ Organisation/FIMA ▪ Resource persons
10:30 – 11:00	**Tea Break**			
11:00 – 12:30	Session -1	Overview of the Climate Change and Vulnerability	▪ Lecture ▪ Discussion ▪ Exercise ▪ Quiz	Resource persons
12:30 – 02:00		**Lunch Break**		
02:00 – 03:00		Overview of the Climate Change and Vulnerability [continued]		
03:00 – 03:30		**Tea Break**		
03:30 – 04:30		Overview of the Climate Change and Vulnerability [continued]		
Day 2				
10:00 – 11:00	Session - 2	Global Response to Climate Change	▪ Lecture ▪ Discussion ▪ Exercise ▪ Quiz	Resource persons
11:00 – 11:30		**Tea Break**		
11:30 – 12:30		Global Response to Climate Change [continued]		
12:30 – 02:00	**Lunch Break**			

Day and Time	Session No	Session Topic	Delivery Method	Responsibility
02:00 – 03:00	Session - 3	National Response to Climate Change	▪ Lecture ▪ Discussion ▪ Exercise ▪ Quiz	Resource persons
03:00 – 03:30		**Tea Break**		
03:30 – 04:30		National Response to Climate Change [continued]		
Day 3				
10:00 – 11:00	Session – 4	Select Audit Topics and Prioritise	▪ Lecture ▪ Discussion ▪ Exercise	Resource persons
11:00 – 11:30		**Tea Break**		
11:30 – 12:30		Select Audit Topics and Prioritise [continued]		
12:30 – 02:00		**Lunch Break**		
02:00 – 03:00	Session - 5	Design the Audit: Audit Objectives, Audit Criteria, Audit Scope	▪ Lecture ▪ Discussion ▪ Exercise	Resource persons
03:00 – 03:30		**Tea Break**		
03:30 – 04:30		Design the Audit: Audit Objectives, Audit Criteria, Audit Scope [continued]		
Day 4				
10:00 – 11:00	Session - 6	Design the Audit: Audit Design Matrix	▪ Lecture ▪ Discussion ▪ Exercise	Resource persons
11:00 – 11:30		**Tea Break**		
11:30 – 12:30		Design the Audit: Audit Design Matrix [continued]		
12:30 – 02:00		**Lunch Break**		
02:00 – 03:00	Session - 7	Course Evaluation	▪ Lecture ▪ Discussion ▪ Exercise	Resource persons
03:00 - 03:30		**Tea Break**		
03:30 - 04:30		Closing		▪ Organisation/FIMA ▪ Resource persons

1.10 REGISTRATION AND INAUGURATION

Duration: 60 minutes.

Objectives: The participants will have:

- adequate briefings about the importance of the course from the master of ceremony's opening speech
- their names registered.

Activity	Description	Duration
Registration	▪ Participants will be registered in the registration form at the gate of the training room.	09:30 to 10:00
Inauguration and Setting the Norm	▪ Guests will take their seats ▪ Speech by designated persons/guests and formal opening of the training by the Chief Guest	10:00 to 10:30
Aids	Loudspeaker, Banner, Flower Bouquet, Training Materials	

SESSION 1

OVERVIEW OF THE CLIMATE CHANGE AND VULNERABILITY

2 SESSION 1: OVERVIEW OF THE CLIMATE CHANGE AND VULNERABILITY

Duration: 210 minutes.

2.1. SESSION-AT-A-GLANCE

Learning Objective	Materials Required	Session Structure	Teaching Method	Time Required
After this session, the participants will be able to gather basic knowledge about many facets of climate change. This knowledge will help them understand climate change from both national and international perspective.	1. Participant's Notes 2. Slides 3. Computer 4. Multimedia Projector 5. Audio Visual Aid 6. Flip Charts 7. Stationary	**Course Outline**	1. Lecture	5 minutes
		Session Overview	1. Lecture	5 minutes
		Learning Objective	1. Lecture	1 minute
		Basic Concepts	1. Lecture 2. Discussion	15 minutes
		Key Teaching Points (KTP) **KTP-1:** Climate change indicators and climate change drivers.	1. Lecture 2. Discussion	45 minutes
		KTP-2: Climate change vulnerability and impact: Global and National.	1. Lecture 2. Discussion	50 minutes
		KTP-3: Climate change adaption and mitigation.	1. Lecture 2. Discussion 3. Exercise	74 minutes
		Evaluation	1. Quiz	10 minutes
		Summary	1. Lecture 2. Discussion	5 minutes
			Total Time:	**210 minutes**

2.2. PARTICIPANT'S NOTES

OVERVIEW OF THE CLIMATE CHANGE AND VULNERABILITY

Session overview:

In this session an attempt will be made to enlighten the participants about different aspects of climate change. Starting with a brief definition of climate, the session will discuss what we mean by climate change together with its impacts on the society, economy and environment. We shall also bring to focus the drivers of climate change. Governments all over the world are trying to lessen the adverse impacts of climate change. We shall try to explore what steps have been taken by the Government of Bangladesh to address the adverse effects of climate change.

Learning objective:

After this session, the participants are expected to gather basic knowledge about many facets of climate change. This knowledge will help them understand the discourses that are taking place on climate change both nationally and internationally.

Basic concepts:

Climate- A climate can be defined as the average weather observed over a period of time. The Intergovernmental Panel on Climate Change (IPCC) defined climate in the following way:

"Climate in a narrow sense is usually defined as the 'average weather', or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period ranging from months to thousands or millions of years. The classical period is 30 years, as defined by the World Meteorological Organisation (WMO). These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system."

Climate Change - Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer.[1] Climate change may be due to natural internal processes or external forcing such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use.

The Framework Convention on Climate Change (UNFCCC), defines climate change as: *"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."* The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition, and climate variability attributable to natural causes.

Weather- Weather describes the conditions of the atmosphere at a certain place and time with reference to temperature, pressure, humidity, wind, and other key parameters (meteorological elements); the presence of clouds, precipitation; and the occurrence of special phenomena, such as thunderstorms, dust storms, tornados and others.

Environment- The word environment is derived from the French word "Environ" which means "surrounding". In its broadest sense, environment is defined as including water, air, soil, flora and fauna. The term environment could be said to cover all those elements which in their complex inter-relationships form the framework, setting and living conditions for mankind, by their very existence or by virtue of their impact.[2] According to the New Zealand Environment Act of 1986, where the environment is defined as including:

[1] IPCC (2007) *Climate Change 2007: Synthesis Report*

[2] EEC OJ C115, May 1976, p.2

"a) ecosystems and their constituent parts
b) all natural and physical resources
c) the social, economic, aesthetic and cultural conditions which affect the environment, or which are affected by changes to the environment."

According to Bangladesh Environment Conservation Act, 1995 "Environment is defined as the relationship between water, air, soil, physical objects and their inter-relationship with human beings, other animals, plants and microorganisms."

Difference between Climate and Environment- Climate is the average weather conditions of temperature, pressure, precipitations and humidity. It is based on the average weather experienced over 30 years or more, whereas, environment is the natural world or ecosystem. Environment is the trees, or mountains or physical features.

Sink- Sink means any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere. A sink refers to a carbon sink or greenhouse gas sink, or a mechanism of uptake of carbon or other greenhouse gases. Example includes absorption of carbon dioxide by the oceans.

Greenhouse Gases (GHG)- Greenhouse gases mean those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation. Carbon dioxide, methane and nitrous oxide are the principal greenhouse gases which are increasing due to human activities. They are known as greenhouse gases (GHGs) because they trap heat and raise air temperatures near the ground, acting like a greenhouse on the surface of the planet.

Anthropogenic GHG Emissions- Emissions mean the release of greenhouse gases and/or their precursors into the atmosphere over a specified area and period of time. Anthropogenic GHG emissions means the greenhouse gas emissions which results from man-made activities.

Intergovernmental Panel on Climate Change (IPCC)- Intergovernmental Panel on Climate Change was established in 1988 by the World Meteorological Organisation(WMO) and the United Nations Environment Programme(UNEP) with the responsibility of providing comprehensive, objective, open and transparent peer reviewed assessments of the latest scientific, technical and socio-economic literature produced worldwide relevant to climate change and its risks and impacts and options for adaptation and mitigation.

United Nations Framework Convention on Climate Change (UNFCCC)- UNFCCC is the principal global response to climate change. The UNFCCC is a multilateral agreement. It is based on the principle of 'common but differentiated responsibilities' which means that developed and industrialised nations should take the lead in reducing manmade emissions.

1. CLIMATE CHANGE INDICATORS AND CLIMATE CHANGE DRIVERS

1.1. Climate Change Indicators

There are many indicators of climate change. These include physical responses such as changes in the following: *surface temperature, atmospheric water vapour, precipitation, severe events, glaciers, ocean and land ice, and sea level*. The physical changes can be categorised in the following way:

Atmosphere	Ocean	Land	Ice
▪ Cooling Stratospheric temperature ▪ Changes in winter polar vortex strength ▪ Warming from the surface through much of the troposphere ▪ Long-term changes in the large-scale atmospheric circulation, including a poleward shift of jet streams ▪ Increasing concentration of CO_2 and other greenhouse gases from human activities ▪ Changes in cloud cover ▪ Increasing tropospheric water vapour ▪ Changes in aerosol burden and ozone concentrations ▪ Rising global average near surface temperature ▪ Increasing surface humidity ▪ Warming of sea surface temperatures	▪ Warming throughout much of the world's ocean ▪ Increasing rates of global mean sea level rise ▪ Changes in ocean salinity ▪ Acidification of the oceans	▪ More frequent warm days and nights. Fewer cold days and nights ▪ Reductions in the number of frost days ▪ Decreasing snow cover in most regions ▪ Degrading permafrost in areal extent and thickness ▪ Large scale precipitation changes ▪ Increase in the number of heavy precipitation events	▪ Shrinking annual average Arctic sea ice extent ▪ Widespread glacier retreat ▪ Changes in ice sheets in Greenland and Antarctica

All of these indicators can be grouped into the following categories:

- An increase in average air and ocean temperatures.
- An increase in the average global sea level.
- Widespread melting of ice and snow.
- Changing weather such as wind patterns, the amount and type of precipitation and frequency of severe weather events.

Temperature rise in the air and oceans - The global mean temperature increased by 0.74 degrees Celsius from 1906 to 2005. But in recent years the mean temperature has increased substantially since the recording of global temperatures started around 1850. A total of 20 of the 21 warmest registered years have occurred during the last 25 years. The rise in global mean temperature during the last 50 years has been twice as great as during the last 100 years.[3] The main rise in ocean temperature is in surface water, but new scientific evidence suggests that the global average ocean temperature has increased down to depths of at least 3,000 metres. By the year 2100, winter temperature in northern Canada, Greenland, and northern Asia are predicted to rise by 40 percent more than the global average. In the absence of implementation of climate change policies by different countries to reduce emissions, climate models predict a global warming of about 1.8 to 4 degrees Celsius between 1990 and 2100. Even a 1.4 degrees Celsius rise would be greater than in any century time- scale trend for the past 10,000 years.[4]

[3] IPCC (2007) *Summary for policymakers. In: Climate Change 2007 : The Physical Science Basics Contribution of Working Group to Fourth Assessment Report of the Intergovernmental Panel on Climate Change.*

[4] IPCC (2007) *Climate Change 2007: Synthesis Report.*

Concentrations of carbon dioxide in the atmosphere surged at a record-breaking speed in 2016 to the highest level in 800000 years, according to the World Meteorological Organisation's Greenhouse Gas Bulletin.[5] The abrupt changes in the atmosphere witnessed in the past 70 years are without precedent.

Globally averaged concentrations of CO_2 reached 403.3 parts per million in 2016, up from 400.00 ppm in 2015 because of a combination of human activities and a strong El Niño event. Concentrations of CO_2 are now 145 percent of pre-industrial (before 1750) levels, according to the Greenhouse Gas Bulletin.

Rapidly increasing atmospheric levels of CO_2 and other greenhouse gases have the potential to initiate unprecedented changes in climate systems, leading to "severe ecological and economic disruptions," said the report.

The annual bulletin is based on observations from the WMO Global Atmosphere Watch Programme. These observations help to track the changing levels of greenhouse gases and serve as an early warning system for changes in these key atmospheric drivers of climate change.

Population growth, intensified agricultural practices, increases in land use and deforestation, industrialisation and associated energy use from fossil fuel sources have all contributed to increases in concentrations of greenhouse gases in the atmosphere since the industrial era, beginning in 1750.

Since 1990, there has been a 40 percent increase in total radiative forcing – the warming effect on our climate - by all long-lived greenhouse gases, and a 2.5 percent increase from 2015 to 2016 alone, according to figures from the US National Oceanic and Atmospheric Administration quoted in the bulletin.

"Without rapid cuts in CO_2 and other greenhouse gas emissions, we will be heading for dangerous temperature increases by the end of this century, well above the target set by the Paris climate change agreement," said WMO Secretary-General Petteri Taalas. "Future generations will inherit a much more inhospitable planet" he said.

"CO_2 remains in the atmosphere for hundreds of years and in the oceans for even longer. The laws of physics mean that we face a much hotter, more extreme climate in the future. There is currently no magic wand to remove this CO_2 from the atmosphere," said Mr Taalas.

Sea level rise and glacier melting - When the upper layers of the ocean warm, water expands and the sea level rises. High temperatures cause glaciers to melt which result in the rise of sea level. The fourth IPCC report states that the mean sea level has risen by nearly 20 centimetres during the 20th century. Climate models suggest that a warming of 0.6 degree Celsius would result in the observed sea level rise to date.

The fourth IPCC report forecasted a sea level rise of 18 centimetres to 59 centimetres by 2100. The thermal expansion of the upper layers of the ocean as they warm, with some contribution from melting glaciers will cause this. The IPCC's Fourth Assessment report states that the contraction of the Greenland ice sheet is predicted to continue contributing to sea level rise after 2100. If this contraction continues for centuries, it may lead to the virtually complete disappearance of the Greenland ice sheet. If this were to happen, the Greenland melted ice, by itself, would cause sea levels rise by about seven metres.

Changes in weather - Many parts of the world are experiencing increasing amounts of rain. There are large regional differences, however. IPCC report suggests that global precipitation is likely to increase, but local trends are much less certain. The frequency and intensity of extreme weather events such as storms, cyclone and hurricanes are likely to continue to increase. There would be an increase in droughts, heat waves and floods.

[5] WMO (2007) *WMO Greenhouse Gas Bulletin, No 13, October 2017.*

1.2 Climate Change Drivers

Natural and anthropogenic substances and processes that alter the earth's energy budget are drivers of climate change. Main contributors to climate change are GHGs such as carbon dioxide, methane, and nitrous oxide. Climate change occurs when the concentration of these GHGs in the atmosphere increases.

Although the main contributors of climate change are GHGs, a very little amount of GHGs are emitted by the nature itself. Most part of the GHGs is emitted by human activities. The IPCC fourth assessment report concludes that there is new and stronger evidence that most of the warming observed during the last 50 years is attributable to human activities. The following table shows the main drivers of GHGs:

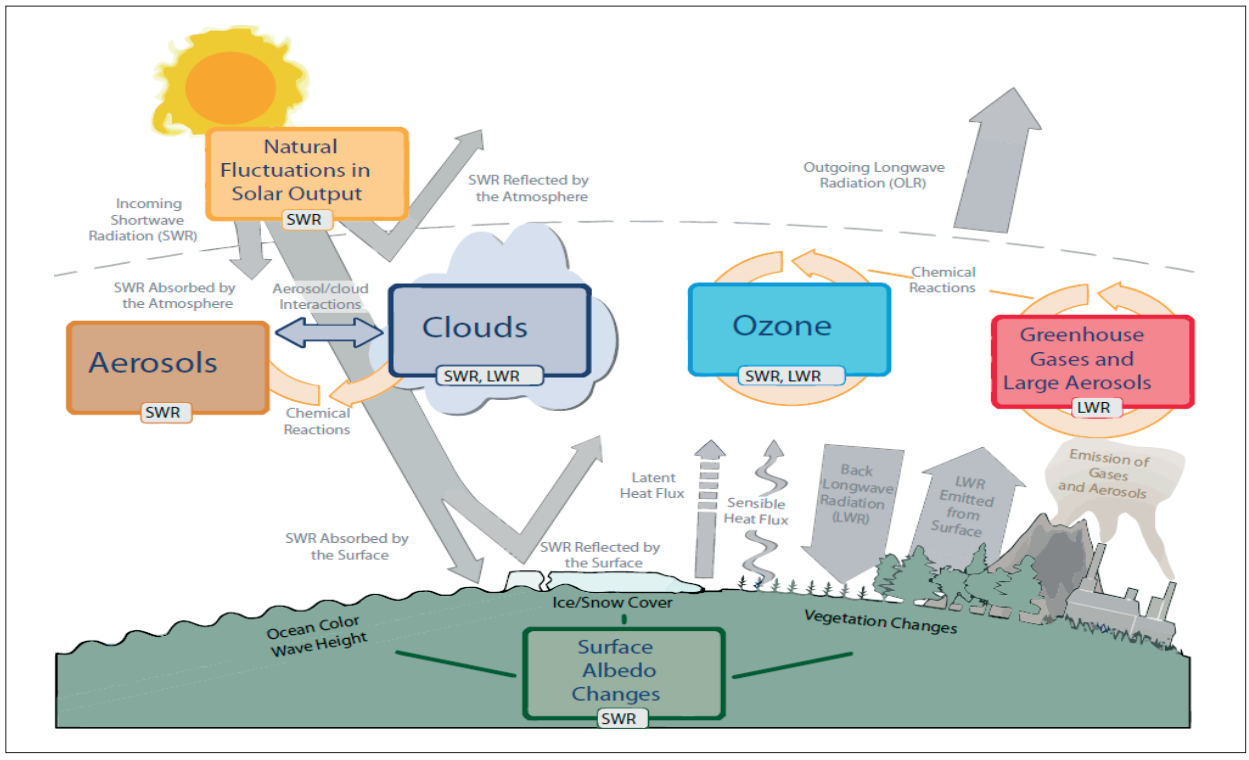
Table-1: World human produced GHG by sector[6]

SECTOR	GHG EMISSION (%)
Transport	14.0%
Electricity and Heat Production	25.0%
Industry	21.0%
Buildings	6.4%
Other Energy	9.6%
Agriculture, Forestry and Land Use	24.0%

As long as GHG levels keep rising, the climate will continue to change. The temperature will probably rise further in spite of any future reduction in emissions, because the GHG remain in the atmosphere for a very long period of time and the response of climate system is very slow.

[6] IPCC (2014) *Climate Change 2014: Synthesis Report.*

Figure-1: Main drivers of climate change[7]



Greenhouse gages- GHGs and their sources carbon dioxide (CO_2) is mainly emitted from the combustion of fossil fuel and deforestation. It contributes about 80 percent of the total emission of anthropogenic GHGs, Methane (CH_4) is mainly released by landfills, agriculture and rice cultivation. Sources of nitrous oxide (N_2O) include chemical fertilisers, industrial processes and the burning of fossil fuels.

The greenhouse effect- The greenhouse effect is a natural phenomenon that regulates the temperature on earth. Without the presence of GHG in atmosphere, the earth would release the same amount of energy back into space as it would have got from the sun. GHGs, which constitute less than one percent of the atmosphere, keeps the earth warm. It does this by absorbing and retransmitting outgoing infrared energy from the earth's surface, heated itself by solar radiation. Natural GHGs include water vapour, carbon dioxide, methane, nitrogen oxide and ozone. Without any greenhouse effect, the average temperature on earth would be —18 degrees Celsius; at present the average temperature is 15 degrees Celsius.

The carbon cycle: sink and sources- Earth's major reservoir of carbon are the atmosphere, the terrestrial biosphere, the oceans and sediments (including fossil fuels). The carbon cycle is the cycle by which carbon is exchanged between these reservoirs. This cycling of carbon is a prerequisite for life on earth.

It has been estimated that about half of the carbon dioxide released into the air by human activity has been absorbed by the land and oceans. The processes or systems that absorb GHGs are called sinks. Sinks are important as they influence the total quantity of greenhouse gases in the atmosphere. Any reduction in their capacity will increase global warming. The oceans and the photosynthesis carried out by vegetation on land and in the oceans, are natural sinks. Forests constitute the primary sink for carbon dioxide, as young tress can absorb a lot of carbon dioxide during many years.

Human activities influence carbon cycle and the amount of carbon in the reservoir. Important examples are increased carbon oxide in the atmosphere caused by the burning of fossil fuels and deforestation. Flows from fossil fuel reservoirs to the atmosphere constitute about 80 percent of the anthropogenic contribution to increased carbon oxide in the atmosphere. On the other hand, through forest management, human activities can enhance the sink of carbon oxide.

[7] IPCC (2013) *Introduction. In: Climate Change 2013: The Physical Science Basics. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.*

2. CLIMATE CHANGE VULNERABILITY AND IMPACT – GLOBAL AND NATIONAL

Climate change vulnerability and impact – Global

"We have heard the warnings. Unless we act, now, we face serious consequences. Polar ice will melt. Sea levels will rise. A third of our plant and animal species could vanish. There will be famine, particularly in Africa and Central Asia." –UN Secretary General Ban Ki-moon.

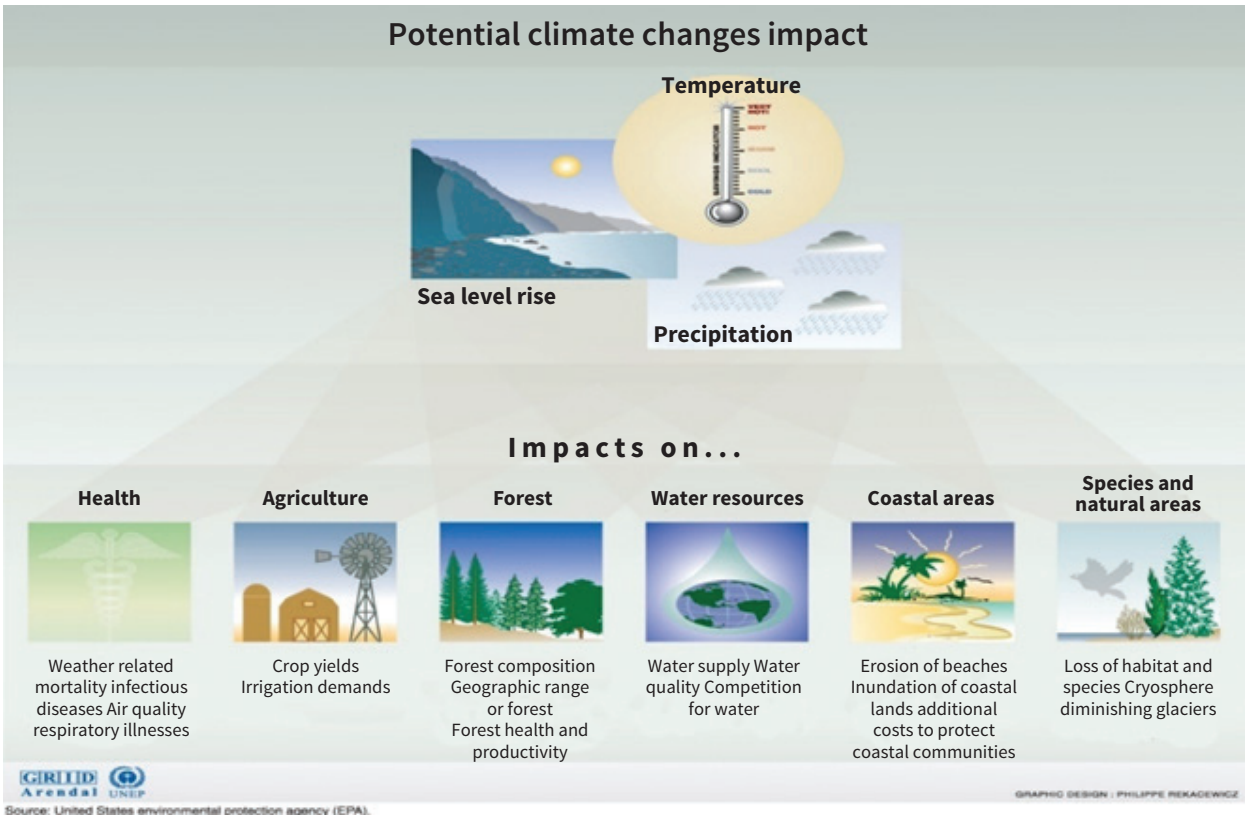
Climate change is causing and will continue to cause havoc on the life of mankind. The IPCC reports that global temperature is likely to rise between 1.8 degrees and 4.0 degrees Celsius by the end of the 21st century. The amount of CO_2 in the atmosphere is higher than at any time in the last 800,000 years. Concentration of CO_2 in the atmosphere before the Industrial Revolution was 280ppm whereas concentration of CO_2 in the atmosphere in December 2016 was 405ppm. The 21st century has seen the most temperature records broken in recorded history. 2016 was the hottest year on record since 1880. Sea levels are rising at their fastest rate in 2,000 years. Future climate changes, risk and impacts are shown in the following table.

Table-2: Global key climate change risks

Region	Key Climate Change Risks
Polar region	▪ Risks for ecosystems ▪ Risks for health and well-being ▪ Unprecedented changes, especially from rate of change
Asia	▪ Increased flood damages to infrastructure, livelihoods and settlements ▪ Health-related human mortality ▪ Increased drought-related water and food shortage
Africa	▪ Compounded stress on water resources ▪ Reduced crop productivity and livelihood and food security ▪ Vector and water-borne diseases
Australasia	▪ Significant change in composition and structure of coral reef system ▪ Increased flood damages to infrastructure and settlements ▪ Increased risks to coastal infrastructure and low-lying ecosystem
Europe	▪ Increased damages from river and coastal floods ▪ Increased water restrictions ▪ Increased damages from extreme heat events and wildfires
North America	▪ Increased damages from wildfires ▪ Heat-related human mortality ▪ Increased damages from river and coastal urban floods
Central and South America	▪ Reduced water availability and increased flooding and landslides ▪ Reduced food production and quality ▪ Spread of vector-borne diseases
Small Islands	▪ Loss of livelihoods, settlements, infrastructure, ecosystem services and economic stability ▪ Risk of low-lying coastal areas
The Ocean	▪ Distributional shift and reduced fisheries catch potential at low latitude ▪ Increased mass coral bleaching and mortality ▪ Coastal inundation and habitat loss

The impacts of the global warming on the climate change will be severe and it will vary from region to region. It will have wide ranging environmental, socio-economic and other effects. Climate change will impact on our health, agricultural, forest, water recourses, coastal areas, and species and natural areas:

Figure-2: Potential climate change impacts



Source: UNEP/GRID-Arendal, 2000. Potential climate change impacts. UNEP/GRID-Arendal Maps and Graphics Library [Online] Available at maps.grida.no/go/graphic/potential-climate-change-impacts

Health: Climate change is likely to affect millions of people across the globe. It is apprehended that there will be an increase in malnutrition and ensuing health problems. This has a particular bearing on child growth and development. Water related mortality, infectious diseases, air quality respiratory illness will increase. Heat waves, floods, storms and other extreme weather events are likely to result in an increase in deaths, diseases and injuries. Climate change along with changed weather pattern is likely to affect intensity and seasonality of many major tropical vector-borne and other infectious diseases such as malaria and dengue fever. These diseases already kill one million people annually. Climate change is likely to result in an increase of burden of diseases like cholera and diarrhoea resulting from floods, drought and storms.

Agriculture: Agricultural production in developing countries will decrease. The increased frequency of heavy precipitation in many areas of the world will cause in more damage to crops and soil erosion. In many developing countries increased drought will require more irrigation. Increased expenditure on research will have to be committed to produce climate resilient crops.

The effect of climate change on agricultural production is likely to vary from region to region. UNDP states that productivity will grow, and the growing season will be expanded, at least in response to a small increase in temperature in developed countries. But developing countries will experience a decrease in production.

Sub-Saharan Africa is one of the poorest and heavily rainfall dependent regions in the world. Agricultural growers are resource constraint already. Even minor shifts in temperature and rainfall patterns make them vulnerable. Climate change may lead to increased malnutrition and reduced opportunities for reducing poverty.

The increase in the frequency of heavy rainfall events in most parts of the world is likely to result in more damage to crops and more soil erosion. Water logging in high-latitude winters may also be an increasing problem because of more rain. On the other hand, higher temperature may cause drier soil in the summer.

Forest: Forest health and productivity will be adversely affected by climate change. Climate changes directly and indirectly affects the growth and productivity of forests through changes in temperature, rainfall, weather and other factors. Moreover, elevated levels of carbon dioxide have an effect on plant growth. These changes impact complex forest ecosystem in many ways. Rising CO_2, higher temperatures, changes in precipitation, flooding, drought duration are likely to have significant effects on tree growth.

Water: It is expected that changes in rainfall and ice melting will lead to severe water shortages in many parts of the world. Salt water intrusion from rising sea levels will result in the decline of quality water in many countries. UNFCCC report states that higher ocean levels are already contaminating underground water sources in different parts of the world. The most affected areas are located in Thailand, and in various small islands states in the Pacific and the Indian oceans and the Caribbean Sea. Some of the world's most productive areas are also experiencing poorer water quality such as China's Yangtze delta and Vietnam's Mekong Delta. Ground waters level are falling rapidly in the Middle East and South Asia.

IPCC report states that the extent of drought-affected areas is expected to increase in the future. If this happens, droughts will be regular visitors and there will be problems due to change in the pattern of precipitation. Sub-Saharan Africa is badly affected by drought, but South Asia, Australia and Latin America are also likely to be affected. In addition to water shortages, droughts are likely to have other effects such as forest fires.

Limited access to water resources affects all sectors and regions. Billons of people across the globe already lack access to fresh water, so climate change is a grave concern. Combined with an increase in other factors that put pressure on water resources, such as population growth and industrial development, climate change will have a marked impact on the distribution and availability of water. According to 5th IPCC report, climate change over the 21st century is projected to reduce renewable surface water and groundwater resources in most dry subtropical regions, intensifying competition for water among sectors. In dry regions, the frequency of droughts will likely to increase by the end of the 21st century. In contrast, water resources are projected to increase at high latitudes. The interaction of increased temperature; increased sediment, nutrient and pollutant loadings from heavy rainfall; increased concentrations of pollutants during droughts; and disruption of treatment facilities during floods will reduce raw water quality and pose risks to drinking water quality.

Coastal areas: Rising sea levels will adversely affect the coastal areas. It will result in erosion also. A rise in sea level will increase the frequency of storm surges, flooding and wave damage to coastlines. IPCC report states that this effect will be more serious by increasing human-induced pressures in these areas.

Due to rising sea levels, the number of people affected by floods will increase by the 2080's. Densely populated and low-lying mega deltas in Asia and Africa will be badly affected. Small islands are particularly vulnerable. Indonesia, comprising about 17000 islands, could lose 2000 small islands by 2030 due to rise in sea levels as a result of climate change.

The UNDP forecasts that between 75 million and 250 million more people in sub-Saharan Africa could have their livelihoods and human development compromised by a combination of rising temperature, increased water stress and drought by 2020.

Species and Natural Areas: Species distribution follows their climate zone. With the change in climate zone, the spread of species also changes. Changes in migratory patterns, flowering seasons and the distribution of flora and fauna have already been noticed in different parts of the world.

Corals are sensitive to changes in temperature. Even a small rise in temperature is likely to result in bleaching of corals and widespread mortality. This mortality is already visible. Moreover, coral reefs are vital for sustaining many fish stocks. If coral reef collapses, the food supply and livelihood of many people

will be badly affected. According to UNDP, most of the 30 million small scale fishers in the developing world are dependent in some form on coral reefs to maintain fish feeding and breeding grounds. Moreover, 400 million poor people who live in tropical coastal areas get more than half of their protein and essential nutrients in their diets from fish.

In the year 2017, many regions of the world particularly Caribbean Islands, USA, Philippines, Myanmar and Bangladesh experienced severe storms and cyclones. This led the scientists to reveal that due to temperature rise in the bottom of the ocean there has been a rise in the storms. In a recent interview with the BBC, United Nations Secretary General Antonio Guteress told that the latest storms in the Caribbean islands has been caused by climate change. He recommended that climate action should come first.

Climate change vulnerability and impact – National

The 4th IPCC report states that in South Asia the monsoon rainfall will increase resulting in higher flows during the monsoon season in the rivers which flow into Bangladesh from India, Nepal, Bhutan, and China. These flows are likely to further increase following the melting of the Himalayan glaciers. The IPCC report also states that global warming will result in the rise of sea level between 0.18 and 0.79 meters which could increase coastal flooding and saline intrusion into aquifers and rivers across a wide belt in the south of the country. Rainfall is predicted to become both higher and more erratic, and the frequency of droughts likely to increase.

The 4th IPCC report also predicted that one- third of Bangladesh may go under water in the present century because of climate change. About sixty thousand square kilometers of nineteen districts are at the risk of going under water. This may result in the displacement of about 20 million people.

The Water and Flood Management Institute of BUET conducted a study on the impact of climate change in Bangladesh. This study came with findings which are a bit different from 4th IPCC report. The report concluded that as a result of one-meter increase in the water level of Bay of Bengal in the present century. 3930 square kilometers of land area would go under water and 60 lakh people would become homeless from 4 percent areas of mainland.

In 2017 alone, about 170 people died from thunderbolts. During the last seven years about 1760 people died from thunderbolts in Bangladesh. According to one study published in the journal ‘Nature”, the sudden rise in the lightning across the world has been caused by climate change. This study reveals that one-degree Celsius increase in the temperature results in 12 percent increase in the thunderbolts in the world. Over the last thirty years, world temperature has increased by one degree Celsius.

SAARC Meteorological Research Centre (SPRC) in recent years conducted a study and came up with a projection on climate condition in 2030 and 2070 in this region. The study found that the average increase in temperature would be 1.3 and 2.6 degrees Celsius for the years 2030 and 2070 respectively. The study also revealed that there would be a seasonal variation in changed temperature: 1.4 degrees Celsius change in the winter and 0.7 degree Celsius in the monsoon months in 2030. For 2070 the variation would be 2.1 degrees Celsius and 1.7 degrees Celsius for winter and monsoon, respectively. It was also found that there would be excessive rainfall in the monsoon resulting in floods and very small to no rainfall in the winter causing drought.

Bangladesh is rightly recognised as one of the most vulnerable countries to climate change. It has been experiencing frequent natural disasters like floods, tropical cyclones and storm surges, drought resulting in the loss of life, damage to infrastructure and economic assets. According to Germanwatch, which compiles the Climate Risk Index based on the impacts of extreme weather events in various countries, Bangladesh suffered the annual loss, on average over the 1995-2014 of over 700 lives, almost US$2.5 billion or 0.86 percent of annual GDP.

Climate change will multiply many of the existing problems and hazards that the country is already experiencing. It is apprehended that climate change will result in frequent and severe cyclones; more erratic and massive rainfall causing higher river flows, riverbank erosion and increased sedimentation; melting of the Himalayan glaciers; sea level rise. Sea level rise will lead to submergence of low-lying coastal areas and saline water intrusion into coastal rivers and into ground water aquifers reducing freshwater availability. It will cause serious damage to the Sundarbans mangrove forest.

Climate change will seriously affect crops, livestock and fisheries. The higher temperatures and changing rainfall patterns coupled with increased flooding, rising salinity in the coastal areas and droughts will result in decline in crop yields and crop production. According to IPCC report, by 2050, rice production could decrease by 8 percent and wheat by 32 percent in Bangladesh (against a base year of 1990).

Shortage of safe drinking water is likely to become more acute, especially in the coastal-belt and in drought prone areas in the north-west of the country. This will impose hardship on women and children who collect drinking water for their families. Increasingly saline drinking water may cause health hazards.

Increased riverbank erosion and saline water intrusion in coastal areas are likely to displace huge number of people who will be forced to migrate, often to slums in Dhaka, Chattogram and other big cities of the country. If sea level rise is higher than currently expected and coastal polders are not strengthened, and new ones built, six to eight million people could be displaced by 2050 and would have to be resettled.

Bangladesh is one of the most densely populated countries of the world. It is estimated that by 2050 the population of the country would be about 200 million. About half of this population would live in towns and cities. Dhaka would become a mega city having a population of over 40 million. The impact of higher and more intense rainfall will be felt in urban areas, where drainage is already serious problem and sewers frequently block up in the monsoon season. Poor people living in slums and low- lying parts of the cities will be worst affected. With rapid and unplanned urbanisation in the towns and cities of Bangladesh, this is going to be a serious and urgent problem.

In spite of the fact that there is some uncertainty about the IPCC forecasts on the timing and the severity of these impacts, the directions of change are clear. Changes in rainfall patterns and in the frequency and severity of tropical cyclones and storm surges are likely to happen quickly which is evident by the fact that Bangladesh and Myanmar were hit hard by Cyclone Sidr and Cyclone Nargis respectively within six months. Other changes like sea level rise are likely to be seen only after 20 years, possibly longer.

3. CLIMATE CHANGE ADAPTION AND MITIGATION

Climate Change Adaptation - In general, adaptation is viewed as a group of processes and actions that help a system absorb changes that have already occurred, or may be predicted to occur in the future. Adaptive capacity is closely linked to social and economic development (IPCC, 2007). It is a response to global warming and climate change, that seeks to reduce the vulnerability of social and biological systems to relatively sudden change and thus offset the effects of global warming.

Adaptation is a process through which societies make themselves better able to cope with an uncertain future. Adapting to climate change entails taking the right measures to reduce the negative effects of climate change (or exploit the positive ones) by making appropriate adjustments and changes. There are many options and opportunities to adapt. These range from technological options such as increased sea defenses or flood-proof houses on stilts, to behavioral change at the individual level, such as reducing water use in times of drought and using insecticide-sprayed mosquito nets. Other strategies include early warning systems for extreme events, better water management, improved risk management, various insurance options and biodiversity conservation. Because of the speed at which change is happening due to global temperature rise, it is urgent that the vulnerability of developing countries to climate change is reduced and their capacity to adapt is increased and national adaptation plans are implemented. Future vulnerability depends not only on climate change but also on the type of development path that is pursued. Thus, adaptation should be implemented in the context of national and global sustainable development efforts. The international community is identifying resources, tools and approaches to support this effort.

UNFCCC programme for adaptation consists of nine components:

1	Methods and tools
2	Data and observations
3	Climate modeling, scenarios and downscaling
4	Climate related risks and extreme events
5	Socio-economic information
6	Adaptation planning and practices
6	Research
7	Technologies for adaptation
8	Economic diversification

UNDP adaptation policy framework consists of seven components:

1	Scoping and designing an adaptation project
2	Assessing current vulnerability
3	Assessing future climate risks
4	Formulating an adaptation strategy
5	Continuing the adaptation process
6	Assessing and enhancing adaptive capacity
7	Engaging stakeholders

Adaptation generally involves sectors like agriculture, forestry and fisheries, industry, transport, health, energy, tourism, finance and insurance. Adaptation is also contextual in biodiversity, infrastructure, water resources management, coastal zone management, mountain regions management, and land use planning.

Examples of adaptation across regions include the following:

- In Africa, most national governments are initiating governance systems for adaptation. Disaster risk management, adjustments in technologies and infrastructure, ecosystem-based approaches, basic public health measures, and livelihood diversification are reducing vulnerability, although efforts to date tend to be isolated.
- In Europe, adaptation policy has been developed across all levels of government, with some adaptation planning integrated into coastal and water management, into environmental protection and land planning, and into disaster risk management.
- In Asia, adaptation is being facilitated in some areas through mainstreaming climate adaptation action into local level development planning, early warning systems, integrated water resources management, agroforestry, and coastal reforestation of mangroves.
- In Australasia, planning for sea level rise and reduced water availability, is being adopted widely. Planning for sea level rise has evolved considerably over the past two decades and shows a diversity of approaches, although its implementation remains piecemeal.
- In North America, governments are engaging in incremental adaptation assessment and planning, particularly at the municipal level. Some proactive adaptation is occurring to protect longer-term investments in energy and public infrastructure.

- In Central and South America, ecosystem-based adaptation including protected areas, conservation agreements, and community management of natural areas is occurring. Resilient crop varieties, climate forecasts, and integrated water resources management are being adopted within the agricultural sector in some areas.
- In the Arctic, some communities have begun to deploy adaptive co-management strategies and communications infrastructure, combining traditional and scientific knowledge.
- In small islands, which have diverse physical and human attributes, community-based adaptation has been shown to generate larger benefits when delivered in conjunction with other development activities.
- In the ocean, international cooperation and marine spatial planning are starting to facilitate adaptation to climate change, with constraints from challenges of spatial scale and governance issues.

Government's efforts towards adaptation:

- Since the 1970s, the Government of Bangladesh, with support from development partners, has been mobilising resources to implement adaptation efforts.
- Flood management schemes to protect low-lying rural areas from extremely damaging severe floods have been implemented.
- Flood protection and drainage schemes have been implemented to protect urban areas from rainwater and river flooding during the monsoon.
- Over 6000 km of embankments and polder schemes implemented to raise agricultural productivity in coastal areas by preventing tidal flooding and incursion of saline water.
- Around 4000 cyclone shelters have been constructed.
- Comprehensive disaster management projects have been implemented.
- Early warning systems for floods and cyclones have been developed and improved.
- Irrigation schemes to enable farmers to grow dry season rice crop in areas subject to heavy monsoon flooding and in other parts of the country, including drought prone areas have been introduced.
- Agricultural research programmes have been implemented to develop saline, drought and flood-adapted high yielding varieties of rice and other crops.

Adaptation to climate change has placed a huge burden on the development budget of Bangladesh and international support will be required to meet the challenge. Bangladesh is soliciting strong commitment and support from international community to help implement the BCCSAP. It is also calling upon the development partners to provide necessary resources to meet the additional costs of building climate resilience.

Climate Change Mitigation – Along with adaptation, mitigation is another central approach of addressing the impact of climate change. Mitigation involves human interventions to reduce the emissions of greenhouse gases by sources or enhance their removal from the atmosphere by 'sinks'. Mitigation consists of actions to limit the magnitude or rate of long-term climate change. Climate change mitigation generally involves reductions in human (anthropogenic) emissions of greenhouse gases (GHGs). Mitigation may also be achieved by increasing the capacity of carbon sinks, e.g., through reforestation. Mitigation policies can substantially reduce the risks associated with human-induced global warming.

According to the IPCC's 2014 assessment report, mitigation is a public good; climate change is a tragedy of the commons. Effective climate change mitigation will not be achieved if each agent i.e. individual, institution or country acts independently in its own selfish interest, suggesting the need for collective action.

Examples of mitigation include phasing out fossil fuels by switching to low- carbon energy sources, such as renewable and nuclear energy, and expanding forests and other sinks to remove greater amount of carbon dioxide from the atmosphere. Energy efficiency may also play a very important role, for example, through improving the insulation of buildings. Another approach to climate change mitigation is climate engineering.

Renewable energy and nuclear power: A range of energy technologies may contribute to climate change mitigation. These include nuclear power and renewable energy sources like biomass, hydroelectricity, wind power, solar power, geothermal power, ocean energy. Since about 2001 the term "nuclear renaissance" has been used to refer to a possible nuclear power industry revival, driven by rising fossil fuel prices and new concerns about meeting greenhouse gas emission limits. Historically, nuclear power usage is estimated to have prevented the atmospheric emission of 64 giga tonnes of CO_2 equivalent as of 2013. Over 400 reactors generate electricity in 31 countries.

Forests: Forests are sinks of atmospheric carbon dioxide concentration. So, afforestation and reforestation play a very important role in reducing the growth in global carbon dioxide concentrations. About 20 percent of total greenhouse gas emissions were from deforestation in 2007.

Forests play a major role in climate change policy. They have the capacity to absorb and store about one-tenth of global carbon emissions projected for the first half of this century into their biomass, soils and products. When forests are destroyed, cleared, overused or degraded they contribute to one-sixth of global carbon emissions. The net growth or decrease in national forest reserves, therefore, corresponds to a negative or positive contribution to GHG emissions.

Building Design: GHG emissions from housing are substantial and government-sponsored energy efficiency programmes can make a difference. New buildings can be built using passive solar building design, low energy building or zero- energy building techniques, using renewable heat sources. Existing building can be made more efficient through the use of insulation, high-efficiency appliances, renewable heat sources such as shallow geothermal and passive solar energy reduce the amount of greenhouse gasses emitted.

Climate Engineering: climate engineering is the deliberate and large-scale intervention in the earth's climate system with the aim of affecting adverse global warming. Climate engineering is an umbrella term for measures that mainly fall into two types:

i Carbon dioxide removal

ii Solar radiation management

Carbon dioxide removal addresses the cause of global warming by removing one of the greenhouse gases (carbon dioxide) from the atmosphere. Solar radiation management attempts to offset effects of greenhouse gases by causing the earth to absorb less solar radiation.

Government's efforts towards mitigation:

Bangladesh's contribution to emission of greenhouse gas is minimal. In the year 2005, the total GHG emission from Annex I Parties was 18.2 billion tonnes of CO_2 (excluding Land Use, Land Use Change and Forestry-LULUCF). Including LULUCF, it was 16.7 billion tonnes CO_2 equivalents. In contrast, the 122 non-Annex I Parties emitted a total of 11.9 billion tonnes (with LUCF) and 11.7 billion tonnes (without LUCF). Bangladesh emitted only 0.053 to .045 billion tonnes (with or without LUCF)-less than one-fifth of one percent of world total.

Although Bangladesh's contribution to the generation of global greenhouse gas is very negligible, the country seeks to play its role in reducing emissions now and in the future. The government's mitigation efforts must be consistent with the country's energy security as the demand for energy will increase with the pace of development. Bangladesh puts emphasis on the development of renewable energy, particularly solar homes and biogas plants so that the emission is as small as possible without compromising access to energy. In recent years the Government, in partnership with civil society, has implemented a major nationwide programme of social forestry and has planted coastal greenbelts as a key mitigation strategy. As Bangladesh industrialises and develops coal reserves, the country will seek the transfer of state-of–the-art technologies from developed countries of the world to ensure that the country follows a low-carbon path. Bangladesh is also pledge-bound to reducing greenhouse gas emissions from agriculture and urban waste management. The other major source of GHG emission in Bangladesh are methane from flooded

rice fields and waste, particularly in the urban areas. Raising irrigation and water use efficiency through improved agronomic practices and proper waste management is likely to lower emission of methane from those sources. The country is further committed to the development of forestry resources. Bangladesh is also exploring all avenues including the mechanisms under REDD (Reducing Emission from Deforestation and Forest Degradation).

Summary:

Climate is the average weather observed over a period of time. Climate change is a natural phenomenon, but the climate change process has been accelerated by man-made activities. The rise in global mean temperature during the last 50 years has been twice as great as during the last 100 years. The impacts of global warming on the climate change has been proved to be severe and will continue to be so in the future. It is likely to have far reaching environmental, socio-economic and other effects. Climate change has impacted and will continue to impact our health, agriculture, forest, water resources, coastal areas and species and natural areas. Greenhouse gas is the main contributor to climate change. Bangladesh is one of the most vulnerable countries to climate change. Bangladesh suffered the annual loss on average over the 1995-2014 of over 700 lives, almost US$ 2.5 billion or 0.86 percent of annual GDP. To meet the huge challenges imposed by climate change, the international community has adopted measures to adapt with climate change and mitigate its adverse effects. Bangladesh Government has also adopted adaptation and mitigation measures to lessen the impacts of climate change.

References:

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2.3. INSTRUCTOR'S GUIDE

Overview of the climate change and vulnerability

	Instructor's guide	Reference	Participant's Response
1.0	**Welcome the participants.** **Introduce** yourself to the participants and take a brief introduction of the participants. **Show** the title slide of the session. **Briefly discuss** the outline of the whole training course. **Show** the title of the session.	Slide 1 Slide 2	
	Briefly discuss on the session overview. **Tell** the participants about the learning objectives of the session.	Slide 3 Slide 4	
	Ask the participants to share their knowledge about what is climate, climate change, weather, environment, adaptation, mitigation, sink, greenhouse gases (GHG), anthropogenic GHG emissions, IPCC etc.		Take some responses from the participants
	Build basic concepts of the participants on climate, climate change, weather, environment, adaptation, mitigation, sink, greenhouse gases (GHG), anthropogenic GHG emissions, IPCC by lecture and discussion.	Slide 5-9	
2.0	**KTP 1: Climate Change Indicators and Climate Change Drivers.**		
	Ask the participants to name some of the climate change indicators.		Note some responses from the participants
	Discuss categorically (Atmosphere, Ocean, Land, Ice) different indicators of climate change.	Slide 10-11	
	Give some practical examples that clearly indicates climate change.	Slide 12	
	Inquire the participants to name the drivers to climate change.		List some responses.
	Explain the climate change drivers.	Slide 13-16	
	Discuss on which sector of human activity is responsible for how much GHG emission.	Slide 17	
	Discuss the projected changes in the climate system.	Slide 18	
3.0	**KTP -2: Climate Change Vulnerability and Impact – Global and National.**		
	Ask the participants if they can share their understanding about climate change vulnerability and impact. **What** is the relationship between impacts, adaptive capacity and vulnerability?		Take some responses
	Give conceptual background on climate change adaptation, mitigation and adaptive capacity. **Discuss** how climate change vulnerability and impacts emerges and how adaptive capacity addresses climate change impacts and vulnerability.	Slide 19	
	Discuss different types of climate change vulnerability and impact.	Slide 20-22	
	Conduct a group discussion on the main vulnerabilities of the country and to what extent the country is prepared to adapt to the impacts.	Slide 23	Record responses and discuss
	Ask the participants if they can tell some of the climate change risks in different regions across the globe.		Take some responses from the participants

	Instructor's guide	Reference	Participant's Response
	Discuss on the key climate change risks in different regions across the globe.	Slide 24-26	
	Explain potential climate change impacts on health, agriculture, forest, water resources, coastal areas, species and natural areas.	Slide 27	
	Ask the participants what the climate change vulnerabilities for Bangladesh are.		Note some responses
	Show the picture slide and discuss.	Slide 28	
	Discuss the national climate change vulnerabilities for Bangladesh referring the reports of IPCC, the Water and Flood Management Institute of BUET, Germanwatch, and SAARC Meteorological Research Centre (SPRC).	Slide 29-33	
	Emphasize the impacts of those climate risks.		
4.0	**KTP -3: Climate Change Adaption and Mitigation.**		
	Tell in the previous sides we have built up basic understanding on climate change adaptation and mitigation. Now we shall deepen our understanding on them.		
	Discuss in detail what climate change adaptation is.	Slide 34-35	
	Discuss the adaptation programmes defined by UNFCCC and UNDP.	Slide 36-37	
	Give examples of different options for climate change adaptation.	Slide 38-41	
	Deepen the knowledge of the participants on climate change adaptation using the Exercises 1-A.	Slide 42 Exercises 1-A.	
	Distribute suggested solution of the exercises.	Solution Exercise 1-A	
	Inquire the participants what they understand about climate change mitigation.		Record some responses
	Discuss in details what is climate change mitigation.	Slide 43	
	Invite group discussion on ‘’What emission sectors do the participants think are a cause for concern for GHG mitigation in the country and why?”	Slide 44	Record some responses
	Discuss on the responses.		
	Discuss on sectoral mitigation options.	Slide 45	
5.0	**Use** the Quiz 1 for evaluating the participants' learning.	Slide 46	
	Distribute suggested solution of the quiz.	Solution Quiz 1	
6.0	**Summarise** the session by pointing out the key issues of the session.	Slide 47	
	Thank the participants for their active participation in the discussion and declare the end of Session 1.	Slide 48	

2.4. SLIDES

Slide 1

Session 1

OVERVIEW OF THE CLIMATE CHANGE AND VULNERABILITY

Slide 2

Course Outline

Session 1	Overview of the climate change and vulnerability.
Session 2	Global response to climate change.
Session 3	National response to climate change.
Session 4	Select audit topics and prioritise.
Session 5	Design the audit: audit objectives, audit criteria, audit scope.
Session 6	Design the audit: audit design matrix.
Session 7	Evaluation and closure.

Read the slide and **Discuss**.

Slide 3

Session overview

- Basic concepts of climate change.
- Climate change indicators and drivers of climate change.
- Climate change adaptation and mitigation.
- Impacts of climate change across the globe and in Bangladesh.
- Vulnerability to climate change.
- Government's initiatives towards climate change adaptation and mitigation.

Read the slide and **Discuss**.

Slide 4

Learning objective

- After this session, the participants will be able to gather basic knowledge about many facets of climate change.
- This knowledge will help them understand the discourses that are taking place on climate change both internationally and nationally.

Read the slide and **Discuss**.

Slide 5

Basic Concepts

Climate:

"Climate in a narrow sense is usually defined as the 'average weather', or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period ranging from months to thousands or millions of years. The classical period is 30 years, as defined by the World Meteorological Organisation (WMO). These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system."……..IPCC.

Read the slide and **Discuss**.

Tell: The first task of the participants is to develop a clear concept about climate and climate change.

Ask the participants to define climate and climate change.

Note some responses.

Explain the slide.

Tell: Intergovernmental Panel on Climate Change (IPCC) established in 1988 by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP) providing comprehensive, objective, open and transparent peer reviewed assessments of the latest scientific, technical and socio-economic literature produced worldwide relevant to climate change and its risks and impacts and options for adaptation and mitigation.

The IPCC provides an internationally accepted authority on climate change, producing reports which have the agreement of leading climate scientists and the consensus of participating governments.

Slide 6

Basic Concepts [contd..]

Climate Change:

"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."……..UNFCCC

A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer.

Climate change may be due to natural internal processes or external forcing such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use.

Explain the slide.

Explain: Climate is the average weather observed during a period of time. Climate change occurs when the climate deviates from the average during a long period of time.

Slide 7

Basic Concepts [contd..]

Weather:

Weather describes the conditions of the atmosphere at a certain place and time with reference to temperature, pressure, humidity, wind, and other key parameters (meteorological elements); the presence of clouds, precipitation; and the occurrence of special phenomena, such as thunderstorms, dust storms, tornados and others. Volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use.

Explain the slide.

Slide 8

Environment:

In its broadest sense, environment is defined as including water, air, soil, flora and fauna.

According to the New Zealand Environment Act of 1986, the environment is defined as including:

a) Ecosystems and their constituent parts.

b) All natural and physical resources.

c) The social, economic, aesthetic and cultural conditions which affect the environment, or which are affected by changes to the environment.

Explain the slide.

Slide 9

Basic Concepts [contd..]

Environment [contd..]

According to Bangladesh Environment Conservation Act, 1995 “Environment is defined as the relationship between water, air, soil, physical objects and their inter-relationship with human beings, other animals, plants and microorganisms.”

Read the slide.

Ask the participants if they can distinguish between climate, environment, and weather.

Tell: Climate is a sub-set of environmental aspects and weather is concerned with the environmental condition of a particular geographic area.

Emphasize: Climate change is concerned with emission of GHGs and consequences arises out of it.

Slide 10

1. Climate Change Indicators

- An increase in average air and ocean temperatures.
- An increase in the average global sea level.
- Widespread melting of ice and snow.
- Changing weather such as wind patterns, the amount and type of precipitation and frequency of severe weather events.

Ask the participants to name some of the climate change indicators.

Record some responses.

Discuss on the responses.

Tell: Climate change is evident from observations that show:

Temperature rise

From 1906 to 2005, the global mean temperature increased by 0.74 degree Celsius.
The mean temperature has increased substantially since the recording of global temperatures started. A total of 20 of the 21 warmest registered years have occurred during the last 25 years

Sea level rise

As the upper layers of the oceans warm, water expands, and the sea level rises.

The IPCC reports that the mean sea level has risen by nearly 20th centimetres during the 20th century.

Melting glaciers also cause the sea level to rise.

Melting of ice and snow

Snow cover has declined by about 10 percent since the late 1960s at mid and high latitudes in the North.

The annual duration of lake and river ice cover has shortened by about two weeks during the 20th century. The extent of Arctic sea ice in the spring and summer has decreased and the Arctic sea ice has thinned.

Changes in weather

Many regions will experience drier or wetter climate: the frequency and intensity of floods and droughts are increasing.

Extreme weather events will probably continue to increase.

Tell that

- The IPCC report states that the temperature increase is widespread throughout the globe, but higher in the northern latitudes.
- It is expected that inland regions will generally warm faster than oceans and coastal zones.
- The main rise in ocean temperature is in surface water, but new scientific findings show that the global average ocean temperature has increased down to depths of at least 3,000 metres.

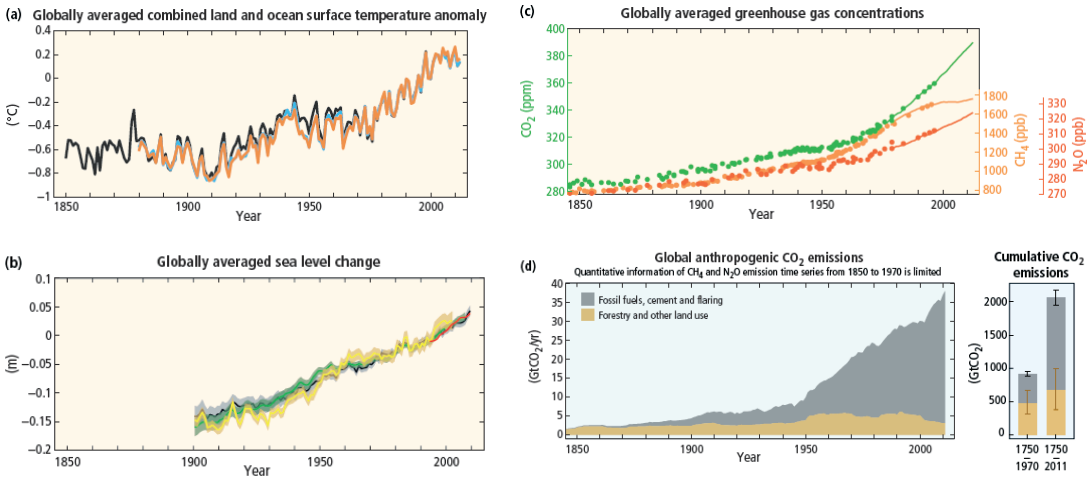
Slide 11

Climate Change Indicators [contd..]

- Temperature rise in the air and oceans- In the absence of implementation of climate change policies by different countries to reduce emissions, climate models predict a global warming of about 1.8 to 4.0 degree Celsius between 1990 and 2100.
- Sea level rise and glacier melting- IPCC reported a sea level rise of 18 centimetres to 59 centimetres by 2100. The IPCC's Fourth Assessment report states that the contraction of the Greenland ice sheet is predicted to continue contributing to sea level rise after 2100.
- Changes in weather- IPCC report suggests that global precipitation is likely to increase, but local trends are much less certain. The frequency and intensity of extreme weather events such as storms. Cyclone and hurricanes are likely to continue to increase. There will be an increase in droughts, heat waves and floods.

Discuss the slide.

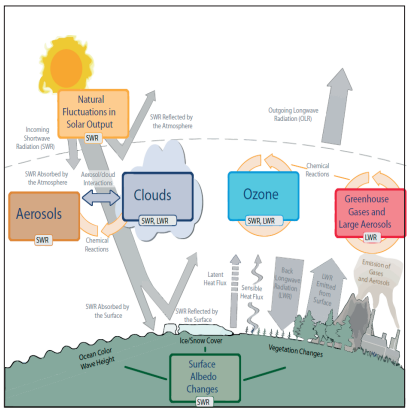
Slide 12



Source: IPCC (2014) Climate Change 2014: Synthesis Report

Discuss the slide.

Slide 13



1. Climate Change Drivers

- Main contributors to climate change are Greenhouse Gases (GHGs) such as carbon dioxide, methane, and nitrous oxide.
- Climate change occurs when the concentration of these GHGs in the atmosphere increases.

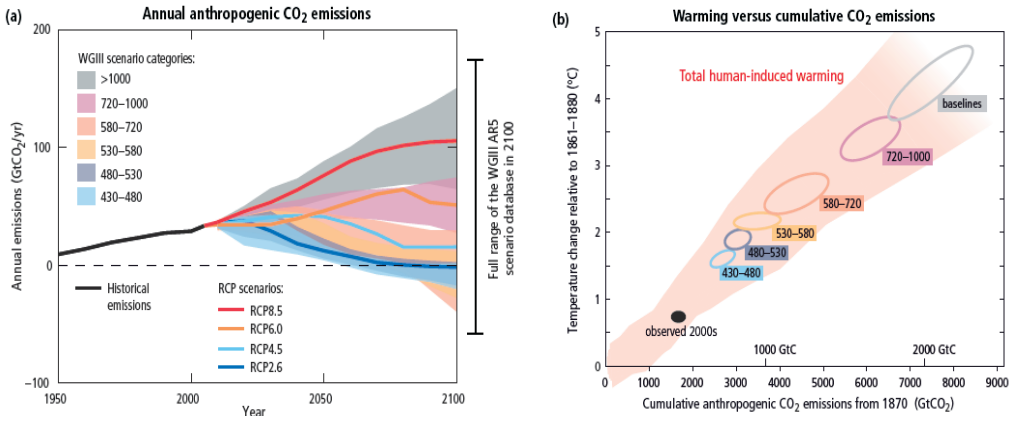
Source: IPCC (2014) Climate Change 2014: Introduction

Inquire the participants about what contributes to climate change.

List some responses.

Slide 14

Climate Change Drivers [contd..]



Source: IPCC (2014) Climate Change 2014: Synthesis Report

Discuss the slide.

Tell: Anthropogenic GHG emissions are mainly driven by population size, economic activity, lifestyle, energy use, land use patterns, technology and climate policy. The Representative Concentration Pathways (RCPs) are used for making projections based on these factors. The RCP describes four different scenarios- RCP2.6 shows a stringent mitigation scenario, RCP4.5 and RCP6.0 shows two intermediate scenarios, and RCP8.5 shows very high GHG emission scenario. Baseline scenario shows the emissions without efforts to constrain.

Explain: Figure (a) shows emission of CO_2 alone in the RCP (in lines) and the associated scenario categories used in WGIII (coloured areas show 5 percent to 95 percent range). The WGIII categories indicates the CO_2 equivalent concentration levels (in ppm) in 2100.

Figure (b) shows that global mean surface temperature increases against global cumulative CO_2 emission. The shaded area indicates the projections of global mean CO_2 emission increasing since 1870 and the ellipses shows that total anthropogenic warming also increases over the period.

Note: Representative Concentration Pathways (RCPs) are four greenhouse gas concentration (not emissions) trajectories adopted by the IPCC for its fifth Assessment Report (AR5) in 2014. The pathways are used for climate modelling and research. They describe four possible climate futures, all of which are considered possible depending on how much greenhouse gases are emitted in the years to come.

Slide 15

What causes climate change [contd..]

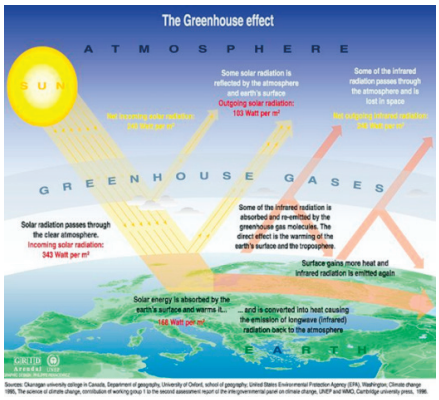


Figure 1

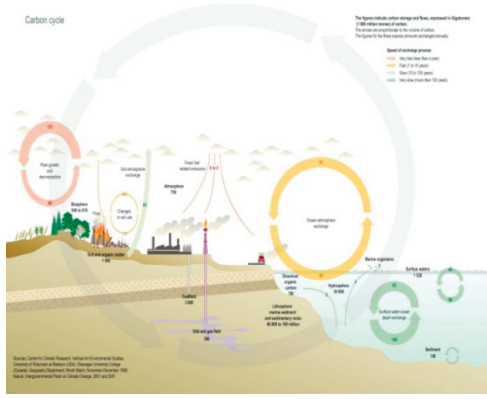


Figure 2

Discuss the slide.

Explain the figure [**figure 1**]:

Natural GHGs which includes water vapour, carbon dioxide, methane, nitrogen oxide and ozone (GHGs) are the part of ecosystem.

GHGs, which constitute less than one percent of the atmosphere, are important for us because they keep the Earth's surface warm.

Without any greenhouse effect, the average temperature on Earth would be -18 degrees Celsius; at present, the average temperature is 15 degree Celsius.

However, human activity contributes to the greenhouse effect through increased emissions of GHGs to the atmosphere. According to IPCC, the human activity destabilises this balance and leads to climate change.

Explain the carbon cycle [**figure 2**]:

The Earth's four major reservoirs of carbon are the atmosphere, the terrestrial biosphere, the oceans, and sediments (including fossil fuels). The carbon cycle is the cycle by which carbon is exchanged between these reservoirs. This cycling of carbon is a prerequisite for life on Earth.

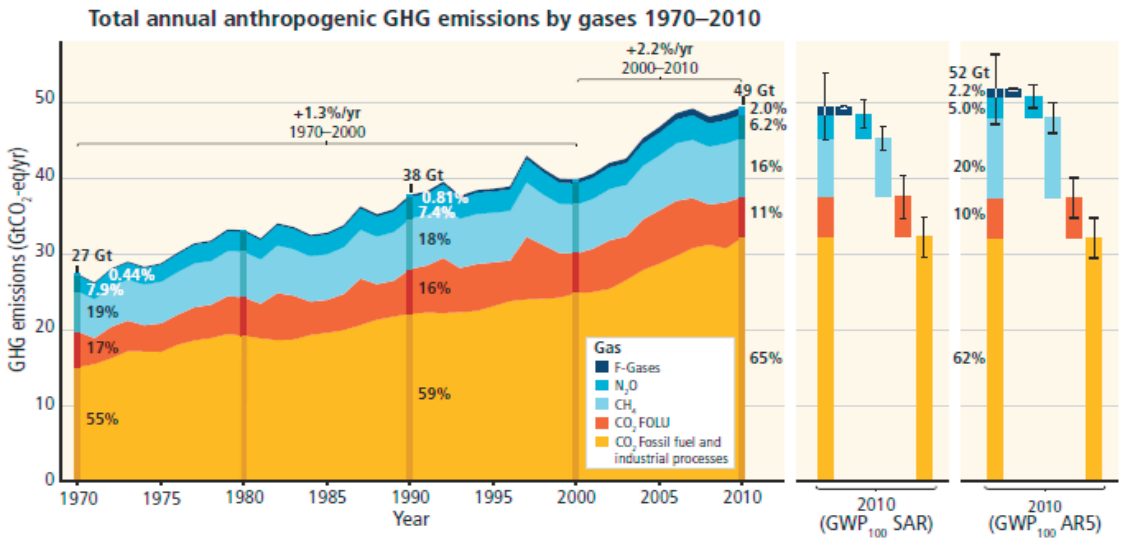
The processes or systems that absorb GHGs are called sinks. Sinks are important as they influence the total quantity of greenhouse gases in the atmosphere. Any reduction in their capacity will increase global warming. About half of the carbon dioxide released into the air by human activity has been absorbed by the land and oceans.

The oceans and the photosynthesis carried out by vegetation on land and in the oceans are natural sinks. Humans may affect this sink, e.g., through forestry. Deforestation leads to increased amount of GHGs in the atmosphere.

Another example of a sink is the injection and storage of carbon dioxide in geological reservoirs. Flows from fossil fuel reservoirs to the atmosphere constitute around 80 percent of the anthropogenic contribution to increased carbon dioxide in the atmosphere.

Slide 16

What causes climate change [contd..]



Source: IPCC (2014) Climate Change 2014: Synthesis Report

Tell: The figure shows annual anthropogenic greenhouse gas emissions for the period from 1970 to 2010. It shows the level of CO_2 emission from fossil fuel combustion and industrial processes, forestry and other land use (FOLU), methane, nitrous oxide, and fluorinated gases. Figure indicates that emission of all kinds of anthropogenic gas has increased over the period with large absolute increase between 2000 and 2010 despite growing number of climate change mitigation policies.

Slide 17

What causes climate change [contd..]

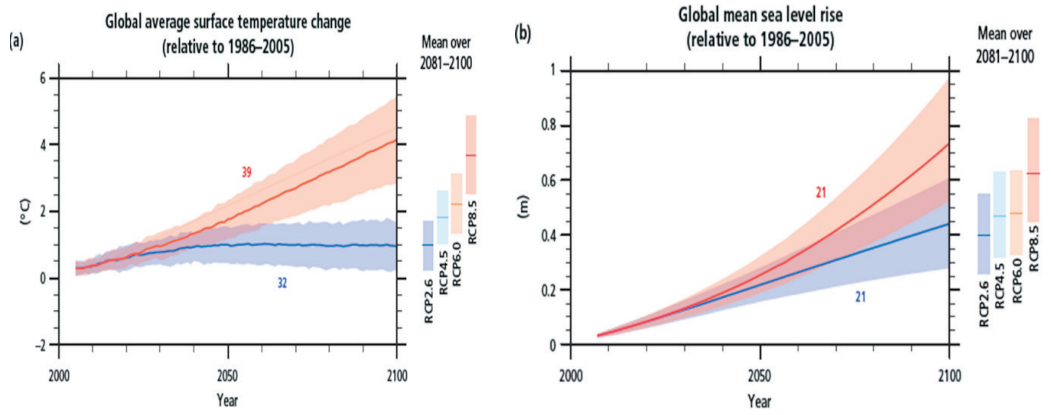
Sector	GHG emission (%)
Transportation	14.0%
Electricity and heat production	25.0%
Industry	21.0%
Buildings	6.4%
Other energy	9.6%
Agriculture, forestry and land use	24.0%

Source: IPCC (2014) Climate Change 2014: Synthesis Report

Read the slide.

Slide 18

What causes climate change [contd..]



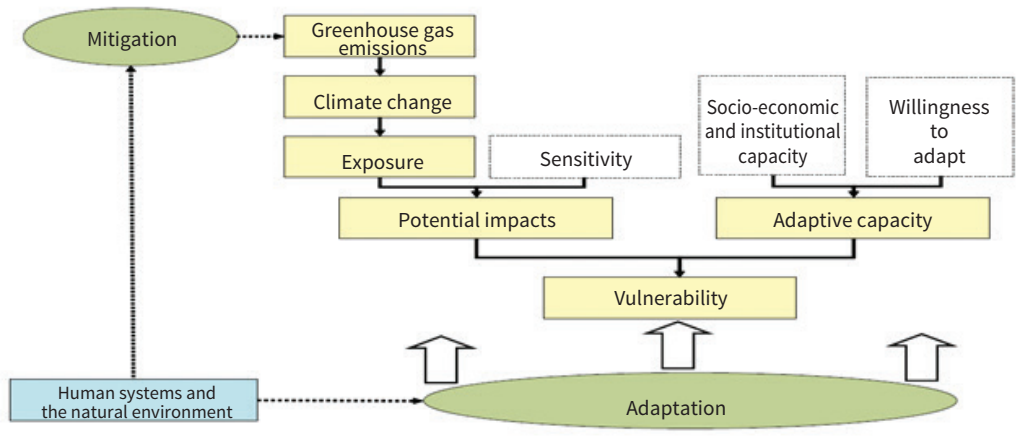
Source: IPCC (2014) Climate Change: Synthesis Report

Tell: The figure shows that global mean surface temperature and global mean sea level is projected to rise by the end of the 21st century relative to 1986-2005.

Slide 19

2. Climate change vulnerability and impact

An overview of the climate change vulnerability



Source: EEA, 2008; Isoard, Grothmann and Zebisch, 2008.

Tell: This figure illustrates the relationship between impacts (on the left side), adaptive capacity (on the right), and vulnerability.

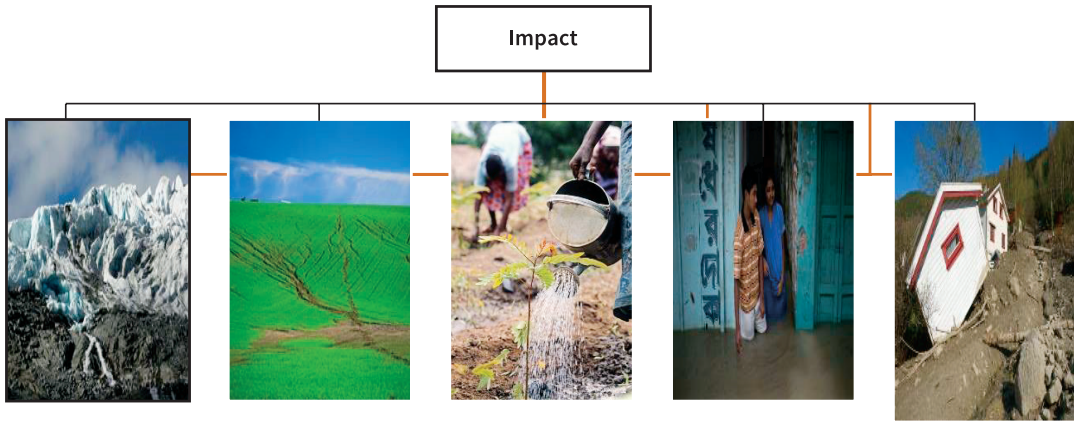
Tell: Adaptation is a group of processes and actions that help a system absorb changes that have already occurred or may be predicted to occur in the future. On the other hand, mitigation generally involves reductions in human (anthropogenic) emissions of greenhouse gases. Adaptive capacity is the ability of a system to adjust to climate change, to moderate potential damages, to take advantage of opportunities or to cope with the consequences.

Tell: A country's vulnerability to climate change is a product of the potential impacts and the system's adaptive capacity. A good understanding of vulnerability is important when deciding where the government's response is most required and consequently where an SAI's involvement would be most needed. In the following, we will go through each of these three components and use examples to show what these somewhat theoretical terms mean in real life.

Tell: we will discus more on these terms as we go along.

Slide 20

Climate change vulnerability and impact [contd..]



Water resources:

- **Glacier picture**
- **Tell**: The impacts on water resources are expected to vary between countries and regions. For instance, some areas are expected to get more rain (typically in the north, where rain is already relatively plentiful), whereas others will experience a decrease (typically in already dry areas). Meltwater from glaciers can also have an impact. In the short-term, this may involve more fresh water, as melting is expected to increase with higher temperatures. In the longer term, however, some areas may see their most important water sources diminish as glaciers gradually become smaller.

Agriculture and food supply:

- **Picture of eroded field**
- **Tell**: Agricultural production is closely linked to the availability of water. With changes in water resources, a change in agricultural production can be expected. And as with water supply, those areas that are already dealing with considerable vulnerability will face the most serious impacts of climate change. There may also be impacts on food supply from reduced access to fisheries.

Ecosystems and biodiversity:

- **Picture of flower being watered**
- **Tell**: Ecosystems and biodiversity will be seriously affected by climate change. The range and distribution of species may be affected, both as a consequence of higher temperatures and changed patterns of precipitation.

Human health:

- **Picture of two persons inundated**
- **Tell**: Climate change poses several threats to human health. As shown on the pictures, both floods and landslides could cause serious harm. It is also expected to result in more heat-related deaths, especially among vulnerable groups. Climate change is also expected to change the distributional patterns of several diseases.

Flooding and coastal areas:

- **Picture of two persons inundated**
- **Tell**: We expect an increase in the number and severity of floods in the years to come. One reason for this is more extreme weather. This can result in episodes of intense rainfall causing floods. Combined with expected sea-level rise, extreme weather events with strong winds and heavy percipitation could also cause floods in coastal areas.

Settlement and society:

- **House picture**
- **Tell**: Infrastructure is one of the sectors that will experience great impacts from climate change. This could have big social and economic consequences.

Slide 21

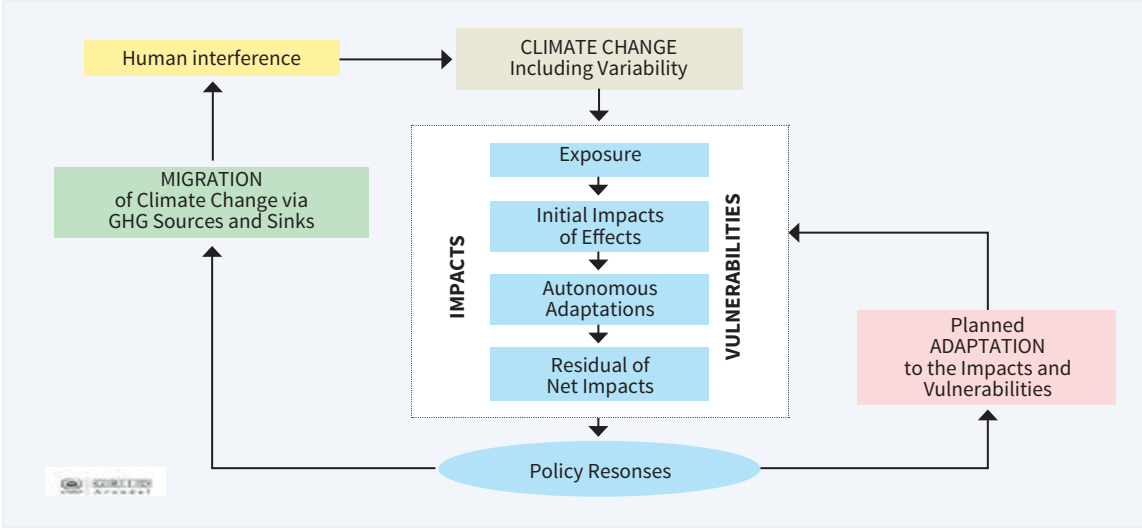
Climate change vulnerability and impact [contd..]

- What is the vulnerability to climate change?
  - ✓ A system's inability to cope with the adverse effects of climate change

Read the slide.

Slide 22

Climate change vulnerability and impact [contd..]



Tell: This figure shows the relationship between sensitivity, adaptive capacity and vulnerability. Sensitivity is the degree to which a system is affected, positively or negatively (adversely or beneficially) by climate-related stimuli – or impacts. Climate-related stimuli encompass all the elements of climate change, including mean climate characteristics, climate variability, and the frequency and magnitude of extremes. The effect may be:

- direct: e.g., a change in crop yields in response to a change in the mean range or variability of temperature
- or indirect: e.g., damages caused by an increase in the frequency of coastal flooding due to sea-level rise.
- Explain the diagram.

Slide 23

Climate change vulnerability and impact [contd..]

Discussion in groups:

- What are the main vulnerabilities in our country?
- To what extent is the country prepared to adapt to the impacts?

Tell: Much adaptation takes place independent of governments' actions and policies. Many natural systems, for instance, have been able to adjust to new circumstances and changes in climate. Adaptation often takes place at the local, or indeed micro, level. However, governments must play an important role in helping local communities, natural systems, etc., to adapt to climate change.

Slide 24

2.1 Climate change vulnerability and impact – Global

What are the global key climate change risks?

Region	Key Climate Change Risks
Polar region	Risks for ecosystems. Risks for health and well-being. Unprecedented changes, especially from rate of change.
Asia	Increased flood damages to infrastructure, livelihoods and settlements. Health-related human mortality. Increased drought-related water and food shortage.
Africa	Compounded stress on water resources. Reduced crop productivity and livelihood and food security. Vector and water-borne diseases.

Ask the participants if they can tell some of the climate change risks in different regions across the globe.
Collect responses.
Discuss The slide.

Slide 25

2.1 Climate change vulnerability and impact – Global

Global key climate change risks

Region	Key ClimatClimate Changehange Risks
Australasia	▪ Significant change in composition and structure of coral reef system. ▪ Increased flood damages to infrastructure and settlements. ▪ Increased risks to coastal infrastructure and low-lying ecosystem.
Europe	▪ Increased damages from river and coastal floods. ▪ Increased water restrictions. ▪ Increased damages from extreme heat events and wildfires.
North America	▪ Increased damages from wildfires. ▪ Heat-related human mortality. ▪ Increased damages from river and coastal urban floods.

Read the slide

Slide 26

2.1 Climate change vulnerability and impact – Global

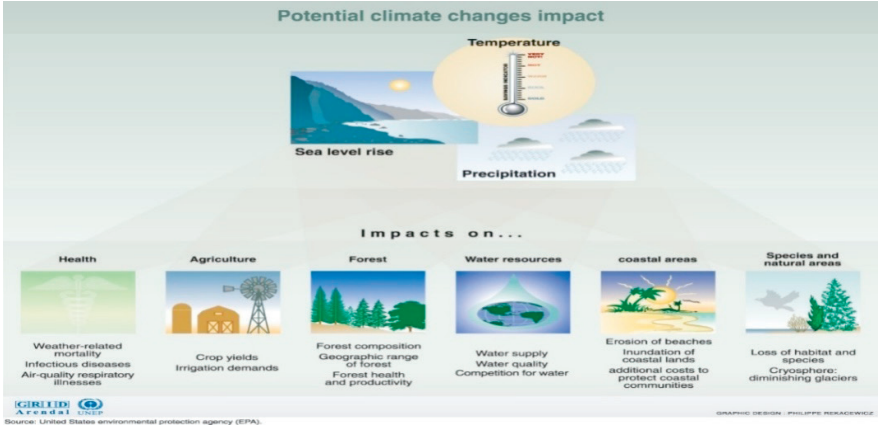
Global key climate change risks

Region	Key Climate Change Risks
Central and South America	▪ Reduced water availability and increased flooding and landslides. ▪ Reduced food production and quality. ▪ Spread of vector-borne diseases.
Small Islands	▪ Loss of livelihoods, settlements, infrastructure, ecosystem services and economic stability. ▪ Risk of low-lying coastal areas.
The Ocean	▪ Distributional shift and reduced fisheries catch potential at low latitude. ▪ Increased mass coral bleaching and mortality. ▪ Coastal inundation and habitat loss.

Read the slide

Slide 27

Potential climate change impacts



Source : UNEP/GRID- Arendal, 2000. Potential climate change impacts. UNEP/GRID- Arendal Maps and Graphics Library[Online] Available at maps.grida.no/go/graphic/potential-climate-change-impacts

Tell: The impacts of climate change are, broadly speaking, sea-level rise, temperature rise, and changed patterns of precipitation.

What is more important, however, is the impact that these changes have on our daily lives. Grid Arendal and UNEP have made this graphic presentation, highlighting impacts within various sectors.

Explain that these are just examples of the potential impacts of climate change. The impacts will also differ between continents, countries and regions.

Slide 28

2.2 Climate change vulnerability and impact- National

What are the climate change vulnerabilities for Bangladesh?

Ask the participants to tell some of the climate change vulnerability for Bangladesh.

Show: The slide and discuss on each of the picture.

Tell: Some of the major climate change vulnerabilities for Bangladesh are: drought, downpour, flood, cyclone, tidal surge, riverbank erosion etc.

Slide 29

Climate change vulnerability and impact- National [contd..]

Key climate change vulnerabilities for Bangladesh:

- Increasing coastal flooding and saline intrusion into aquifers and rivers across a wide belt in the south of the country.
- Rainfall is predicted to become both higher and more erratic.
- The frequency of droughts likely to increase.
- One- third of Bangladesh may go under water in the present century due to sea level rise.
- This may result in the replacement of about 20 million people.

……4th IPCC report

Read the slide.

Tell that according to the 4th report of IPCC, these are the key vulnerabilities for Bangladesh.

Slide 30

Key climate change vulnerabilities for Bangladesh [contd..]

Higher temperatures and changing rainfall patterns coupled with increased flooding, rising salinity in the coastal areas and droughts will result in decline in crop yields and crop production. By 2050, rice production could decrease by 8 percent and wheat by 32 percent in Bangladesh (against a base year of 1990).

……..IPCC Report

In 2017 about 170 people died from thunderbolts. During the last seven years about 1760 people died from thunderbolts in Bangladesh. The sudden rise in the lightning across the world has been caused by climate change. One-degree Celsius increase in the temperature results in 12 percent increase in the thunderbolts in the world.

…….Study published in the journal 'Nature'

Read the slide.

Slide 31

Key climate change vulnerabilities for Bangladesh [contd..]

In the SAARC region, average increase in temperature would be 1.3 and 2.6 degree Celsius for the years 2030 and 2070 respectively.

There would be a seasonal variation in changed temperature: 1.40 Celsius change in the winter and 0.7 degree Celsius in the monsoon months in 2030.

For 2070 the variation would be 2.1 degree Celsius and 1.7 degree Celsius for winter and monsoon, respectively.

There would be excessive rainfall in the monsoon resulting in floods and very small to no rainfall in the winter causing drought.

……..SAARC Meteorological Research Centre

Read the slide.

Slide 32

Key climate change vulnerabilities for Bangladesh [contd..]

Bangladesh suffered the annual loss, on average over the 1995-2014 of over 700 lives, almost US$2.5 billion or 0.86 percent of annual GDP.

……Climate Risk Index, German watch

As a result of one-meter increase in the water level of Bay of Bengal in the present century 3930 square kilometers of land area would go under water and 60 lakh people would become homeless from 4 percent areas of mainland.

……..The Water and Flood Management Institute of BUET

Read the slide.

Slide 33

Key climate change vulnerabilities for Bangladesh [contd..]

Shortage of safe drinking water is likely to become more acute, especially in the coastal belt and in drought prone areas in the north- west of the country.
Impose hardship on women and children who collect drinking water for their families.
Increasingly saline drinking water may cause health hazards.
Increased riverbank erosion and saline water intrusion in coastal areas are likely to displace huge number of people who will be forced to migrate.
The impact of higher and more intense rainfall will be felt in urban areas, where drainage is already herculean problem and sewers frequently block up in the monsoon season.
Poor people living in slums and low- lying parts of the cities will be worst affected.

Read the slide.

Slide 34

3. Climate change Adaption and Mitigation

Climate change adaptation

A response to global warming and climate change, that seeks to reduce the vulnerability of social and biological systems to relatively sudden change and thus offset the effects of global warming.

Processes through which societies make themselves better able to cope with an uncertain future.

Taking the right measures to reduce the negative effects of climate change (or exploit the positive ones) by making the appropriate adjustments and changes.

Tell: In earlier slides we have established the basic premise of climate change adaption and mitigation. In this section we will deepen our understanding on climate change adaption and mitigation. Then Discuses the slide.

Explain: This step will help auditors get to know the area they are to audit. The auditors must decide the relevance and urgency of adaptation issues in the country.

Slide 35

Options and opportunities for adaptation

- Increased sea defenses or flood-proof houses on stilts.
- Behavior change at the individual level.
- Reducing water use in times of drought.
- Using insecticide-sprayed mosquito nets.
- Early warning systems for extreme events.
- Better water management.
- Improved risk management.
- Various insurance options.
- Biodiversity conservation.

Read the slide

Slide 36

UNFCCC programmes for adaptation

- Ethods and tools.
- Data and observations.
- Climate modeling, scenarios and downscaling.
- Climate related risks and extreme events.
- Socio-economic information.
- Adaptation planning and practices.
- Research.
- Technologies for adaptation.
- Economic diversification.

Tell: UNFCCC defines adaptation to be consists of nine components.

Read: The nine components.

Slide 37

UNDP adaptation policy framework

- Scoping and designing an adaptation project.
- Assessing current vulnerability.
- Assessing future climate risks.
- Formulating an adaptation strategy.
- Continuing the adaptation process.
- Assessing and enhancing adaptive capacity.
- Engaging stakeholders.

Tell: UNDP adaptation policy framework consists of seven components.

Read: The components.

Slide 38

Approaches for climate change adaptation

Category	Examples
Human development	Improved access to education, nutrition, health facilities, energy, safe housing and settlement structure.
Poverty alleviation	Improved access to local resources; Land tenure; Disaster risk reduction; Social safety nets and social protection; Insurance schemes.
Livelihood security	Income, assets and livelihood diversification; Improved infrastructure; Changed cropping, livestock and aquaculture practices.
Disaster risk management	Early warning systems; Improved drainage; Flood and cyclone shelters; Building codes and practices; Transport and road infrastructure improvements.
Ecosystem management	Maintaining wetlands and urban green spaces; Coastal afforestation; Watershed and reservoir management, Community-based natural resource management.
Spatial or land-use planning	Provisioning of adequate housing, infrastructure and services; Managing development in flood prone and other high risk areas; Urban planning and upgrading programmes.

Ask the participants to tell the approaches through which the climate change risks can be managed.

Take some responses. **Discuss** the category of climate change risk management approaches with examples.

Slide 39

Approaches for climate change adaptation [contd..]

Category	Examples
Structural/ physical	Engineered and built-environment options : Sea walls and coastal protection structures; Water storage; Improved drainage; Flood and cyclone shelters; Building codes and practices; Transport and road infrastructure improvements.
	Technological options: New crop and animal varieties; Indigenous, traditional and local knowledge, technologies and methods; Water-saving technologies; Desalinisation, conservation agriculture; Food storage and preservation facilities; Building insulation.
	Ecosystem-based options: Ecological restoration; Soil conservation, Afforestation; Mangrove conservation and replanting; Green infrastructure (e.g., shade tree, green roofs); Community-based natural resource management.
	Services: Social safety nets and social protection; Food banks and distribution of food surplus; Municipal services including water and sanitation; Essential public health services; Enhanced emergency medical services.

Slide 44

Approaches for climate change adaptation [contd..]

Category	Examples
Institutional	Economic options: Financial incentives; Insurance; Catastrophe bonds; Microfinance; Disaster contingency funds; Cash transfers; Public-private partnerships.
	Laws and regulations: Building standards and practices; Water regulations and agreements; Laws to support disaster risk reduction; Laws to encourage insurance purchasing; Defined properly rights and land tenure security; Protected areas;.
	National and government policies and programmes: National and local adaptation plans Urban upgrading programmes; Municipal water management programmes; Disaster planning and preparedness; Integrated water resource management; Integrated coastal zone management; Ecosystem-based management; Community-based adaptation.

Slide 41

Approaches for climate change adptation [contd..]

Category	Examples
Social	Educational options: Awareness raising and integrating into education; Sharing indigenous, traditional and local knowledge; Participatory action research and social learning.
	Informational options: Hazard and vulnerability mapping; Early warning and response system; Systematic monitoring and remote sensing; Participatory scenario development.
	Behavioural options: Household preparation and evacuation planning; Migration; Soil and water conservation; Livelihood diversification; Changed cropping, livestock and aquaculture practices.
Spheres change	Practical: Social and technical innovations, behavioural shifts, or institutional and managerial changes that produce substantial shifts in outcomes.
	Political: Political, Social, cultural and ecological decisions and actions consistent with reducing vulnerability and risk and supporting adaptation, mitigation and sustainable development.
	Personal: Individual and collective assumptions, beliefs, values and worldviews influencing climate-change responses.

Tell: The participants can read Appendix 1.0-A for more details.

Slide 42

Exercise 1-A

Objective: The purpose of this exercise is to enable the participants to determine the generic options for adapting climate change.

Time required: Total time for the exercise is 20 minutes

- 10 minutes for group discussion and solution
- 10 minutes for presentation and discussion

Instructions: The participants are required to recall the concepts of adaptation discussed in the session and write the appropriate adaptation options, as many as they can, against each category/ sub-category.

Give instruction for the exercise and conduct accordingly.

Slide 43

Climate change mitigation

Mitigation may be achieved by increasing the capacity of carbon sinks, e.g., through reforestation.

Using fossil fuels more efficiently in industrial production or generation of electricity, switching to solar energy or wind power, increasing forest coverage and other sinks to remove larger amount of carbon dioxide from the atmosphere, building design etc.

Discuss: The slide.

Explain: This step will help auditors get to know the area they are to audit. The auditors must decide the relevance and urgency of mitigation issues in the country.

Slide 44

Climate change mitigation

Group discussion:

''What emission sectors do you think are a cause for concern for GHG mitigation in the country?"

Discussion: Tell the participants to give their suggestions of sectors causing concerns in our country, and to explain why they think the sector is a cause to concern.

Slide 45

Sectoral mitigation options

Key low-carbon energy options	Key energy saving options	Other options
Renewables (wind, solar, bioenergy, geothermal, hydro, etc.), nuclear, CCS, BECCS, fossil fuel switching.	Energy efficiency, improvements of energy supply technologies, improved transmission and distribution.	Fugitive CH_4 emissions control.
Fuel switching to low-carbon fuels (e.g., hydrogen/electricity from low-carbon sources), biofuels.	Efficiency improvements (engines, vehicle design, appliances, lighter materials), modal shift (e.g., from LDVs to public transport or from aviation to HDVs to rail).	Transport (infrastructure) planning, urban planning.
Building integrated RES, fuel switching to low-carbon fuels (e.g., electricity from low-carbon sources, biofuels).	Device efficiency (heating/cooling systems, water heating, cooking, lighting), systemic efficiency (integrated design, low/zero energy buildings, smart meters/grids), behavioral and lifestyle changes.	Building lifetime, durability of building components and appliances, low energy/ GHG intensive construction and materials.
Process emission reductions, use of waste and CCS industry, fuel switching among fossil fuels and switch to low-carbon energy (e.g., electricity) or biomass.	Furnace/boilers, steam systems, electric motors and control systems, more intensive use of goods (e.g., improve durability or car sharing).	HFC replacement and leak repair, material efficiency (e.g., process innovation, re-using old materials, product design etc.)

Discuss: The slide.

Slide 46

Quiz 1

Objective: The purpose of the quiz is to mobilise the participants and let them try their knowledge so far about the basic concepts of climate change, climate change drivers, climate change adaption and mitigation.

Instruction: The participants will read each of the statements and then identify whether the statements are 'True' or 'False'.

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Summary

- Climate, environment, climate change, climate change drivers.
- Climate change impact across the globe.
- Climate change impact on Bangladesh.
- Climate change adaptation and mitigation.
- Bangladesh's effort towards climate change adaptation and mitigation.

Slide 48

Thank
YOU

2.5. EXERCISE

Exercise 1-A

Objective: The purpose of this exercise is to enable the participants to determine the generic options for adapting climate change.

Time required: Total time for the exercise is 20 minutes

- 10 minutes for group discussion and solution
- 10 minutes for presentation and discussion

Instructions: The participants are required to recall the concepts of adaptation discussed in the session and write the appropriate adaptation options, as many as they can, against each category/sub-category.

Category		Examples of Options
Structural / Physical	Engineered and built environment	
	Technological	
	Ecosystem-based	
	Services	
Social	Educational	
	Informational	
	Behavioral	
Institutional	Economic	
	Laws and regulations	
	Government policies and programs	

2.6. SOLUTION TO EXERCISE

Solution_Exercise 1-A

Adaptation options:

Category		Examples of Options
Structural / physical	**Engineered and built environment**	■ sea walls and coastal protection structures ■ flood levees and culverts ■ water storage and pump storage, sewage works, improved drainage ■ beach nourishment ■ flood and cyclone shelters, building codes ■ storm and waste water management ■ transport and road infrastructure adaptation, floating houses ■ adjusting power plants ■ electricity grids
	Technological	■ new crop and animal varieties ■ genetic techniques ■ traditional technologies and methods ■ efficient irrigation ■ water saving technologies including rainwater harvesting ■ conservation agriculture ■ food storage and preservation facilities ■ hazard mapping and monitoring technology ■ early warning systems ■ building insulation ■ mechanical and passive cooling ■ renewable energy technologies ■ second-generation biofuels
	Ecosystem-based	■ ecological restoration including wetland and floodplain conservation and restoration ■ increasing biological diversity ■ afforestation and reforestation ■ conservation and replanting mangrove forest bushfire reduction and prescribed fire ■ green infrastructure (e.g., shade trees, green roofs) ■ controlling overfishing ■ fisheries co-management ■ assisted migration or managed translocation ■ ecological corridors ■ ex-situ conservation and seed banks ■ community-based natural resource management ■ adaptive land use management

Category		Examples of Options
	Services	■ social safety nets and social protection; ■ food banks and distribution of food surplus ■ municipal services including water and sanitation ■ vaccination programs, essential public health services including reproductive health services and enhanced emergency medical services ■ international trade
Social	**Educational**	■ awareness raising and integrating into education ■ gender equity in education ■ extension services ■ sharing local and traditional knowledge including integrating into adaptation planning ■ participatory action research and social learning ■ knowledge-sharing and learning platforms ■ international conferences and research networks ■ communication through media
	Informational	■ hazard and vulnerability mapping ■ early warning and response systems including health early warning systems ■ systematic monitoring and remote sensing ■ climate services including improved forecasts ■ downscaling climate scenarios ■ longitudinal data sets ■ integrating indigenous climate observations
	Behavioral	■ accommodation ■ household preparation and evacuation planning ■ retreat and migration, which has its own implications for human health and human security ■ soil and water conservation ■ livelihood diversification ■ changing livestock and aquaculture practices ■ crop-switching ■ changing cropping practices, patterns, and planting dates ■ silvicultural options ■ reliance on social networks

Category		Examples of Options
Institutional	Economic	▪ financial incentives including taxes and subsidies ▪ insurance including index-based weather insurance schemes ▪ catastrophe bonds ▪ revolving funds ▪ payments for ecosystem services ▪ water tariffs ▪ savings groups ▪ microfinance ▪ disaster contingency funds ▪ cash transfers
	Laws and regulations	▪ land zoning laws ▪ building standards ▪ easements ▪ water regulations and agreements ▪ laws to support disaster risk reduction ▪ laws to encourage insurance purchasing ▪ defining property rights and land tenure security ▪ protected forest ▪ marine protected areas ▪ fishing quotas ▪ patent pools and technology transfer
	Government policies and programmes	▪ national and regional adaptation plans including mainstreaming climate change ▪ sub-national and local adaptation plans ▪ urban upgrading programs ▪ municipal water management programs ▪ disaster planning and preparedness ▪ city-level plans, district-level plans, sector plans, which may include integrated water resource management, landscape and watershed management, integrated coastal zone management, adaptive management, ecosystem-based management, sustainable forest management, fisheries management, and community-based adaptation

2.7. QUIZ

Quiz 1

Objective: The purpose of the quiz is to mobilise the participants and let them try their knowledge so far about the basic concepts of climate change, climate change drivers, climate change adaption and mitigation.

Instruction: The participants will read each of the statements and then identify whether the statements are 'True' or 'False'.

	Statement	True/False
1	Cooling Stratospheric temperature indicates climate change	
2	Increasing tropospheric water vapour is an indicator of climate change	
3	Climate change increases the number of frost days	
4	Changes in ocean salinity signals climate change	
5	UNFCCC stands for United Nations Formal Convention on Climate Change	
6	Large scale precipitation changes occur due to climate change	
7	Climate change will have no impact on human health	
8	Main contributors to climate change are carbon dioxide, methane, and nitrous oxide	
9	Most part of the GHGs is emitted by nature	
10	Hydroponic farming is one of the adaptive activities to climate change	
11	Raising riverbank up to flood level is a mitigation activity to climate change	
12	In Bangladesh, afforestation and reforestation are considered as both adaption and mitigation activity	
13	Early warning systems are mitigation activity to climate change	
14	Research for salinity tolerant crop variety is an adaptive activity to climate change	
15	Use of bio-gas and solar power system are adaptive activity to climate change	
16	Passive solar building design, low energy building or zero-energy building techniques, using renewable heat sources are mitigation to climate change	
17	IPCC stands for Interparliamentary Panel on Climate Change	
18	Use of improved cook-stoves is an adaptation activity to climate change	
19	Waste management is one of the mitigation activities to climate change	
20	Fossil fuels are one of the reservoirs of earth's carbon	

2.8. SOLUTION TO QUIZ

Solution_Quiz 1

	Statement	True/False
1	Cooling Stratospheric temperature indicates climate change	True
2	Increasing tropospheric water vapour is an indicator of climate change	True
3	Climate change increases the number of frost days	False (Reductions)
4	Changes in ocean salinity signals climate change	True
5	UNFCCC stands for United Nations Formal Convention on Climate Change	False
6	Large scale precipitation changes occur due to climate change	True
7	Climate change will have no impact on human health	False
8	Main contributors to climate change are carbon dioxide, methane, and nitrous oxide	True
9	Most part of the GHGs is emitted by nature	False
10	Hydroponic farming is one of the adaptive activities to climate change	True
11	Raising riverbank up to flood level is a mitigation activity to climate change	False (Adaptation)
12	In Bangladesh, afforestation and reforestation are considered as both adaption and mitigation activity	True
13	Early warning systems are mitigation activity to climate change	False
14	Research for salinity tolerant crop variety is an adaptive activity to climate change	True
15	Use of bio-gas and solar power system are adaptive activity to climate change	False
16	Passive solar building design, low energy building or zero- energy building techniques, using renewable heat sources are mitigation to climate change	True
17	IPCC stands for Interparliamentary Panel on Climate Change	False (Intergovernmental Panel on Climate Change)
18	Use of improved cook-stoves is an adaptation activity to climate change	False
19	Waste management is one of the mitigation activities to climate change	True
20	Fossil fuels are one of the reservoirs of earth's carbon	True

SESSION 2

GLOBAL RESPONSE TO CLIMATE CHANGE

3. SESSION 2: GLOBAL RESPONSE TO CLIMATE CHANGE

Duration: 120 minutes

3.1. SESSION-AT-A-GLANCE

Learning Objective	Materials Required	Session Structure	Teaching Method	Time Required
At the end of the session, the participants will be able to get an understanding of the global responses to address the adverse effects of climate change. This will help them identify key international efforts that are relevant for taking up country specific actions to tackle the climatic shocks.	1. Participant's Notes 2. Slides 3. Computer 4. Multimedia Projector 5. Audio Visual Aid 6. Flip Charts 7. Stationary	**Session Overview**	1. Lecture	5 minutes
		Learning Objective	1. Lecture	1 minute
		Basic Concepts: • Conference of Parties (COP) • Clean Development Mechanism (CDM) • Joint Implementation (JI) • Emission Trading	1. Lecture 2. Discussion	10 minutes
		Key Teaching Points (KTP) **KTP-1:** International Conventions and Protocols –UNFCCC, Kyoto Protocol, Marrakesh Acord, Bali Action Plan, The Copenhagen Accords, Paris Agreement, SDGs.	1. Lecture 2. Discussion 3. Exercise	79 minutes
		Evaluation	1. Quiz	20 minutes
		Summary	1. Lecture 2. Discussion	5 minutes
			Total Time:	**120 minutes**

3.2. PARTICIPANT'S NOTES

GLOBAL RESPONSE TO CLIMATE CHANGE

Session overview:

In the previous session (session 1) we gave an outline of the training course and covered the basic concepts of climate change. We also extended our discussion to cover the factors that are responsible for the climate change. Our discussion elaborated in detail the impacts of climate change both at the national and international level. Finally, we discussed adaptation and mitigation which are the ways of addressing climate change issues. This basic foundational knowledge surely gives insight to the participants about the necessity and importance of common and differentiated efforts against climate change. Based on this basic knowledge, in this session, we will discuss what actions have been taken by the international community to face this challenge. We will focus on the international conventions, protocols, treaties etc. that put the nations under obligation to formulate necessary policies and strategies and take up required programmes, projects and activities to deal with climate change.

Learning objective:

At the end of this session, it is expected that the participants will get an understanding of the global responses to climate change. This will help them identify key international efforts that are relevant for taking up country specific actions against climate change. This will enable them to link the national responses to climate change with international responses and how these responses can be focused while conducting climate performance audit.

Basic concepts:

Conference of Parties: In the context of international climate change negotiation, Conference of Parties (COP) is the highest governing body of United Nations Framework Convention on Climate Change (UNFCCC). All states that are signatories to the Convention are represented in the COP. The main responsibility of COP is to oversee the implementation of the Convention and other legal instruments that the COP adopts and takes decisions to help ensure effective implementation of the Convention, including institutional and other administrative matters.

Clean Development Mechanism: Clean Development Mechanism (CDM) has been defined in Article 12 of the Kyoto Protocol. It is an arrangement under the Kyoto Protocol through which developed countries may finance greenhouse-gas emission reduction or removal projects in developing countries and receive certified emission credits (CER) for doing so which they may use towards meeting mandatory limits on their own greenhouse-gas emissions.

Joint Implementation: Joint Implementation (JI) has been defined in Article 6 of the Kyoto Protocol. Joint implementation is a programme under the Kyoto Protocol which allows developed countries to meet part of their required cuts in greenhouse gas emission by financing projects that reduce emissions in other industrialised countries. In practice recipient country is likely to be a country with an economy in transition.

Emission Trading: It has been defined in Article 17 of the Kyoto Protocol. It is an arrangement under which parties that have exceeded their emission reduction commitments under the Kyoto Protocol may sell excess "assigned amount units (AAUs)". Other parties may meet their own emissions reductions by purchasing these AAUs.

1. International Conventions and Protocols

To control the adverse impact of climate change, a reduction in the GHG emission is urgently needed. But even with major cut in emission, we will still be facing climate changes in the future. This warrants international and national responses. Climate change mitigation and adaptation requires strong, coherent, and coordinated efforts from international organisations and all governments all over the world. Here we shall discuss some important international conventions, treaties and protocols focusing on their formation, provisions, programmes and effectiveness in combating climate change.

1.1 United Nations Framework Convention on Climate Change (UNFCCC)

"Yet those to suffer most from climate change will be in the developing world. They have fewer resources for coping with storms, with floods, with drought, with diseases outbreaks, and with disruptions to food and water supplies. They are eager for economic developments themselves, but may find that this already difficult process has become more difficult because of climate change." – UNFCCC

The UNFCCC is an international treaty on environment adopted on May 9, 1992. It was negotiated at the United Nations Conference on Environment and Development in Rio de Janeiro in June 1992. It came into force on 21st March 1994 following its ratification by a sufficient number of countries. Currently the UNFCCC has 197 signatories. The framework outlines how international treaties (called protocols or agreements) may be negotiated to specify further action towards meeting the objective of the UNFCCC. The Convention enjoys broad legitimacy because of its nearly universal membership. The parties to the Convention have been meeting annually since 1995 in Conference of Parties (COP) to assess progress in dealing with climate change.

The signatories to the Convention have been grouped into four categories: Annex I parties, Annex II parties, Least- Developed Country parties, and Non-Annex I parties. Parties to the UNFCCC are classified as:

Annex I: There are 43 parties to the UNFCCC listed in Annex I of the Convention, including the European Union. These Parties are classified as industrialised (developed) countries and "economies in transition" (EITs). The 14 EITs are the Russia Federation, Baltic States, and several other central and Eastern European countries.

Annex II: Of the parties listed in Annex I of the convention, 24 are also listed in Annex II of the convention, including the European Union. These Parties are made up of members of the Organisation for Economic Corporation and Development (OECD). Annex II parties are required to provide financial and technical support to the EITs and developing countries to assist them in reducing their greenhouse gas emissions (climate change mitigation) and manage the impacts of climate change (climate change adaptation).

Least-developed countries (LDCs): 49 Parties are LDCs and are given special status under the treaty in view of their limited capacity to adapt to the effects of climate change.

Non-Annex I: Parties to the UNFCCC not listed in Annex I of the convention are mostly low-income developing countries. Developing countries may volunteer to become Annex I countries when they are sufficiently developed. Bangladesh falls in this group.

Objectives, Principles and Commitments

The ultimate objective of the Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. One of the first tasks set by the UNFCCC for signatory nations is to establish national greenhouse gas inventories of emissions and removals, which were used to create the 1990 benchmark levels for accession of Annex I countries to the Kyoto Protocol and for the commitment of those countries to GHG reductions.

In their actions to achieve the objective of the Convention and to implement its provisions, the following principles were adopted:[8]

- Article 3(1): The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.
- Article 3(2): The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to adverse effects to climate change and of those parties specially developing country parties, that would have to bear disproportionate or abnormal burden under the Convention, should be given full consideration.

[8] UN (1992) *United Nations Framework Convention on Climate Change*

- Article 3(3): The Parties should take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects. Policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors.
- Article 3(4): The Parties have a right to, and should, promote sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change.
- Article 3(5): The Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing country Parties, thus enabling them better address the problems of climate change.

Under Article 4, all Parties make general commitments to address climate change. The following are the key commitments of the Parties:[9]

- Publish national inventories of anthropogenic emissions and removals;
- Formulate, implement, publish and regularly update national, and where appropriate, regional programmes to mitigate climate change;
- Promote and cooperate in the development, application and diffusion, including transfer of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases;
- Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases;
- Cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, affected by drought and desertification, as well as floods;
- Take climate change considerations into account, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change;
- Promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system;
- Promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organizations.

Each of these Parties and other Parties included in Annex I shall adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs.

UNFCCC Action for Climate Empowerment (ACE):

Action for Climate Empowerment (ACE) is a term which has been adopted by the UNFCCC in 2015. It focuses on six priority areas:

i)	Education
ii)	Training
iii)	Public awareness
iv)	Public participation
v)	Public access to information
vi)	International cooperation on these issues.

[9] ibid

The implementation of all six areas has been identified as the pivotal factor for everyone to understand and participate in solving the complex challenges presented by climate change. ACE calls on governments to develop and implement educational and public awareness programs, train scientific, technical and managerial personnel, foster access to information, and promote public participation in addressing climate change and its effects. It also urges countries to cooperate in this process, by exchanging good practices and lessons learned, and strengthening national institutions. This wide scope of activities is guided by specific objectives that, together, are seen as crucial for effectively implementing climate adaptation and mitigation actions, and for achieving the ultimate objective of the UNFCCC.

1.2 **The Kyoto Protocol**

The Kyoto Protocol adopted in Kyoto, Japan, on 11th December 1997 at COP 3, is a protocol to the UNFCCC. It entered into force on 16th February 2005. The protocol aims at achieving the main objective of the convention: to stabilise GHG emissions from human activities. The protocol establishes emission targets for the industrialised countries and countries in transition.

After the UNFCCC treaty came into operation, Parties to the UNFCCC have met at Conferences (Conference of the Parties) to discuss how to achieve the treaty's aims. At the 1st Conference of the Parties (COP 1), Parties decided that the aim of Annex I parties stabilising their emissions at 1990 levels by the year 2000 was not adequate, and further discussions at later conferences led to the Kyoto Protocol. The Kyoto Protocol sets emissions targets for developed countries which are binding under international law. It had two commitment periods, the first of which lasted from 2008-2012. The second one runs from 2013-2020 and is based on the Doha Amendment to the Protocol, which has not entered into force. Its major feature is that it has mandatory targets on greenhouse-gas emissions for the world's leading economies which have accepted it.

Commitments under the Protocol vary from nation to nation**.** The overall 5 percent target for developed countries is to be met through cuts (from 1990 levels) of 8 percent in the European Union (EU [15]), Switzerland, and most Central and East European states; 6 percent in Canada; 7 percent in the United States (although the US has since withdrawn its support for the Protocol); and 6 percent in Hungary, Japan, and Poland. New Zealand, Russia, and Ukraine are to stabilise their emissions, while Norway may increase emissions by up to 1 percent, Australia by up to 8 percent (subsequently withdrew its support for the Protocol), and Iceland by 10 percent. The EU has made its own internal agreement to meet its 8 percent target by distributing different rates to its member states. These targets range from a 28 percent reduction by Luxembourg and 21 percent cuts by Denmark and Germany to a 25 percent increase by Greece and a 27 percent increase by Portugal.

To compensate for the sting of "binding targets," as they are called, the agreement offers flexibility in how countries may meet their targets. For example, they may partially compensate for their emissions by increasing "sinks" -- which remove carbon dioxide from the atmosphere. That may be accomplished either on their own territories or in other countries. Or they may pay for foreign projects that result in greenhouse-gas cuts. Several mechanisms have been set up for this purpose:

i) emissions trading,
ii) the clean development mechanism, and
iii) joint implementation.

The Kyoto Protocol sets limits on total emissions by the world's major economies, a prescribed number of "emission units." Individual industrialised countries will have mandatory emissions targets they must meet. But it is understood that some will do better than expected.

i) **Emissions Trading (the carbon market**): The limits on greenhouse-gas emissions set by the Kyoto Protocol are a way of assigning monetary value to the earth's shared atmosphere --something that has been missing up to now**.** Nations that have contributed the most to global warming have tended to benefit directly in terms of greater business profits and higher standards of living, while they have not been held proportionately accountable for the damages caused by their emissions. The negative effects of climate change will be felt all over the world, and actually the consequences are expected to be most severe in least-developed nations which emit less.

The Protocol allows countries that have emissions units to spare -- emissions permitted them but not "used" -- to sell this excess capacity to countries that are over their targets. This so-called "carbon market" -- so-named because carbon dioxide is the most widely produced greenhouse gas, and because emissions of other greenhouse gases will be recorded and counted in terms of their "carbon dioxide equivalents" -- is both flexible and realistic. Countries not meeting their commitments will be able to "buy" compliance, but the price may be steep. The higher the cost, the more pressure they will feel to use energy more efficiently and to research and promote the development of alternative sources of energy that have low or no emissions.

ii) **The Clean Development Mechanism (CDM)**:

The Kyoto Protocol does not set limits on the greenhouse-gas emissions of developing nations. Yet the greenhouse-gas emissions of developing countries are growing, especially in the case of enormously populous countries such as China and India, which are rapidly expanding their industrial output.

Because the atmosphere is equally damaged by greenhouse-gas emissions wherever they occur and equally helped by emissions cuts wherever they are made, the Protocol includes an arrangement for reductions to be "sponsored" in countries not bound by emissions targets. The so-called Clean Development Mechanism is loaded with complicated details and acronyms, but in simplified form it works this way: Industrialised countries pay for projects that cut or avoid emissions in poorer nations -- and are awarded credits that can be applied to meeting their own emissions targets. The recipient countries benefit from free infusions of advanced technology that allow their factories or electricity generating plants to operate more efficiently -- and hence at lower costs and higher profits. And the atmosphere benefits because future emissions are lower than they would have been otherwise.

The system also appeals to private companies and investors. The mechanism is meant to work bottom-up -- to proceed from individual proposals to approval by donor and recipient governments to the allocation of "certified emissions reduction" credits. Countries earning the credits may apply them to meeting their emissions limits, may "bank" them for use later, or may sell them to other industrialised countries under the Protocol's emissions-trading system. Private firms are interested in the mechanism because they may earn profits from proposing and carrying out such work and because they may develop good reputations for their technology which will lead to further sales. A possible benefit for everyone is that the potential for profits may lead these businesses to develop even more useful technologies.

The Clean Development Mechanism is overseen by an Executive Board. To be certified, by the Clean Development Mechanism Executive Board, a project must be approved by all involved parties, demonstrate a measurable and long-term ability to reduce emissions, and promise reductions that would be additional to any that would otherwise occur.

iii) Joint Implementation (Mutual help for countries with emissions targets):

Joint implementation is a program under the Kyoto Protocol which allows industrialised countries to meet part of their required cuts in greenhouse-gas emissions by paying for projects that reduce emissions in other industrialised countries. In practice, this is an arrangement under which Western European and North American countries are scheduled to build up facilities in the "transition economies".

The sponsoring governments will receive credits that may be applied to their emissions targets; the recipient nations will gain foreign investment and advanced technology (but not credit toward meeting their own emissions caps; they have to do that themselves). The system has advantages of flexibility and efficiency. It often is cheaper to carry out energy-efficiency work in the transition countries, and to realise greater cuts in emissions by doing so. The atmosphere benefits wherever these reductions occur.

The operation of the joint implementation mechanism is similar to that of the "clean development mechanism". To go ahead with joint implementation projects, industrialised countries must meet requirements under the Protocol for accurate inventories of greenhouse-gas emissions and for detailed registries of emissions "units" and "credits" (steps that also are required for the international trading of emissions on the "carbon market"). If these requirements are met, countries may carry out projects.

Criticism of the UNFCCC and Kyoto Protocol:

The UNFCCC is not without its critics. There are two schools of thought regarding the UNFCCC. One school thinks the UNFCCC goes too far; the second school is of opinion that the UNFCCC does not go far enough. Among those who think the UNFCCC goes too far, the primary complaint is that the Kyoto Protocol is economically damaging and unnecessarily punitive to a number of countries while allowing others to continue to emit GHGs at unprecedented levels. This argument is particularly true of Canada who withdrew in 2011 citing an unwillingness to force citizens to pay penalties that would result in wealth transfers out of the country. The United States never ratified the agreement to begin with, citing not only the same problem that Canada raised, but also the fact that large polluters, like China, were not subject to the same penalties despite their strong economy and industrialised status. In 2010, Japan refused to sign up for the second term of the Kyoto because its major economic competitors (China, India, and Indonesia) would not face the same penalties. In 2012, similar arguments were made by New Zealand, Russia, Ukraine, Belarus, and Kazakhstan. For those who think the Kyoto Protocol does not go far enough, the criticism is that even though GHG reduction goals have not been achieved, little is being done to rectify the problem. It seems that without the U.S. and other industrialised countries backing the Kyoto, it is difficult to enforce its provisions.

There is criticism that the Kyoto protocol does not go far enough to curb greenhouse emissions and avoid dangerous climate change. Countries like Niue, The Cook Islands, and Nauru added notes to this effect when signing the protocol. Some environmental economists have been critical of the Kyoto Protocol. Many see the costs of the Protocol as outweighing the benefits, some believing the standards which Kyoto sets to be too optimistic, others seeing a highly inequitable and inefficient agreement which little would do to curb greenhouse gas emissions. There are also economists who believe that an entirely different approach needs to be followed than the approach suggested by the Kyoto Protocol.

Many have criticised the Protocol, including the USA, over the exemption of developing countries, such as China and India, from having to reduce their greenhouse gas emissions under the Kyoto Protocol. The Bush administration criticised the Kyoto Protocol saying that 80 percent of the world is exempt from emissions reduction standards as well as the potential of economic harm to the United States. Further argument is that, greenhouse gases do not remain in the area in which they are emitted, but rather move throughout the atmosphere of Earth. Therefore, even if the world's largest greenhouse gas emitter tackled the issue of climate change, there will be minimal impact in the atmosphere if other countries around the world didn't work on reducing their emission levels as well. There is also criticism over the true impact of the Kyoto Protocol in the long run on reduction of greenhouse gas emissions because it is questioned how much developed countries can offset their emissions while developing countries continue to emit these greenhouse gases.

There is criticism that the Kyoto Protocol does not do enough to address the issue of climate change and pollution in the long run. One criticism is that climate change is a unique environmental issue, but the Kyoto Protocol followed the format of the other international treaties (not necessarily useful for environmental issues) instead of promoting innovation in approaching the issue of global warming. Another criticism is that the Kyoto Protocol focuses too much on carbon emissions and doesn't address other pollutants, such as sulphur dioxide and nitrogen oxides, which either do direct harm to human health and/or can be addressed using technology. Some also claim that the Kyoto Protocol does not promote long-term solutions to reduce greenhouse gas emissions, but rather short-term solutions in having countries try to meet emission reduction standards (either by lowering emissions or find ways to obtain trading credits). In the same way, there has been criticism that the Kyoto Protocol does not address the concentration of atmospheric greenhouse gases, rather greenhouse gas emissions, focusing on the short-term over the long-term. The US has not ratified the Kyoto Protocol, while Canada denounced it in 2012.The Kyoto Protocol has been ratified by all the other Annex Parties. All Annex I parties, excluding the US, have participated in the 1st Kyoto commitment period. 37 Annex I countries and the EU have agreed to second-round Kyoto targets.

1.3 Marrakesh Accords

Marrakesh Accord was reached at COP 7. It includes, among other things, details for establishing a greenhouse gas emissions trading system; implementing and monitoring the Kyoto Protocol's Clean Development Mechanism (CDM); and setting up and operating three funds to support efforts to adapt to climate change.

Marrakesh Accords spell out more detailed rules for the Protocol e.g., for technology transfer and the flexible mechanisms and prescriptions for implementing the convention.

1.4 Bali Action Plan

Bali Action Plan is a comprehensive process to enable the full, effective and sustained implementation of the Convention through long term cooperative action. The plan contains the following:

Pillars[10]

The Conference of Parties (COP) decided to launch a comprehensive process to enable the implementation of the Convention through long-term cooperative action, now, up to and beyond 2012, by addressing: (the pillars or building blocks)

- A shared vision for long-term cooperative action, including a long-term global goal for emission reductions.
- Enhanced national/international action on mitigation of climate change.
- Enhanced action on adaptation.
- Enhanced action on technology development and transfer to support action on mitigation and adaptation.
- Enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation.

Cutting emissions

The nations acknowledge that evidence for global warming is *unequivocal*, and that humans must reduce emissions to reduce the risks of "severe climate change impacts" and emphasised the urgency to address climate change. There was a strong consensus for updated changes for both developed and developing countries. Although there were not specific numbers agreed upon in order to cut emissions, the decision recognised that there was a need for "deep cuts in global emissions" (several countries proposed 100% reduction in 2050) and that "developed country emissions must fall 10-40% by 2020".

Mitigation

Enhanced action on mitigation of climate change includes, inter alia:

- Nationally appropriate mitigation commitments or actions by all developed countries.
- Nationally appropriate mitigation actions (NAMAs) by developing countries.
- Cooperative sectoral approaches and sector-specific actions (CSAs).
- Ways to strengthen the catalytic role of the convention.

The nations pledge "policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation (REDD) in developing countries; and enhancement of forest carbon stock in developing countries".

Adaptation

The nations opt for enhanced co-operation to "support urgent implementation" of measures to protect poorer countries against climate change, including NAPAs. The emphasis in this area is given on technology and finance.

Technology- In technology development and transfer, the nations will consider how to facilitate the transfer of clean and renewable energy technologies from industrialised nations to the developing countries. This includes, inter alia:

- Removal of obstacles to, and provision of financial and other incentives for, scaling up the development and transfer of technology to developing country Parties in order to promote access to affordable environmentally sound technologies (renewable energies, electric vehicles).
- Ways to accelerate the deployment, diffusion and transfer of such technologies.
- Cooperation on research and development of current, new and innovative technology, including win-win solutions.
- The effectiveness of mechanism and tools for technology cooperation in specific sectors.

[10] UN (2008) *Report of the Conference of the Parties on it's thirteenth session*, held in Bali from 3 to 15 December 2007

Finance- Provision of financial resources and investment includes:

- Improved access to predictable and sustainable financial resources and the provision of new and additional resources, including official and concessional funding for developing country Parties (dcP).
- Positive incentives for dcP for national mitigation strategies and adaptation action.
- Innovative means of funding for dcP that are particularly vulnerable to the adverse impacts of climate change in meeting the costs of adaptation.
- Incentivisation of adaptation actions on the basis of sustainable development policies.
- Mobilisation of funding and investment, including facilitation of climate-friendly investment choices.
- Financial and technical support for capacity-building in the assessment of costs of adaptation in developing countries, to aid in determining their financial needs.

1.5 The Copenhagen Accord

The Copenhagen Accord among other things, promises to work to limit global warming to 2 degrees Celsius, but no deadlines were set. Another important element of this accord is that developed countries will provide adequate and sustainable financial resources, technology and capacity building to support the implementation of adaptation action in developing countries

The Accord

- Endorses the continuation of the Kyoto Protocol.
- Underlines that climate change is one of the greatest challenges of our time and emphasises a "strong political will to urgently combat climate change in accordance with the principle of common but differentiated responsibilities and respective capabilities".
- Recognises "the scientific view that the increase in global temperature should be below 2 degrees Celsius", in a context of sustainable development, to combat climate change.
- Recognises "the critical impacts of climate change and the potential impacts of response measures on countries particularly vulnerable to its adverse effects" and stresses "the need to establish a comprehensive adaptation programme including international support".
- Recognises that "deep cuts in global emissions are required according to science" (IPCC AR4) and agrees cooperation in peaking (stopping from rising) global and national greenhouse gas emissions "as soon as possible" and that "a low-emission development strategy is indispensable to sustainable development".
- States that "enhanced action and international cooperation on adaptation is urgently required to reduce vulnerability and build resilience in developing countries, especially in those that are particularly vulnerable, especially least developed countries (LDCs), small island developing states (SIDS) and Africa" and agrees that "developed countries shall provide adequate, predictable and sustainable financial resources, technology and capacity-building to support the implementation of adaptation action in developing countries".
- About mitigation agrees that developed countries would "commit to economy-wide emissions targets for 2020" to be submitted by 31st January 2010 and agrees that these Parties to the Kyoto Protocol would strengthen their existing targets. Delivery of reductions and finance by developed countries will be measured, reported and verified (MRV) in accordance with COP guidelines.
- Agrees that developing nations would "implement mitigation actions" to slow growth in their carbon emissions, submitting these by 31st January 2010. LDCs and SIDS may undertake actions voluntarily and on the basis of international support.
- Agrees that developing countries would report those actions once every two years via the U.N. climate change secretariat, subjected to their domestic MRV. NAMAs seeking international support will be subject to international MRV.
- Recognises "the crucial role of reducing emission from deforestation and forest degradation and the need to enhance removals of greenhouse gas emission by forests", and the need to establish a mechanism (including REDD-plus) to enable the mobilisation of financial resources from developed countries to help achieve this.
- Agrees that developed countries would raise funds of US$30 billion from 2010-2012.

- Agrees a "goal" for the world to raise US$100 billion per year by 2020, from "a wide variety of sources", to help developing countries cut carbon emissions (mitigation). New multilateral funding for adaptation will be delivered, with a governance structure.
- Establishes a Copenhagen Green Climate Fund, as an operating entity of the financial mechanism, "to support projects, program, policies and other activities in developing countries related to mitigation."

1.6 Paris Agreement

The Paris Agreement builds upon the Convention and – for the first time – brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.

The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. To reach these ambitious goals, appropriate financial flows, a new technology framework and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework.

The Paris Agreement requires all Parties to put forward their best efforts through Nationally Determined Contributions (NDC) and to strengthen these efforts in the years ahead. This includes requirements that all Parties report regularly on their emissions and on their implementation efforts. Parties shall account for their nationally determined contributions. In accounting for anthropogenic emissions and removals corresponding to their nationally determined contributions, Parties shall promote environmental integrity, transparency, accuracy, completeness, comparability and consistency, and ensure the avoidance of double counting, in accordance with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement. In the context of their nationally determined contributions, when recognising and implementing mitigation actions with respect to anthropogenic emissions and removals, Parties should take into account, as appropriate, existing methods and guidance under the Convention.

In 2018, Parties had to take stock of the collective efforts in relation to progress towards the goal set in the Paris Agreement and to inform the preparation of NDCs.

There will also be a global stocktake every 5 years to assess the collective progress towards achieving the purpose of the Agreement and to inform further individual actions by Parties.

According to article 4(6) of the Agreement the least developed countries and small island developing states may prepare and communicate strategies, plans and actions for low greenhouse gas emissions reflecting their special circumstances. Bangladesh is committed to taking a progressive approach to developing its economy on a low carbon pathway. In the NDC, Bangladesh committed to reduce GHG emissions in the power, industry and transport sectors by 5 percent below 'business-as-usual' GHG emissions by 2030 using only domestic resources, or by 15 percent below 'business-as-usual' GHG emissions by 2030 if sufficient and appropriate support is received from developed countries.

1.7 Sustainable Development Goals (SDGs)[11]

Ban Ki-moon, the former UN Secretary-General, has stated that: "We don't have plan B because there is no planet B." This thought has guided the development of the Sustainable Development Goals (SDGs). Negotiations on the Post-2015 Development Agenda began in January 2015 and ended in August 2015. A final document was adopted at the UN Sustainable Development Summit in September 2015 in New York City, USA. On 25 September 2015, the 193 countries of the UN General Assembly adopted the 2030 Development Agenda titled "Transforming our world: the 2030 Agenda for Sustainable Development". This agenda has 17 Sustainable Development Goals and the associated 169 targets. Each target has between 1 and 3 indicators used to measure progress toward reaching the targets. In total, there are 304 indicators that will measure compliance.

[11] UN (2015) *Transforming Our world: The 2030 Agenda for Sustainable Development*.

These 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities. The goals are interconnected – often the key to success on one will involve tackling issues more commonly associated with another.

The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life, in a sustainable way, for future generations. They provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The SDGs are an inclusive agenda. They tackle the root causes of poverty and unite us together to make a positive change for both people and planet. The countries pledged that the agenda will be implemented in a manner that is consistent with the rights and obligations of states under international law. The SDG goals and targets came into effect on 1st January 2016 for a period of 15 years. The goals are listed below:

It is to be noted that Goal 13 is absolutely meant for addressing climate change. But there are some other goals which have targets connected with the targets of Goal 13. The targets of SDG 13 are listed below:

- Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
- Integrate climate change measures into national policies, strategies and planning.
- Improve education, awareness-raising and human and institutional capacity on climate
- Change mitigation, adaptation, impact reduction and early warning.
- Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilising jointly US$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 operationalise the Green Climate Fund through its capitalisation as soon as possible.
- 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 marginalised communities.

Summary:

International community especially the United Nations having been raising their concerns about the adverse impact of climate change. The United Nations took up the environment issue long back in 1972 and established the United Nations Environment Program (UNEP) to oversee the environmental issues for UN agencies. In 1992 representatives from 154 nations signed the UNFCCC. The main objective of this convention is to reduce greenhouse gas emissions as a response to climate change. UNFCCC was followed by many other international treaties and agreements like Kyoto Protocol, Paris Agreement. However, these protocols and agreements could not produce any fruitful results. Greenhouse gas emissions is still continuing at an alarming rate threatening the life and property of people across the globe. USA's withdrawal from Kyoto Protocol and Paris Agreement has badly impacted the international responses to climate change, because USA alone emits GHG about 20 percent of the global total.

References:

1. UN (1992) *The United Nations Framework Convention on Climate Change.*
2. UN (1998) *The Kyoto Protocol to the United Nations Framework Convention on Climate Change.*
3. UN (2007) *Bali Action Plan.*
4. UN (2009) *The Copenhagen Accord.*
5. UN (2015) *Paris Agreement.*
6. UN (2015) *Transforming Our World: The 2030 Agenda for Sustainable Development.*

3.3. INSTRUCTOR'S GUIDE

GLOBAL RESPONSE TO CLIMATE CHANGE

	Instructor's guide	Reference	Participant's Response
1.0	**Welcome** the participants. **Introduce** yourself to the participants. **Show** the title of the session.	Slide 1	
	Briefly discuss on the session overview.	Slide 2	
	Tell the participants about the learning objectives of the session.	Slide 3	
	Discuss the basic concepts of Conference of Parties (COP), Clean Development Mechanism (CDM), Joint Implementation (JI), Emission Trading.	Slide 4	
2.0	**KTP 1: International Conventions and Protocols**		
	Ask the participants to share their understanding why international response is required to address climate change.		Take some responses from the participants
	Tell them the need for international effort for tackling global climate change risks.	Slide 5	
	Inquire if the participants can mention the names of some of the international conventions and protocols on climate change. After getting some responses, **Ask** them to mention their basic features. **Record** responses and **Tell** that we will discuss the relevant international convention and protocols and their salient features in the next slides.	Slide 6	Note responses from the participants
	Tell that important international conventions and protocols dealing with climate change issues are UNFCCC, Kyoto Protocol, Marrakesh Accord, Copenhagen Accord, Paris Agreement, and SDGs.	Slide 7	
	Deliver basic information about UNFCCC.	Slide 8-10	
	Discuss on different contents of the convention.	Slide 11	
	Explain the objectives, main principles and commitments of the convention.	Slide 12-16	
	Discuss basic information and main features of Kyoto Protocol.	Slide 17-19	

	Deepen participant's knowledge and understanding on the key messages of global responses to climate change by an exercise.	Slide 20 Exercise 2	
	Distribute solution of the exercise.	Solution Exercise 2	
	Discuss contribution of CDM, Marrakesh Accord and Bali Action Plan to climate change adaptation and mitigation.	Slide 21-23	
	Detail the main features of Copenhagen Accord and Paris Agreement.	Slide 24-25	
	Focus on SDGs with special emphasis on climate change and audit.	Slide 26-27	
3.0	**Use** Quiz 2 for evaluating the participants' learning.	Slide 28 Quiz 2	
	Distribute suggested solution of the quiz.	Solution Quiz 2	
4.0	**Summarize** the session by pointing out the key issues of the session.	Slide 29	
	Thank the participants for their active participation in the discussion and declare the end of Session 2.	Slide 30	

3.4. SLIDES

Slide 1

Session 2

GLOBAL RESPONSE TO CLIMATE CHANGE

Slide 2

Session overview

- This session will focus on what actions have been taken by international community globally to face climate risk.
- The session will mainly cover the *international conventions, protocols, treaties* etc. that put the nations under obligation to formulate necessary policies and strategies and take up required programs, projects and activities to deal with climate change issues.

Read the slide and **Discuss**.

Slide 3

Learning objective

- At the end of the session, it is expected that the participants will get an understanding of the global responses to address climate change.
- This will help them identify key international efforts that are relevant for taking up country specific actions against climate change.
- This will enable them to link with national responses to climate change and identify how these international responses can be focused in conducting climate performance audit.

Read the slide and **Discuss**.

Slide 4

Basic Concepts

- UN Framework Convention on Climate Change (UNFCCC).
- UN Convention on Biological Diversity (UNCBD).
- UN Convention to Combat Desertification (UNCCD).
- Conference of Parties (COP).

Tell: In 1992, environment related three major UN Conventions were opened for signature during UN Conference on Environment and Development (UNCED, also known as Earth Summit) at Rio de Janeiro. These are (1) UN Framework Convention on Climate Change (UNFCCC) also called the Rio Convention, UN Convention on Biological Diversity (UNCBD), and UN Convention to Combat Desertification (UNCCD).

Tell: The Earth Summit also resulted in the following documents:

- ✓ Rio Declaration on Environment and Development;
- ✓ Agenda 21 (comprehensive action plan in all areas of environment); and
- ✓ Forest Principles.

Emphasise: The Commission on Sustainable Development (CSD) was also created in December 1992 to ensure effective follow-up of UNCED. Subsequently, global conference on Rio+5, Rio+10 and Rio+20 took place. Sustainable Development Agenda or SDGs for 2030 is an outcome of Rio+20.

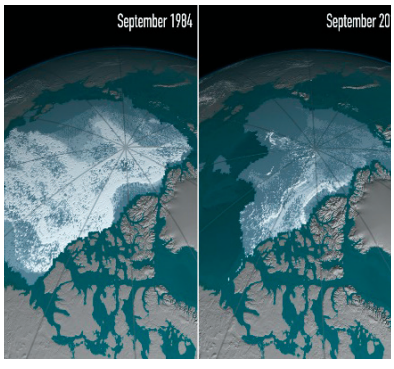
Tell: Conference of Parties (COP) is the highest governing body of UNFCCC. All states that are signatories to the Convention are represented in the COP. The main responsibility of COP is to oversee the implementation of the Convention and other legal instruments that the COP adopts and take decisions to help the effective implementation of the convention, including institutional and other administrative matters.

Slide 5

1. International Conventions and Protocols

Substantial global climate change action is needed:

- Action is needed to both reduce our GHG emissions (mitigation) and reduce the negative impacts of a changing climate (adaptation).
- It costs a lot to act now, but it cost much more to act only in the future; investment in the next 10-20 years will have a profound effect on climate in the future (The Stern review). It is important to do both.
- Delay in reducing emissions significantly constrains opportunities to achieve lower stabilisation levels and increases the risk of more severe climate change impacts.
- Adaptation is necessary now.



Ask the participants to share their understanding why international response is required to address climate change.

Take some responses.

Tell: 2018 was world's fourth hottest year on record since 1880, placing it behind 2015, 2016, and 2017. 2018 has experienced numerous other climate-related extremes, including devastating storms, floods, heatwaves and droughts etc. The patterns are well aligned with the findings of the recently released IPCC 1.5^{o}C Special Report.

We are at about 1 degree Celsius of warming since pre-industrial levels. Global warming is likely to reach 1.5 degrees Celsius between 2030 and 2052 if it continues to increase at the current rate.

Annual global emissions need to drop from 53 billion tonnes today to around 24 billion tonnes by 2030, then to net zero by 2050, to limit to 1.5 degrees Celsius.

Emphasise: Climate change is inevitable. Therefore, substantial efforts are needed to both reduce our GHG emissions (mitigation) and reduce the negative impacts of a changing climate (adaptation). It costs a lot to act now, but it cost much more to act only in the future; investment in the next 10-20 years will have a profound effect on climate in the future (The Stern review). It is important to do both.

Highlight: Delay in reducing emissions significantly constrains opportunities to achieve lower stabilisation levels and increases the risk of more severe climate change impacts. Adaptation is necessary now.

Slide 6

International Conventions and Protocols [contd..]

Exercise:

The participants are required to identify the international conventions and protocols addressing climate change issues.

They are required to tell the basic features of those conventions and protocols.

Ask the participants to name the international conventions and protocols which address climate change issues.

Note some responses. After getting some responses, **Ask** them to mention their basic features.

Record responses and **Tell** that we will discuss the relevant international convention and protocols and their salient features in the next slides.

Slide 7

International Conventions and Protocols

- UNFCCC
- Kyoto Protocol
- Marrakesh Accord
- Copenhagen Accord
- Paris Agreement
- SDGs

Read the slide

Slide 8

The United Nations Framework Convention on Climate Change (UNFCCC)

- UNFCCC adopted on May 9, 1992 was negotiated at the United Nations Conference on Environment and Development in Rio de Janeiro in June 1992.
- It came into force on 21 March 1994 following its ratification by a sufficient number of countries.
- Currently the UNFCCC has 197 signatories.
- The signatories to the Convention named as Parties to the Convention and have been grouped in three categories: Annex I Parties, Annex II Parties (both Annex I and Annex II are developed countries) and Non-Annex I Parties (developing countries). Under Kyoto Protocol, Annex I Parties are named as Annex B countries to the Protocol
- Bangladesh falls in the Non-Annex I group.

Read the slide

Slide 9

Categories of Parties

- **Annex I Parties:** 40 industrialised developed countries and countries with economies in transition (EITSs) having obligations to take adequate measures to mitigate the effects of climate change. Later Turkey made its special submission to withdraw its name from the list of Annex I Parties to the Convention.
- **Annex II Parties:** 24 wealthiest Annex I Parties who are the members of the OECD. Apart from taking the lead in combating global climate change, they have to provide financial and technical support to developing countries in particular as well as EITs to help implement climate change mitigation and adaptation actions.
- **Non-Annex I Parties:** Developing country Parties to the UNFCCC not listed in Annex I to the Convention. Among them, LDCs and SIDs are recognised countries with special situation under UNFCCC.
- **Annex B Parties:** Developed country Parties listed in Annex B to the Kyoto Protocol with specific time bound emission reduction targets relative to base year 1990 (except Australia).

Explain the slide.

Slide 10

Categories of Parties [contd..]

Australia	Estonia	Latvia	Russia
Austria	Finland	Liechtenstein	Slovakia
Belarus	France	Lithuania	Slovenia
Belgium	Germany	Luxembourg	Spain
Bulgaria	Greece	Netherlands	Sweden
Canada	Hungary	New Zealand	Switzerland
Croatia	Iceland	Norway	Turkey
Czech Republic	Ireland	Poland	Ukraine
Denmark	Italy	Portugal	UK
EC	Japan	Romania	USA

Tell: The table shows the countries listed as Annex I country parties. The countries marked green refers countries with economies in transition to a market economy. Whereas, USA did not ratify Kyoto Protocol.

Slide 11

Major building blocks under UNFCCC

- Climate Change Adaptation (including loss and damage).
- Climate Change Mitigation.
- Climate Change Finance.
- Climate Change Technology Development and Transfer.
- Climate Change Capacity Building.
- Climate Resilient and Low Carbon Development.
- These obligations are:
  - ✓ not country specific or quantified (there is no binding limit).
  - ✓ not time-bound (except reporting).
  - ✓ contains no enforcement mechanisms.

Ask the participants if they know the major building blocks of UNFCCC.

Tell: The major building blocks of UNFCCC are: (1) Climate Change Adaptation (including loss and damage); (2) Climate Change Mitigation, (3) Climate Change Finance, (4) Climate Change Technology Development and Transfer, (5) Climate Change Capacity Building, and (6) Climate Resilient and Low Carbon Development.

State that generally termed obligations can be difficult to use as audit criteria, because they may be difficult to measure.

Slide 12

Mitigation objectives of the UNFCCC

- Stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.
- All Parties are required to.
  - ✓ formulate and implement mitigation and adaptation programs.
  - ✓ take climate change into account and minimise adverse effects of mitigation projects

Read the slide

State that these commitments are overriding objectives, and require some national actions

Ask for questions.

Slide 13

Adaptation objectives of the UNFCCC

- All Parties are required to:
  - ✓ formulate and implement adaptation programmes under Article 4.1 (b).
  - ✓ cooperate in adaptation preparation for coastal zones, water, agriculture and desertification under Article 4.1 (e).
- minimise adverse effects of adaptation projects.

- Annex II Parties are to assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation

Read the slide.

Tell

- Article 4 is the most important one regarding adaptation
- A number of developing countries have drawn up adaptation plans or are in the process supported by international organisations, and those are often available on internet.

Slide 14

Main Principles of UNFCCC

- **Common but differentiated responsibilities:** The developed or industrialised countries should "take the lead" in modifying anthropogenic emissions in the long term.
- **The precautionary principle:** This principle allows policymakers to make discretionary decisions in situations where there is the possibility of harm from taking a particular course or making a certain decision when extensive scientific knowledge on the matter is lacking.
- **Sustainable development:** A pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for future generations.

Ask the participants if they know the principles of UNFCCC.

If they don't know, **explain** to them the principles as follows:

- *Common but differentiated responsibilities:* The developed or industrialised countries should "take the lead" in modifying anthropogenic emissions in the long term.
- *The precautionary principle:* This principle allows policymakers to make discretionary decisions in situations where there is the possibility of harm from taking a particular course or making a certain decision when extensive scientific knowledge on the matter is lacking.
- *Sustainable development:* A pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for future generations.

State that generally termed obligations can be difficult to use as audit criteria, because they may be difficult to measure.

Slide 15

Commitments of UNFCCC

- Publish national inventories of anthropogenic emissions and removals.
- Formulate, implement, publish and regularly update national, and where appropriate, regional programmes to mitigate climate change.
- Promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases.
- Promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases.

Explain the slide.

Slide 16

Commitments of UNFCCC [contd..]

- Cooperate in preparing for adaptation; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, affected by drought and desertification, as well as floods.
- Take climate change considerations into account, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, with a view to minimising adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change.
- Promote and cooperate in scientific, technological, technical, socio-economic and other research, systematic observation and development of data archives related to the climate system.
- Promote and cooperate in education, training and public awareness related to climate change and encourage the widest participation in this process, including that of non-governmental organisations.

Explain the slide.

Slide 17

Kyoto Protocol

- The Kyoto Protocol adopted in Kyoto, Japan, on 11 December 1997 at COP 3, is a protocol to the UNFCCC.
- It entered into force on 16 February 2005.
- The protocol aims at achieving the main objective of the convention: to stabilise GHG emissions from human activities.
- The protocol establishes emission targets for the industrialised countries and countries in transition.
- Overall 5 percent emission reduction target for developed countries.

Read the slide.

Slide 18

Kyoto Protocol: main mitigation features

- Binding GHG emission target for each developed country.
- An addition to UNFCCC that requires developed countries to limit their GHG emissions in 2012, as compared to their emissions in 1990.
- Provides detailed methods and mechanisms for how the emission reductions can be achieved, measured and verified.
- International market mechanisms.
- Support for technology transfer and adaptation.
- Accounting, reporting, review and compliance.
  - ✓ *country specific, quantified, time-bound commitments.*

Read the slide.

Tell: These commitments are much more binding and suitable as audit criteria for developed countries.

Slide 19

Kyoto Protocol [contd..]

Kyoto Protocol characteristics:

- Commits Annex I countries to reduce GHG emissions by 5.2 percent by 2012 compared to 1990.
- Actual commitment period: 2008 - 2012.
- Individual goals for each country.

Mechanism for emission reduction:

- Emissions trading.
- Clean development mechanism (CDM).
- Joint implementation.

Read the slide.

Slide 20

Exercise 2

Objective: The purpose of this exercise is to strengthen participants' knowledge on the key messages of global responses to climate change.

Time required: Total time for the exercise is 20 minutes.

- 10 minutes for group discussion and preparation of solution.
- 10 minutes for presentation and discussion.

Instructions: The participants are required to match the right-side statements with appropriate left side statements.

Read the slide.

Slide 21

Clean Development Mechanism (CDM)

Joint Implementation

- Emission reduction projects implemented jointly between Annex I countries (developed countries and transition economies).
- ERUs (Emission Reduction Units) can be used by the project investor to meet its own commitments, or sold on the open market.

Clean Development Mechanism

- Allows public or private entities to invest in greenhouse gas (GHG) mitigating activities in developing countries.
- CERs (Certified Emission Reductions) can be used by the project investor to meet its own commitments, or sold on the open market.

Emissions Trading System

- Can be used as supplementary to actions to meet reduction commitments.
- One AAU (Assigned Amount Units) represents the tradable right to emit one tonne CO_2 equivalent.

Discuss the slide.

Tell: Joint Implementation has been defined in Article 6 of the Kyoto Protocol. Joint implementation is a program under the Kyoto Protocol which allows developed countries to meet part of their required cuts in greenhouse gas emission by financing projects that reduce emissions in other industrialised countries. In practice recipient country is likely to be a country with an economy in transition.

Tell: CDM has been defined in Article 12 of the Kyoto Protocol. It is an arrangement under the Kyoto Protocol through which developed countries may finance greenhouse-gas emission reduction or removal projects in developing countries and receive certified emission credits (CER) for doing so which they may use towards meeting mandatory limits on their own greenhouse-gas emissions.

Tell: Emission Trading has been defined in Article 17 of the Kyoto Protocol. It is an arrangement under which parties that have exceeded their emission reduction commitments under the Kyoto Protocol may sell excess "assigned amount units (AAUs)". Other parties may meet their own emissions reductions by purchasing these AAUs.

Slide 22

Marrakesh Accord

- Marrakesh Accord was reached at COP 7.
- It includes, among other things-
  - ✓ Details for establishing a greenhouse gas emissions trading system.
  - ✓ Implementing and monitoring the Kyoto Protocol's Clean Development Mechanism (CDM).
  - ✓ Setting up and operating three funds to support efforts to adapt to climate change.

Explain the slide.

Slide 22

Bali Action Plan

- Comprehensive process to enable the full, effective and sustained implementation of the Convention through long term cooperative action.
- Mitigation
  - ✓ Nationally appropriate mitigation commitments or actions by all developed countries.
  - ✓ Nationally appropriate mitigation actions (NAMAs) by developing countries.
  - ✓ Cooperative sectoral approaches and sector-specific actions (CSAs).
  - ✓ Ways to strengthen the catalytic role of the convention.
- Adaptation
  - ✓ Technology
  - ✓ Finance.

Discuss the slide.

Slide 24

The Copenhagen Accord

- Reached in December 2009 (COP 15)
- Promises to work to limit global warming to 2 degrees Celsius, but no deadlines were set.
- Developed countries to "commit to economy-wide emissions targets for 2020" submitted by 31 January 2010.
- Developed countries to provide adequate and sustainable financial resources, technology and capacity building to support the implementation of adaptation action in developing countries.
- Developing countries will report national inventories and mitigation actions every second year through their national communication.

Read the slide

Explain: The Copenhagen Accord is the document that delegates agreed to "take note of" at the final plenary session of the Conference in December 2009 (COP 15). It is a draft COP decision and, when approved, is operational immediately. The Accord is not yet legally binding and does not commit countries to agree to a binding successor to the Kyoto Protocol.

Tell: The accord recognises the need for drastic action to reduce GHG emissions according to science (two degrees target) and stresses "the need to establish a comprehensive adaptation programme including international support".

Annex I Parties submitted quantified emission targets for 2020 in early 2010. Non-Annex I Parties will submit a set of mitigation actions for implementation. This is voluntary for the least developed countries and small island states.

Developed countries agreed to provide new, additional resources, including forestry and investments through international institutions.

Slide 25

Paris Agreement

- Adopted by consensus on 12 December 2015 in Paris, France.
- Brings all nations into a common cause to combat climate change and adapt to its effects, with enhanced support to assist developing countries.
- Keeping a global temperature rise well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.
- A global stock take every 5 years to assess the collective progress.
- Requires all Parties to put forward their best efforts through nationally determined contributions (NDC).
- Bangladesh's NDC is to reduce GHG emission by 5 percent below 'business-as-usual' by 2030 using only domestic resources, or by 15 percent below 'business-as-usual' if sufficient and appropriate support is received from developed countries.

Discuss the slide.

Slide 26

Sustainable Development Goals

- On 25 September 2015, the 193 countries of the UN General Assembly adopted the 2030 Development Agenda titled "Transforming our world: the 2030 Agenda for Sustainable Development".
- This agenda has 92 paragraphs. Paragraph 51 outlines the 17 Sustainable Development Goals and the associated 169 targets.
- Each target has between 1 and 3 indicators used to measure progress toward reaching the targets.
- In total, there are 304 indicators that will measure compliance.
- The SDG goals and targets comes into effect on 1 January 2016 for a period of 15 years.

Slide 27

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

The targets of SDG 13 are listed below:

- Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
- Integrate climate change measures into national policies, strategies and planning.
- Improve education, awareness-raising and human and institutional capacity on climate.
- Change mitigation, adaptation, impact reduction and early warning.
- Implement the commitment undertaken by developed-country parties to UNFCCC to a goal of mobilising jointly US$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 operationalise the Green Climate Fund through its capitalisation as soon as possible.
- 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 marginalised communities.

Discuss the slide.

Slide 28

Quiz-2

Objective: The purpose of this exercise is to strengthen participants' knowledge on the key messages of global responses to climate change.

Time required: Total time for the exercise is 20 minutes

- 10 minutes for group discussion and preparation of solution.
- 10 minutes for presentation and discussion.

Instructions: The participants are required to match the right-side statements with appropriate left side statements

Slide 29

Summary

- To address climate change impacts and vulnerabilities international conventions and protocols have set many principles, objectives and commitments.
- Targets for reducing GHG emission have also been set for major emitters.
- Implementation of these conventions and protocols is the critical success factor for reducing climate change impact and vulnerability.

Slide 30

3.5. EXERCISE

Exercise 2

Objective: The purpose of this exercise is to strengthen participants' knowledge on the key messages of global responses to climate change.

Time required: Total time for the exercise is 20 minutes

- 10 minutes for group discussion and preparation of solution
- 10 minutes for presentation and discussion

Instructions: The participants are required to match the right-side statements with appropriate left side statements.

1	The Kyoto Protocol	includes, among other things, details for establishing a greenhouse gas emissions trading system.
2	The United Nations Framework Convention on Climate Change (UNFCCC)	achieve stabilisation of greenhouse gas concentrations in the atmosphere.
3	Marrakesh Accord	states that overall 5 percent target for reduction of GHG emission is to be met through cuts from 1990 levels.
4	Under UNFCCC the Parties should	should be appropriate for the specific conditions of each Party and should be integrated with national development programmes.
5	The Copenhagen Accord among other things,	sets emissions targets for developed countries which are binding under international law.
6	The Paris Agreement, for the first time,	adopted on May 9, 1992.
7	The Kyoto Protocol	develop and elaborate appropriate and integrated plans for the protection and rehabilitation of areas, affected by drought and desertification, as well as floods.
8	The Paris Agreement's central aim is to	promises to work to limit global warming to 2 degrees Celsius, but no deadlines were set.
9	The ultimate objective of the Convention is to	strengthen the global response to keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels.
10	As per UNFCCC, policies and measures to protect the climate system against human-induced change	brings all nations into a common cause to undertake ambitious efforts to combat climate change.

3.6. SOLUTION TO EXERCISE

Solution_Exercise 2

1	The Kyoto Protocol sets emissions targets for developed countries which are binding under international law.
2	The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty on environment adopted on May 9, 1992.
3	Marrakesh Accord includes, among other things, details for establishing a greenhouse gas emissions trading system.
4	Under UNFCCC the Parties should develop and elaborate appropriate and integrated plans for the protection and rehabilitation of areas, affected by drought and desertification, as well as floods.
5	The Copenhagen Accord among other things, promises to work to limit global warming to 2 degrees Celsius, but no deadlines were set.
6	The Paris Agreement, for the first time, brings all nations into a common cause to undertake ambitious efforts to combat climate change.
7	The Kyoto Protocol sets emissions targets for developed countries which are binding under international law.
8	The Paris Agreement's central aim is to strengthen the global response to keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels.
9	The ultimate objective of the Convention is to achieve stabilisation of greenhouse gas concentrations in the atmosphere.
10	As per UNFCCC, policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programmes.

3.7. QUIZ

Quiz 2

Objective: The purpose of this exercise is to strengthen participants' knowledge on the key messages of global responses to climate change.

Time required: Total time for the exercise is 20 minutes

- 10 minutes for group discussion and preparation of solution
- 10 minutes for presentation and discussion

Instructions: The participants are required to identify whether the statements are 'True' of 'False'.

	Statement	True/False
1	The UNFCCC objective is to stabilise greenhouse gas concentrations in the atmosphere.	
2	One of the first tasks set by the UNFCCC was for all nations to establish national greenhouse gas inventories of emissions and removals.	
3	The UNFCCC was adopted on May 9, 1992.	
4	The Kyoto Protocol establishes emission targets for all countries.	
5	The Parties may partially compensate for their emissions by increasing "sinks".	
6	The Kyoto Protocol does not set limits on the greenhouse gas emissions of developing nations.	
7	The UNFCCC sets binding limits on greenhouse gas emissions for individual countries and contains enforcement mechanisms.	
8	Bangladesh included in the Non-annex I Party under UNFCCC.	
9	Benchmark level for reduction of GHG emission under the UNFCCC was the year of 1999.	
10	UNFCCC Action for Climate Empowerment (ACE) focuses on six priority areas.	
11	The Kyoto Protocol the commitment periods from 2008 to 2020.	
12	One of the principles of UNFCCC was that the Parties should protect the climate system in with equal responsibilities.	
13	Under Clean Development Mechanism (CDM) industrialised countries pay for projects that cut or avoid emissions in poorer nations.	
14	Marrakesh Accord establishes a greenhouse gas emissions trading system.	
15	The Copenhagen Accord promises to work to limit global warming to 2 degrees Celsius with a deadline.	
16	The Paris Agreement aims is to keep a global temperature rise below 2 degrees Celsius above pre-industrial levels.	
17	Nationally Determined Contribution (NDC) was set for implementing Kyoto Protocol.	
18	Under the Paris Agreement there will be a global stocktake every 5 years to assess the collective progress towards achieving the NDC.	
19	The Copenhagen Accord agrees a "goal" for the world to raise US$100 billion per year by 2020, to help developing countries cut carbon emissions.	
20	One of the criticisms of Kyoto Protocol is that it did not set mandatory targets on greenhouse-gas emissions for the world's leading economies.	

3.8. SOLUTION TO QUIZ

Solution_Quiz 2

	Statement	True/False
1	The UNFCCC objective is to stabilise greenhouse gas concentrations in the atmosphere.	True
2	One of the first tasks set by the UNFCCC was for all nations to establish national greenhouse gas inventories of emissions and removals.	False (only for signatory nations)
3	The UNFCCC was adopted on May 9, 1992	True
4	The Kyoto Protocol establishes emission targets for all countries.	False (for the industrialised countries and countries in transition)
5	The Parties may partially compensate for their emissions by increasing “sinks”.	True
6	The Kyoto Protocol does not set limits on the greenhouse gas emissions of developing nations.	True
7	The UNFCCC sets binding limits on greenhouse gas emissions for individual countries and contains enforcement mechanisms.	False
8	Bangladesh included in the Non-annex I Party under UNFCCC.	True
9	Benchmark level for reduction of GHG emission under the UNFCCC was the year of 1999.	False (1990)
10	UNFCCC Action for Climate Empowerment (ACE) focuses on six priority areas.	True
11	The Kyoto Protocol the commitment periods from 2008 to 2020.	True
12	One of the principles of UNFCCC was that the Parties should protect the climate system in with equal responsibilities.	False (common but differentiated responsibilities)
13	Under Clean Development Mechanism (CDM) industrialised countries pay for projects that cut or avoid emissions in poorer nations.	True
14	Marrakesh Accord establishes a greenhouse gas emissions trading system.	True
15	The Copenhagen Accord promises to work to limit global warming to 2 degrees Celsius with a deadline.	False (no deadline)
16	The Paris Agreement aims is to keep a global temperature rise below 2 degrees Celsius above pre-industrial levels.	True
17	Nationally Determined Contribution (NDC) was set for implementing Kyoto Protocol.	False (Paris Agreement)
18	Under the Paris Agreement there will be a global stocktake every 5 years to assess the collective progress towards achieving the NDC.	True
19	The Copenhagen Accord agrees a “goal” for the world to raise US$100 billion per year by 2020, to help developing countries cut carbon emissions.	True
20	One of the criticisms of Kyoto Protocol is that it did not set mandatory targets on greenhouse-gas emissions for the world’s leading economies.	False (set mandatory targets)

SESSION 3

NATIONAL RESPONSE TO CLIMATE CHANGE

4. SESSION 3: NATIONAL RESPONSE TO CLIMATE CHANGE

Duration: 120 minutes

4.1. SESSION-AT-A-GLANCE

Learning Objective	Materials Required	Session Structure	Teaching Method	Time Required
After this session, the participants will be able to acquire knowledge about the steps the government of Bangladesh has so far taken to address climate change. They will be able to make a comparison between international responses and country responses; they will also be able to understand the gaps that exist.	1. Participant's Note 2. Slides 3. Computer 4. Multimedia Projector 5. Audio Visual Aid 6. Flip Charts 7. Stationary	**Session Overview**	1. Lecture 2. Discussion	5 minutes
		Learning Objective	1. Lecture	1 minute
		Key Teaching Points (KTP)		
		KTP-1: National Strategies, Acts and Funding – BCCSAP, BCCTF.	1. Lecture 2. Discussion 3. Exercise	35 minutes
		KTP-2: National Policies, and Plans –NAPA, Delta Plan 2100, Perspective Plan, Five Year Plan, NDC.	1. Lecture 2. Discussion 3. Brainstorming	34 minutes
		KTP-3: National Frameworks – CFF, CIP-EFCC, MBF, DPP/ TAPP/ Other Format.	1. Lecture 2. Discussion	30 minutes
		Evaluation	1. Question-Answer	10 minutes
		Summary	1. Lecture 2. Discussion	5 minutes
			Total Time:	**120 minutes**

4.2. PARTICIPANT'S NOTES

NATIONAL RESPONSE TO CLIMATE CHANGE

Session overview:

In the previous session we have discussed international responses to climate changes. We have tried to highlight the measures the international community have been taking to reduce the negative impact of climate change. In this session, we shall try to focus on the Bangladesh government's responses to meet the challenges of climate change. We shall discuss the National Adaptation Program of Action (NAPA) which was adopted in 2005; the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009; Bangladesh Climate Change Resilience Fund (BCCSRF); Climate Change Trust Act, 2010; Bangladesh Climate Change Trust; Bangladesh Climate Change Trust Fund (BCCTF); Bangladesh Perspective Plan (2021-2041); Country Investment Plan for Environment Forestry and Climate Change (CIP-EFCC); Climate Fiscal Framework; 7th Five Year Plan, and Nationally Determined Contributions. We shall try to see whether Bangladesh government's actions and programmes are in conformity with the international responses.

Learning objective:

After this session, the participants will be able to acquire knowledge about the steps the government of Bangladesh has so far taken to address the issue of climate change. They will be able to make a comparison between international responses and country responses; and understand the gaps that exist.

Basic concepts:

Afforestation: Afforestation is the establishment of a forest or trees in an area where there was no previous tree coverage. Many governments and non-governmental organisations directly engage in programmes of afforestation to create forests. Afforestation helps, inter alia, carbon capture.

Business-as-usual emissions: Greenhouse gas emissions which would occur in the absence of any specific obligation to reduce emissions.

1. National Strategies, Acts and Funding

1.1 National Adaptation Programme of Action

National Adaptation Programme of Action (NAPA) was formulated by the government in 2005 as a response to the decision of the Seventh Session of the Conference of Parties (COP 7) of the UNFCCC. Under NAPA various adaptation measures have been suggested for Bangladesh to address the adverse impacts of climate change:

i) Reduction of climate change hazards through coastal afforestation with community participation;

ii) Providing drinking water to coastal communities to combat enhanced salinity due to sea level rise;

iii) Capacity building for integrating climate change in planning, designing of infrastructure, conflict management and land water zoning for water management institutions;

iv) Climate change and adaptation information dissemination to vulnerable community for emergency preparedness measures and awareness raising on enhanced climatic disasters;

v) Construction of flood shelter, and information and assistance centre to cope with enhanced recurrent floods in major floodplains;

vi) Mainstreaming adaptation to climate change into policies and programmes in different sectors (focusing on disaster management, water, agriculture, health and industry);

vii) Inclusion of climate change issues in curriculum at secondary and tertiary educational institution;

viii) Enhancing resilience of urban infrastructure and industries to impacts of climate change;

ix) Development of eco-specific adaptive knowledge (including indigenous knowledge) on adaptation to climate variability to enhance adaptive capacity for future climate change;

x) Promotion of research on drought, flood and saline tolerant varieties of crops to facilitate adaptation in future;

xi) Promoting adaptation to coastal crop agriculture to combat increased salinity;

xii) Adaptation to agriculture systems in areas prone to enhanced flash flooding in North East and Central Region;

xiii) Adaptation to fisheries in areas prone to enhancing flooding in North East and Central Region through adaptive and diversified fish culture practices;

xiv) Promoting adaptation to coastal fisheries through culture of salt tolerant fish special in coastal areas of Bangladesh;

xv) Exploring options for insurance and other emergency preparedness measures to cope with enhanced climate disasters.

1.2 Bangladesh Climate Change Strategy and Action Plan

Bangladesh Climate Change Strategy and Action Plan (BCCSAP) was formulated in 2008 and revised again in 2009 to include more areas of actions. BCCSAP is a 10-year program (2009-2018) to develop the capacity and resilience of the country to meet the challenge of climate change. The action plan focused on the needs of the poor and vulnerable, including women and children. It is based on six pillars. These are: 1) Food security, social protection and health; 2) Comprehensive disaster management; 3) Infrastructure; 4) Research and knowledge management; 5) Mitigation and low carbon development; and 6) Capacity building and institutional strengthening.[12] Under these pillars there are a total of 44 programmes. Details are shown in Appendix 3-A. It is to be noted that further revision of BCCSAP is underway.

1) **Food security, social protection and health**

Climate change is more likely to impact most severely the poorest and most vulnerable in the society. Efforts should be made to ensure that they are protected and that all programmes put particular emphasis on the needs of this group of people to provide them with food security, safe housing, employment and access to basic health services. Under this pillar, efforts would be made to-

a) Increase the resilience of vulnerable groups through development of community level adaptation, livelihood diversification, better access to basic services;
b) Develop climate change resilient cropping systems e.g., agricultural research to develop crop varieties, which are tolerant of flood, drought and salinity;
c) Implement surveillance systems for existing and new disease risks and ensure health systems are modernised to meet future requirements.
d) Implement comprehensive water and sanitation programmes in areas at risk from climate change.

2) Comprehensive Disaster Management

Disaster management systems should be further strengthened to cope with the increasingly frequent and severe natural disasters which result from climate change. Under this pillar, arrangements will be made to-

a) Strengthen the capacity of the government, civil society, and communities to manage natural disasters and ensure that appropriate laws, policies and regulations are in operation;
b) Bolster community-based adaptation programmes and replicate them in every disaster-prone areas of the country;
c) Strengthen existing cyclone, storm surge and flood early warning systems to enable more accurate short, medium and long-term forecasts.

[12] MoEFCC (2009) *Bangladesh Climate Change Strategy and Action Plan 2009*.

3) Infrastructure

Existing infrastructure should be maintained properly. Measures should be undertaken to-

a) Repair and rehabilitate present infrastructure like coastal embankments, river embankments and drainage systems;

b) Plan, design, and construct urgently needed new infrastructure like cyclone shelters, coastal and river embankments and water management systems; urban drainage systems, river erosion control works, flood shelters to meet the changing conditions resulting from climate change;

c) Undertake strategic planning of future infrastructure needs taking into account the likely future patterns of urbanisation and socio- economic development as well as the changing hydrology of the country following climate change.

4) Research and knowledge management

Research will be undertaken to map the impact of climate change on different sectors of the economy. It will be ensured that Bangladesh is effectively linked with regional and national knowledge networks so that Bangladesh organisations and the general public are aware of the latest research, lessons and technologies available in other countries. Under this pillar the government will-

a) Model climate change scenarios for Bangladesh by applying global climate change models and methodologies at regional and national levels;

b) Model the likely hydrological impacts of climate change on the Ganges- Brahmaputra-Meghna system to assess likely future system discharges and river levels in order to derive design criteria for flood protection embankments;

c) Monitor and research the impact of climate change on ecosystems and biodiversity;

d) Research the likely impact of climate change on the macro economy of Bangladesh and key sectors and contribute to developing a climate sensitive national development plan.

e) Research the linkages between climate change, poverty and vulnerability in order to identify possible interventions to increase the resilience of poor and vulnerable households to climate change;

f) Establish a centre for research and knowledge management on climate change to ensure Bangladesh has access to the latest ideas and technologies from around the world and ensure that data is widely and freely available to researchers.

5) Mitigation and low carbon development

Bangladesh's contribution to the emission of greenhouse gases is very low. In spite of that, Bangladesh is committed to reduce emissions now and in the future. Under this pillar the government will-

a) Develop a strategic energy plan and investment portfolio to ensure national energy security and lower greenhouse gas emission;

b) Increase the social forestry programme on government and community lands throughout the country;

c) Enhance the 'greenbelt' coastal afforestation programme with mangrove planting along the shoreline;

d) Seek the transfer of state-of the-art technologies from developed countries to ensure that the country follows a low- carbon growth path;

e) Review energy and technology policies and incentives and revise these, where necessary, to promote efficient production, consumption, distribution and use of energy.

6) Capacity building and institutional strengthening

To address the issue of climate change, the capacity of different government ministries and agencies, civil society and the private sector should be strengthened. Under this pillar efforts would be made to –

a) Review and revise, where appropriate, all government policies, sector by sector, to ensure that they take full account of climate change and its effects;

b) Mainstream climate change in national, sectoral and spatial development planning in government ministries and agencies, local government, the private sector, civil society, and communities and ensure that impacts on vulnerable groups and women are prioritised in plans;

c) Build the capacity of key government ministries and agencies to take forward climate change adaptation programmes;

d) Develop capacity of the government to undertake regional and international negotiations on climate change. This cooperation is essential to build necessary capacity and resilience;

e) Enhance the capacity of the government, civil society and the private sector on carbon financing to access various global climate funds;

f) Build the capacity for education and training of environmental refugees to ease and facilitate their migration to other countries and integration in new societies.

1.3 Climate Change Trust Act

Bangladesh Climate Change Trust Act (CCTA) 2010 was introduced in recognition of the need for a specific legislation for transparent handling of Climate Change Trust Fund. The Act, inter alia, encompasses the establishment of Climate Change Trust, its aims and objectives, preparation, adoption and implementation of projects from the fund, constitution of the Board of Trustees, functions of the Board of Trustees, and formation of technical committee.

1.4 Bangladesh Climate Change Trust

Bangladesh Climate Change Trust (BCCT) is a government owned trust which has been entrusted with the responsibility of utilising funds to combat the adverse impacts of climate change. It was established on 13 October 2010 through the passage of Climate Change Trust Act, 2010. The two main aims of the trust are the following:[13]

a) To make necessary action plan for capacity building, for adjustment of the people or groups of people affected from climate change, upgrading their lives and livelihoods and mitigation long-term risks;

b) To take measures for adaptation, mitigation, technology development and transfer, capacity building and creating funds for addressing adverse effects of climate change on people, biodiversity and the nature.

The main objectives of the trust are to:

a) Use the fund of the trust to address the risk arising from climate change;

b) Initiate and implement suitable action plan for implementation of special programme for adapting climate change and ensuring sustainable development;

c) Initiate project or programme regarding institutional and social capacity building of the local people and development of human resources in the grass roots level for facing climate change;

d) Undertake necessary action research in the field of adaptation, mitigation, technology transfer and finance and investment for facing climate change and in light of the research results, to initiate and implement pilot programmes;

e) Make necessary action plans of different terms for adapting to climate change and recover damages arising from climate change;

[13] MoEFCC (2018) *Climate Change Trust Act 2010*.

f) Assist the climate change cells or focal points formed in different Ministries and in the Department of Environment in respect of climate change including the climate change unit established in the Ministry of Environment, Forest and Climate Change for playing effective role;

g) Assist in initiating suitable programmes and implementation thereof in order to eradicate poverty by building up the institutional, social or local people's capacity for creating public awareness on possible environmental disaster arising from climate change and for disaster preparedness;

h) Assist any emergency activities following any natural disaster arising from climate change.

The general direction and administration of the Trust shall vest in the Board of Trustees constituted under section 9 of the Act. The functions of the Board of Trustees shall be to:

a) Conduct and control the overall activities of the trust;

b) To approve projects or programmes for using a maximum of 66 percent money of the fund of the trust to implement the Bangladesh Climate Change Strategy and Action plan, 2009 and to release, on the recommendation of the Technical Committee, a maximum of 66 percent money of the total fund and the money accrued as interest on the remaining 34 percent deposited money in favour of the projects or programmes adopted for implementation of the aims and objectives of the Trust;

c) Take necessary steps for investment of remaining 34 percent of the fund;

d) Formulate policies and guidelines for implementation of the projects or programmes to be adopted with the fund and to give final approval to the projects or programmes;

e) Give directions to the technical committee regarding annual action plan, financing and budget plan for adopting long term projects and programmes;

f) Approve the recommendations of the technical committee in conducting action research for redressing the effect of climate change;

g) Communicate with different donor countries or organisations, with approval of the government, for mobilising funds, if necessary, from other sources except government financing;

h) Constitute a general evaluation team and to revise and approve the evaluation report at least once in a year;

i) Solve the problems of projects or programmes adopted on the recommendation of the technical committee and in this behalf, to approve the proposals for seminar, symposium or workshop with a view to sharing knowledge and experience;

j) Give direction for necessary amendment (where applicable) of the projects or programmes in accordance with the recommendations of the Technical Committee;

k) Formulate policies for supervision of the implementation of projects or programmes adopted;

l) Take and implement such programmes for facing the risks arisen from climate change as may be determined by the government or other programmes relating thereto;

m) Take any action which is necessary for performing the functions under this section and to do any act for carrying out the purposes of this Act;

n) Transfer unused money to the fund, if the implementation including making, processing and approval, of the project or programme is not possible to complete during any financial year;

o) Take assistance of competent expert if the Board of Trustee requires.

In order to assist the Board of Trustees, there is provision for a Technical Committee. The functions of the technical committee are:

a) Make annual budget and action plan and submit to the Board of Trustees for approval;

b) Take measures in accordance with the directions of Board of Trustees for preparing projects or programmes to be adopted with the fund;

c) Assist the Board of Trustees in formulating policies and for the supervision of the projects adopted;

d) Scrutinise the projects or programmes submitted by different Ministries or Divisions and to make recommendation for submission to the Board of Trustees;

e) Form suitable sub- committees required for scrutiny;

f) Provide all types of technical assistance as required by the Board of Trustees;

g) Perform such other duties as may be assigned by the Board of Trustees;

h) Take assistance of competent experts if required by the Technical Committee.

1.5 Bangladesh Climate Change Trust Fund

Bangladesh Climate Change Trust Fund (BCCTF) was created by the government from its own resources to finance projects for implementation of BCCSAP. The fund will have contribution from the following sources:

a) Money granted by the government from the National Budget;

b) Money received from the donor countries, organisations and institutions approved by the government;

c) Money received from the local and foreign sources approved by the government;

d) Income accrued from investment of the fund;

e) Other sources approved by the government.

Projects should be prepared, adopted and implemented with the Trust Fund following certain procedures:

a) In addition to running development and non-development programmes of the government, the short, medium and long-term development projects relating to climate change shall be adopted;

b) The concerned Ministry or Division and the Non-Government Research Institute or Organisation shall, in the light of BCCSAP, 2009 prepare projects or programmes and submit them to the Board of Trustees;

c) The projects or programmes shall be implemented by the concerned Ministry, Division or organisation following the guidelines relating to climate change;

d) Funds shall be allocated to conduct research activities in accordance with the policy formulated by the Board of Trustees for adaptation, mitigation, technology transfer in order to address the effects of climate change;

e) Necessary funds shall be allocated in accordance with the policy formulated by the Board of Trustees for publicity and advertisement in order to create public awareness regarding the effects of climate change;

f) Funds shall be allocated following the policy formulated by the Board of Trustees for arranging seminar, symposium, workshop or training, etc. for sharing knowledge and experience with a view to attaining sustainable disaster recovery and disaster risk reduction.

BCCTF approves projects which fits with the priority actions and programmes of BCCSAP. An independent Trustee Board, chaired by the Minister for Environment, Forest and Climate Change, heads the governance and management of BCCTF. A thirteen-member Technical Committee headed by the secretary, MoEFCC is responsible for the selection and review of project proposals.

Up to FY2020-21, BCCTF received a total allocation of Tk. 3,900 crore and till August 2020, a total of 789 projects under BCCTF have been approved of which 728 projects are being implemented by the government Ministries/Divisions while the remaining 61 projects are being implemented by different NGOs under the supervision of Palli Karma Sahayak Foundation (PKSF). Among the Ministries/Divisions, Local Government Division received the highest allocation of Tk. 1,312.96 crore followed by Ministry of Water Resources and Ministry of Environment, Forest and Climate Change with allocation of Tk. 1,043.77 crore and 415.15 crore respectively. The table below (Table 1) shows the number of projects and amount of allocation according to Ministries and Divisions.

Table 1: Ministry wise Projects and Allocation from BCCTF

S.I	Name of Ministry	Number of Projects	Allocation (in crore taka)
1	Ministry of Water Resources	132	1,043.77
2	Local Government Division	441	1,312.96
3	Ministry of Environment, Forest and Climate Change	68	415.15
4	Ministry of Agriculture	21	135.55
5	Ministry of Disaster Management and Relief	8	125.52
6	Ministry of Power, Energy and Mineral Resources	3	56.02
7	Ministry of Shipping	3	51.76
8	Ministry of Education	29	76.66
9	Ministry of Defence	9	45.21
10	Ministry of Health and Family Welfare	3	22.12
11	Ministry of Science and Technology	2	19.31
12	Ministry of Women and Children Affairs	2	8.00
13	Ministry of Chattogram Hill Tracks Affairs	3	8.53
14	Ministry of Fisheries and Livestock	1	2.00
15	Ministry of Home Affairs	1	2.00
16	Ministry of Civil Aviation	1	1.00
17	Ministry of Public Administration	1	0.19
	Total	**728**	3,325.75

Source: BCCTF 2020

It appears from the analysis of Division wise allocation that Barishal Division highest number of projects and allocation followed by Chattogram and Dhaka Division, respectively. In contrast, Mymensingh Division with 31 projects and a little over Tk. 114 crore only has received the smallest number of projects and amount of allocation. The following table (Table 2) shows the Division wise projects and allocation from BCCTF.

Table 2: Division wise Projects and Allocation from BCCTF

Division	Number of Projects	Estimated Cost (in crore taka)
Dhaka	122	540.73
Chattogram	131	618.61
Barishal	134	687.59
Khulna	79	282.72
Rajshahi	75	197.43
Rangpur	58	168.28
Sylhet	41	138.98
Mymensingh	31	114.51
More than one Division	57	576.90
Total	**728**	**3,325.75**

Source: BCCTF 2020

An analysis of allocation and number of projects per BCCSAP themes reveals that 'Infrastructure' area accounts for 61 percent of total allocation with 395 projects which is the highest among the allocations for other thematic areas followed by 'Mitigation and Low Carbon Development' and 'Food Security, Social Protection and Health' receiving 18 percent and 11 percent allocation respectively (Table 3).

Table 3: BCCSAP Thematic Area wise Projects and Allocation from BCCTF

Thematic Area	Number of Project	Total Allocation (in crore taka)	% Allocation
Food Security, Social Protection and Health	104	358.80	10.78
Comprehensive Disaster Management	12	158.80	4.80
Infrastructure	395	2025.95	60.91
Research and Knowledge Management	35	131.56	3.95
Mitigation and Low Carbon Development	173	608.62	18.30
Capacity Building and Institutional Strengthening	9	42.01	1.26
Total	**728**	**3,325.75**	

Source: BCCTF 2020

1.6 Bangladesh Climate Change Resilience Fund

Bangladesh Climate Change Resilience Fund (BCCRF) owned and managed by the Government of Bangladesh was established in May 2010 to support implementation of BCCSAP after signing a memorandum of understanding (MoU) with four development partners Denmark, the European Union (EU), Sweden and the UK Department for International Development (DFID). Switzerland became a development partner in December 2010 while the Department of Foreign Affairs and Trade (DFAT) and US Agency for International Development (USAID) joined in 2012. The fund activities continued till 30th June 2017. The governance structure of BCCRF included a Governing Council (GC) and a Management Committee (MC). The GC comprised of a core group of government cabinet ministers, civil society and donor representatives who provided overall strategic guidance to the BCCRF. The World Bank exercised internal controls over the guidance of trust funds received from BCCRF's development partners. Funds were allocated to projects and activities that were approved by the GC in accordance with BCCRF objectives. The investment projects of BCCRF collectively disbursed US$71.13 million by the end of December 2016.

1.7 SDGs Financing Strategy: Bangladesh Perspective

For successful implementation of SDG targets, Government of Bangladesh has assessed SDGs financing needs through Planning Commission and published the report titled "SDGs Financing Strategy: Bangladesh Perspective" in June 2017. The study report mapped out the financial strategies that would be required for successful materialisation of the SDGs in our country context. The SDGs financing strategy is prepared for a period from 2017 to 2030. The study report provides a framework that outlines the SDG goal and target wise additional estimated cost at FY2015-16 constant price. The cost was estimated based on 241 indicators although UN has set 230 indicators globally to monitor the targets of SDG. The estimation of additional cost for each of the 17 goals has been presented separately in the report. Since the goals of SDG are interconnected and there are overlapping issues, synchronisation method has been applied for estimating cost of overlapping issues. The estimated additional cost for 'SDG 13: Take urgent action to combat climate change and its impact' is given in the following table.[14]

Table 4: Breakdown of total additional cost for SDG 13

In Current Prices

Additional Cost	FY2017-18	FY2018-19	FY2019-20	FY2020-21	FY2021-22	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29	FY2029-30	FY2030-31
Additional Cost (Billion Tk. at current prices)	510.27	578.65	655.61	776.47	880.51	998.50	1132.30	1284.03	1457.38	1723.04	1957.38	2223.58	2528.21	2874.58
Additional Cost (Billion US$)	6.30	6.91	7.59	8.73	9.63	13.63	11.75	12.99	14.38	16.59	18.40	20.43	22.69	25.23

Source: GED estimates

In Constant FY2015-16 Prices

Additional Cost	FY2017-18	FY2018-19	FY2019-20	FY2020-21	FY2021-22	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29	FY2029-30	FY2030-31
Additional Cost (Billion Tk. at constant 2015-16 prices)	481.84	516.46	553.59	621.46	669.26	721.43	778.40	840.68	908.74	1024.20	1109.15	1202.28	1304.38	1416.51
Additional Cost (Billion US$)	5.95	6.17	6.41	6.99	7.32	7.68	8.07	8.50	8.97	9.86	10.43	11.04	11.71	12.43

Source: GED estimates

The SDGs financing strategy also identified sources of financing the additional synchronised costs for SDGs and suggested some financing options which includes (1) Private sector financing, (2) Public sector financing, and (3) Public Private Partnership (PPP) financing.

2. National Policies and Plans – Perspective Plan, Five Year Plan, NDC, Delta Plan 2100

In the last couple of years, the Government of Bangladesh has adopted many policies, plans, laws, rules and regulations to combat the effects of climate Change:

2.1 The Perspective Plan (2021-2041)

The Perspective Plan (2021-2041) focuses on the government's commitment to integrate environmental and climate change considerations in the growth strategy. The specific strategies, policies and institutional reforms envisage the following: [15]

a) Integrating environmental costs into macroeconomic framework;
b) Implementing the Delta Plan to build resilience and reduce vulnerability to climate change;
c) Reduce air and water pollution;
d) Removal of fuel subsidies;
e) Adaption of green tax on fossil fuel consumption;
f) Taxation of emission from industrial units;
g) Prevention of surface water pollution;
h) Geo-spatial data analysis for evidence based decision making.

[14] GED (2017) *SDGs Financing Strategy: Bangladesh Perspective Dhaka: GED, Planning Commission* .

[15] PC (2020) *Making Vision 2041 a Reality: Perspective Plan of Bangladesh 2021-2041.*

2.2 8th Five Year Plan (2021-2025)[16]

8th Five Year Plan (2021-2025) endorses several activities to be undertaken to address climate change. These are as follows:

Mobilising Resources for Climate Change Trust Fund-The Government will mobilise more than Tk. 8000 crore to strengthen the Fund to support programmes for adaptation and mitigation. In addition, the BCCT will forge l partnership with the leading international organisations implementing climate change adaptation and mitigation programmes to gather international experience, so that innovative projects are funded.

Accessing the Green Climate Fund (GCF)- Bangladesh has assigned Economic Relations Division (ERD) as the National Designated Authority (NDA) to support the National Implementation Entity (NIE)/Multilateral Implementation Entity (MIE) to access the Fund. Under the current plan, the Government will take measures to accelerate the accreditation of more NIES.

Strengthening Oversight of the Climate Change Fund- Third party monitoring of the CCTF will be ensured so that the funds are not misused by undertaking unproductive projects.

Formulation and Advancement of NAP Process-The National Adaptation Plan (NAP) process is to be completed by 2022 with financial and technical support from the GCF and UNDP. The NAP will facilitate the integration of climate change adaptation into relevant new and existing policies, programmes and activities in a coherent manner, in particular, development planning processes and strategies, within all relevant sectors and at different levels, as appropriate.

Technology Transfer on Adaptation and Mitigation-Department of Environment will intensify the activities that facilitate the technology transfer on adaptation and mitigation from developed countries through Climate Technology Center and Network (CTCN) and Joint Crediting Mechanism (JCM).

Increased Commitment to Forestry and Biodiversity-The Government will remain committed to conserving and expanding forest coverage to 15.2% by 2025 and to 20% by 2041. This will be done through expanding the forestation programme and increasing resources for social forestry. The existing coastal afforestation, enrichment plantation and assisted natural regeneration will be continued. An area of 50,000 ha will be planted and replanted in the coastal areas, 1,30,580 ha land of hill forests and 7,220 ha of plain land forests will be planted. Special importance will be given to the Sundarbans Reserved Forest for the conservation of its biodiversity. A wide array of measures will be taken to conserve and protect wildlife, with special attention to the Royal Bengal Tiger.

Improved Understanding of Climate Change in the Local Government- Localized solutions to improve the effectiveness of measures for adaptation to be identified and adaptive capacity of the local communities within the local government administration to be enhanced by raising awareness as to how climate change is likely to affect their livelihood.

Increased Partnership with the NGOs and Civil Society Actors-Community wide cooperation, coordination and knowledge sharing to be strengthened through partnerships with different stakeholders such as NGOs and relevant actors from the civil society to undertake appropriate climate change adaptation measures.

Developing Gender-Inclusive Climate Change Response Framework-Steps will be taken to enhance women's knowledge of environmental management and conservation, and investments will be made in education, capacity building training, technology transfer, and environmental projects focusing on women.

Addressing Climate Change Induced Migration-Cities will be designed for providing more accommodation for climate change induced migrants by installing efficient systems and concomitantly job opportunities should also be created. The Government will work closely with the urban planners to this end.

Gender Focus of Climate Action- The gender transformative climate action will be a key government priority which includes, among others, providing climate resilient drinking water, livelihoods for women and early warning system.

[16] PC (2020) *8th Five Year Plan FY 2021-FY2025*.

Governance of Climate Finance- The capacity and role of Parliament, IMED, and OAG will be enhanced to improve governance mechanism for climate finance.

2.3 Nationally Determined Contributions of Bangladesh

Bangladesh is one of the most vulnerable countries in the world to the adverse impact of climate change, which poses a phenomenal risk to the society and economy of the country. So, Bangladesh has been adopting a two-fold strategy to address the issue of climate change. The main focus of Bangladesh's initiatives is on increasing resilience to the impacts of climate change. At the same time, the country is also working to achieve lower greenhouse gas (GHG) emissions.

Bangladesh's NDC describes its plans for tackling greenhouse gas (GHG) emissions and adapting to unavoidable climate change. This recognises two important factors:[17]

1. On the one hand, as a climate vulnerable country, adaptation remains the priority for Bangladesh. Bangladesh's NDC therefore has an adaptation component that describes what Bangladesh has already done on adaptation and what the priorities are going forward.

2. On the other hand, Bangladesh is committed to taking a progressive approach to developing its economy on a low carbon pathway. In the NDC, Bangladesh committed to reduce GHG emissions in the power, industry and transport sectors by 5% below 'business-as-usual' GHG emissions by 2030 using only domestic resources or by 15% below 'business-as-usual' GHG emissions by 2030 if sufficient and appropriate support is received from developed countries.

NDC implementation will be driven by a number of different documents and processes. The primary vehicle for taking forward adaptation policy and implementation will be the National Adaptation Plan (NAP) process, which will implement the adaptation element of the NDC.

NDC Sectoral Action Plans have also been produced for the power, industry and transport sectors. These action plans describe the actions that will be taken in each of these three sectors to deliver the GHG emissions reductions required to meet the overall GHG reduction targets.

As a country that has an NDC with a timeframe to 2030, Bangladesh is requested under the Paris Agreement to submit an updated NDC by 2020. There then follows a regular process of updating NDCs every five years after that, with regular global 'stock takes' to assess globally the extent to which progress is being made to the overall aims of the Paris Agreement. It is important to note that the Paris Agreement states that the 'least developed countries may prepare and communicate strategies, plans and actions for low greenhouse gas emissions development reflecting their special circumstances'. As a progressive member of the UNFCCC, Bangladesh was one of the first countries following the Paris Agreement to put in place a process for developing plans for NDC implementation. Bangladesh reserves the right to change its position on implementation of its NDC in future.

2.4 Bangladesh Delta Plan 2100

The Bangladesh Delta Plan (BDP) 2100 has been prepared by the General Economics Division (GED) of the Bangladesh Planning Commission with support from the Government of the Netherlands. BDP 2100 is a - water centric, multi sectoral, techno-economic, long-term adaptive plan. It is an indicative plan focusing on improving safe living and sustainable economic development in the delta. BDP 2100 is an integrated and holistic plan based on a vision about the future that has to cope with uncertainty and complexity.

The BDP 2100 enables the Bangladesh government to integrate short-term, medium-term and long-term planning. It considers the delta as a whole and takes into account the effect of delta management on all sectors, empowering Bangladesh to make optimal and efficient use of limited resources. It enables the Bangladesh government to integrate climate change adaptation and plan for a future delta that ensures water safety, food security and economic growth. By employing adaptive delta management, Bangladesh becomes able to conduct robust planning in the context of a rapidly changing environment.

[17] MoEFCC (2018) *Roadmap and Action Plan for Implanting Bangladesh NDC*.

Due to the large uncertainties with respect to climate change and socio-economic development, planning is being augmented with adaptive strategy making in several deltas throughout the globe. Learning from international experiences, BDP 2100 has been similarly formulated focusing on the many possible future paths that are possible and is designed for alteration with the passage of time as new information emerges or policy priorities change. So instead of only focusing on short-term actions and projects, the idea is to keep the long-term vision in mind while prioritising actions.

The vision and mission of BDP 2100 are set as towards:[18]

Delta Vision: Achieving safe, climate resilient and prosperous delta.

Delta Mission: Ensure long-term water and food security, economic growth and environmental sustainability while effectively reducing vulnerability to natural disasters and building resilience to climate change and other delta challenges through robust, adaptive and integrated strategies, and equitable water governance.

Bangladesh Delta Plan 2100 has been formulated highlighting the following:

1. Opportunities and challenges of Bangladesh delta
2. Socio economic characteristics of the Bangladesh delta
3. Climate change, environment, and ecological issues
4. National and trans boundary water management
5. Delta vision, goals and policy option
6. Managing water resources
7. Sustainable land use and spatial planning across the dynamic delta
8. Sustainable agriculture, food security, nutrition and livelihoods
9. Dynamising the inland water transport system of the Bangladesh delta
10. Urban water management
11. Investment planning, financing and implementation strategy
12. Governance and institutions
13. Monitoring and evaluation system for Bangladesh delta plan

The BDP 2100 aims to achieve three higher level national goals together with six BDP specific goals.

BDP 2100 higher level national goals are the following:

1. Eliminate extreme poverty by 2030
2. Achieve upper middle-income status by 2030
3. Being a prosperous country beyond 2041

BDP specific goals are the following:

1. Ensure safety from floods and climate change related disasters
2. Ensure water security and efficiency of water usages
3. Ensure sustainable and integrated river systems and estuaries management
4. Conserve and preserve wetlands and ecosystems and promote their wise use
5. Develop effective institutions and equitable governance for in country and trans- boundary water resources management
6. Achieve optimal use of land and water resources

[18] PC (2018) *Bangladesh Delta Plan 2100 (Bangladesh in the 21st Century)*

The plan highlighted six hotspots including coastal areas (27,738 square kilometers), Barind and drought-prone region (22,848 square kilometers), haor and flash flood prone areas (16,574 square kilometers), Chattogram Hill Tracts (CHT) region (13,295 square kilometers), river region and estuaries (35,204 square kilometers) and urban region (19,823 square kilometers). It is expected that under BDP Policy option, Bangladesh is able to achieve its GDP growth target of 8 percent by 2020 and maintain an average growth rate of 9 percent until 2041. A total of 80 projects have been selected for implementation under the investment plan in the first phase up to 2040. Of them, 65 would be infrastructure projects while 15 others would aim to enhance institutional capacity and efficiency and strengthen research.

The table below shows the break-up of projects in different climate hotspots.

Table 5: Projects in Different Climate Hotspots

SL	Climate Hotspots	Total Projects
1	Coastal Zone	23
2	Rivers and Estuaries	7
3	Urban Areas	12
4	Barind and Drought Prone	9
5	Chattogram Hill Tracts	8
6	Haor and Waterland	6
7	Cross Cutting	15
	Total	**80**

Source: BDP2100 (Volume 2: Investment Plan)

The government will need to raise US$ 37 billion by 2030 to implement the plan over three phases: a short-term plan by 2030, a medium-term plan by 2050, and a long-term plan by 2100 for ensuring food and water security and fighting disasters, according to BDP 2100. At present, however, the government spends only 0.8 percent of GDP on delta management projects and programmes. This figure will need to be more than tripled to 2.5 percent of GDP - if 80 projects of the plan are to be implemented. To reach this total, Bangladesh is expected to get US$ 2 billion assistance from Green Climate Fund (GCF), every year if the case is effectively pursued. The remaining costs will be met from the support of other development partners, foreign direct investments, and the private sector. The plan envisages that the private sector has the potential to generate sizable resources to finance the delta plan and according to its projection, Bangladesh will be able to mobilise at least 0.5 percent GDP per year from private sector for financing the plan.

2.5 Country Investment Plan for Environment, Forestry and Climate Change for 2016-21

Country Investment Plan for Environment, Forestry and Climate Change (CIP-EFCC) was adopted in 2016 within the framework of BCCSAP. The CIP-EFCC provides a strategic framework for planning and coordination of national and international investment for the environment, forestry and climate change sectors in Bangladesh. It is a 5-year framework that identifies areas for investment under the EFCC. It also highlights the actions and targets that the government has submitted to the UNFCCC in pursuance of Paris Agreement.

The CIP is based on four Thematic areas namely climate change, environment governance, natural resource management, and pollution abetment This pillar consists of four inter-related sub- programs:

i) Disaster risk reduction.
ii) Sustainable infrastructure development.
iii) Mitigation and low carbon development.
iv) Increased resilience at community level.

The total cost of the CIP is estimated at about US$ 11.7 billion, of which 40 percent (i.e. about US$ 4.7 billion) is already financed through the government's own budget allocations. Hence, the financing gap is estimated at about US$ 7 billion, or 60 percent of total CIP costs. According to the CIP, programmes in

the areas of ecosystem management, sustainable infrastructure, and mitigation are already funded by the government. However, areas like pollution control, environmental governance, and gender equity remain significantly underfunded. For some programmes, the financing gap approaches up to 100 percent with a very few projects and resources, the underfinance remains at 98 percent for pollution in agriculture, 94 percent for enhancing sustainable management and socioeconomic benefits from forests, and 99 percent for improving stakeholder participation and gender equity, among others.

3. NATIONAL FRAMEWORKS – CFF, MBF, DPP/TAPP/OTHER FORMATS

3.1 Climate Fiscal Framework

Climate Fiscal Framework (CFF) is a new concept in the Public Financial management arena of Bangladesh which was adopted in 2014 and updated in 2020 to provide incentives and guidance for prioritised climate actions. It is a framework designed to ensure that internal and external financial resources are used economically, efficiently, and effectively to address the issue of climate change. By introducing CFF Bangladesh would be able to identify the demand (expenditure) and supply (revenue or finance) of funds needed to finance climate actions. It establishes a transparent and sustainable approach to track and verify climate finance utilisation. The necessity of managing climate related challenges by adopting budget priorities; pricing, tax and subsidy policies; and financial market rules was the driving force behind developing climate change related principles and policies.

The CFF provides principles and tools for climate fiscal policymaking, helping to identify the demand and supply sides of climate funds. The objective of combating adverse climate change effects in Bangladesh requires a framework for tracking climate related expenditure while estimating potential costs of long-term finance. To meet this objective the CFF aims at promoting an updateable country system to-

(i) Cost and prioritise climate actions;
(ii) Access international and national resources for climate finance;
(iii) Deliver climate finance;
(iv) Track climate expenditures; and
(v) Make climate finance and expenditure accountable.

CFF explores ways of including climate change issues in ministry accountability, performance management, and governance structure. It suggests necessary steps required for augmenting climate finance changes in financial sector policies, planning and budgeting, and accountability and oversight function .

In analysing the impact of the proposed expenditure on adaptation and mitigation of CC-related hazards, Ministries/Divisions and other institutions should refer to the six thematic areas and 44 programmes identified in the BCCSAP. In relation to this the CFF provided climate dimension relevant criteria for development and non-development projects and programmes with climate weight. Details are shown in Appendix 3-B.

3.2 Ministry Budget Framework

The climate response in Bangladesh evinces a high level of integration with existing government institutions, policies, and programmes. That is, climate finance is primarily driven by sector policy, rather than climate strategy. It is managed within the existing government institutional structures, and is delivered substantially as a component, often only implicitly, of existing programmes. Consequently, climate strategy often goes unrecognised in the Ministry Budget Framework (MBF) strategic objectives, performance monitoring, and evaluation framework, by high climate-spending government agencies. It is necessary to bring all climate-related spending under the umbrella of one country system, i.e., bringing them under a single budget monitoring, reporting, and auditing framework. The MBF is a key document under the MTBF process, one that could enhance BCCSAP influence. MBF perhaps represents the widest potential opportunity to develop a clear linkage between BCCSAP and budget compilation, implementation, monitoring, and evaluation systems in Bangladesh. To ensure ministry accountability for CC activity, performance management, and governance structure, setting a climate-change marker in the MTBF is necessary, as is done for poverty and gender. In this regard, BC issued by Finance Division, Ministry of Finance for preparing MBF has given

clear instructions for inclusion of climate change marker in relevant sections of MBF and also for assigning climate weight for ministry allocations. Details are shown in Appendix 3-C. Following the instruction, MBF of 25 Ministries/Division has been made climate inclusive.

3.3 DPP/TAPP/ Other Formats

To ensure that BCCSAP priorities affect sector policy and resource allocation, CFF, following the CPEIR recommendation, suggests ways to embed climate-change issues in the Development Project Proforma/ Technical Assistance Project Proforma (DPP/TAPP) format, just as gender and poverty dimensions already have been. The manual for preparation of DPP/TAPP issued by Planning Commission in October 2016 incorporates some guidelines for inclusion of climate dimension in the DPP/TAPP. Section 1.1.7 of the manual requires that the DPP/TAPP should explain the effect of climate change. It also states that there should have an explanation of climate effect on other projects and as well as the ways to mitigate if there is any negative climate effect of the project on other ongoing projects. Section 24.0 of the DPP/TAPP format made it binding to state the effect/impact, adaptation and specific mitigation measures thereof, if any, on climate change.

"Guidelines for Project Preparation, Processing, Approval, Correction, Implementation, Fund Release and Utilisation by Government, Semi-government and Autonomous Bodies for Projects under Climate Change Trust Fund" was issued by Climate Change Trustee Board under the provision of article 10 of Climate Change Trust Act 2010. The guidelines were issued vide government gazette number MoEF/CCU/ Guideline/54/2010/227 dated 27/03/2012. Main features of the guidelines are given below:

Project Preparation- A total of 17 instructions have been illustrated for project preparation of which 4 are specifically meant for climate change which are-

i) Any proposed project must be prepared in line with the Thematic Areas of BCCSAP 2009.

ii) There must have specific Programmes and Activities to address the risk of climate change and intended benefits must be stated in the project proposal.

iii) There should be no foreign consultant in the project financed under Climate Change Trust Fund.

iv) Project proposal must be prepared as per the format prescribed in the guidelines as 'Project Proposal under Climate Change Trust Fund (PPCCTF)'.

Project Processing- The following steps, among others, have been outlined for project processing by Administrative Ministry, Ministry of Environment, Forest and Climate Change (MoEFCC) and BCCT.

i) Executing Agency will send project proposal to Climate Change Unit of MoEFCC through Administrative Ministry if it is considered technically acceptable that the project will ensure effective results for addressing negative impact of climate change.

ii) The Technical Committee of CCTF will examine whether the project proposal is acceptable.

iii) Project proposal recommended by the Technical Committee will be submitted to Trustee Board of BCCT for consideration and decision.

Project Implementation- The following steps, among others, are to be followed during project implementation.

i) MoEFCC will issue administrative order after the project proposal is approved by the Trustee Board of BCCT.

ii) A Project Implementation Committee (PIC) will be formed headed by the head of executing agency/ project director for sound project implementation. In addition to that, a Project Steering Committee (PSC) headed by the secretary of the administrative ministry will be formed for project valued taka 5 crore or more.

iii) The Steering Committee will be formed with member from MoEFCC, Climate Change Unit, Planning Commission, Finance Division and IMED, and include representative from relevant Ministry/ Division/Department/Agency.

The guidelines have outlined detailed formats for preparing project proposal as annex.

Summary:

Bangladesh's contribution to global GHG emissions is very negligible but the country has become one of the worst victims of climate change and will continue to remain so in the years ahead. Against this background, the Government of Bangladesh has enacted laws, formulated plans, policies and programmes to meet the challenges of climate change.

Addressing the issue of climate change is a huge task which requires the investment of plenty of resources in the form of money and technology. Bangladesh Government has been providing fund from national budget to implement different climate change related projects. But it is not sufficient to lessen the menace of climate change. Bangladesh needs support from international community in its effort towards reducing the impact of climate change.

References:

1. MoEFCC (2009) *Bangladesh Climate Change Strategy and Action Plan 2009*. Dhaka: Ministry of Environment, Forest and Climate Change.
2. MoEFCC (2010) *Climate Change Trust Act, 2010*. Dhaka: Ministry of Environment, Forests and Climate Change.
3. PC (2015) *7th Five Year Plan*. Dhaka: GED, Planning Commission, Ministry of Planning.
4. FD (2018) *Climate Financing for Sustainable Development: Budget Report 2018-2019*. Dhaka: Finance Division (FD), Ministry of Finance.
5. PC (2017) SDGs Financing Strategy: Bangladesh Perspective. Dhaka: GED, Planning Commission, Ministry of Planning.
6. MoEFCC (2018) Roadmap and Action Plan for Implementing Bangladesh NDC. Dhaka: Ministry of Environ, Forest and Climate Change.
7. PC (2020) Making Vision 2041 a Reality: Perspective Plan of Bangladesh 2021-2041. Dhaka: GED, Planning Commission, Ministry of Planning.
8. PC (2018) Bangladesh Delta Plan 2100 (Bangladesh in the 21st Century). Dhaka: GED, Planning Commission, Ministry of Planning

4.3. INSTRUCTOR'S GUIDE

NATIONAL RESPONSE TO CLIMATE CHANGE

	Instructor's guide	Reference	Participant's Response
1.0	**Welcome** the participants. **Introduce** yourself to the participants. **Show** the title of the session.	Slide 1	
	Briefly discuss on the session overview.	Slide 2	
	Tell the participants about the learning objectives of the session.	Slide 3	
2.0	**KTP-1: National Strategies, Act and Funding**		
	Inquire the participants' knowledge about our national strategies, acts and funding arrangements dealing with climate change issues.		Take some responses
	Outline our national climate change strategies, acts and funding system.	Slide 4	
	Ask if the participants can shade some light on the BCCSAP 2009.		Obtain some responses
	Discuss the basic information of BCCSAP 2009.	Slide 5	
	Emphasise on the main objectives of six thematic areas of BCCSAP 2009.		
	Show Appendix 3-A	Appendix 3-A	
	Deepen the participants' knowledge on BCCSAP 2009 using the Exercise 3-A.	Slide 6	
	Distribute suggested solution to Exercise 3-A	Solution Exercise 3-A	
	Give the participants basic information about BCCTA, BCCT, and BCCTF.	Slide 7-10	
	Discuss in detail the objectives and functioning mechanism of BCCTA, BCCT and BCCTF.		
	Focus on SDGs Financing Strategy: Bangladesh Perspective.	Slide 11	
	Discuss government's efforts towards climate change adaptation and mitigation.	Slide 12-14	
3.0	**KTP-2: National Policies and Plans – NAPA, Delta Plan 2100, Perspective Plan, Five Year Plan, NDC.**		
	Ask the participants if they can mention the names of some of our national policies and plans dealing with climate change issues.		Note some responses from the participants
	List out our national policies and plans those deal with climate change issues.	Slide 15	
	Discuss the adaptation measures suggested by NAPA.	Slide 16	
	Discuss major environmental, climate change and disaster risk reduction strategies outlined in the Perspective Plan.	Slide 17	
	Outline the activities planned to be implemented under 7th 5-year plan.	Slide 18	

	Brief the participants about the NDC targets.	Slide 19	
	Discuss on the delta plan and delta vision.	Slide 20-22	
4.0	**KTP-3: National Frameworks – CFF, CIP-EFCC, MBF, TAPP/ DPP/Other Formats.**		
	Inquire the participants about their knowledge on CFF and CIP-EFCC.		Take some responses from the participants
	Give basic information about the CFF and CIP-EFCC. **Discuss** how CFF is contributing to climate finance management.	Slide 23-25	
	Ask the participants why MBF and DPP/TAPP formats are important for climate performance audits.		Note some responses from the participants
	Discuss on the present MBF and DPP/TAPP formats. **Explain** the importance of these documents in climate finance management.	Slide 26-29	
	Refer Appendix 3-B for discussing climate relevance weight and Appendix 3-C for discussing climate relevance of MBFs.	Appendix 3-B Appendix 3-C	
5.0	**Evaluate** participants' understanding on the session using an exercise.	Slide 30 Exercise 3-B	
6.0	**Summarise** the session by pointing out the key issues of the session.	Slide 31	
	Thank the participants for their active participation in the discussion and declare the end of Session 3	Slide 32	

4.4. SLIDES

Slide 1

Session 3

NATIONAL RESPONSE TO CLIMATE CHANGE

Slide 2

Session overview

- This session will focus on what actions have been taken by government of Bangladesh to face climate risk.
- The session will mainly cover the national acts, rules, policies, strategies and plans aligned with global commitments to deal with climate change issues.

Read the slide and **Discuss**.

Slide 3

Learning objective

- In this session the participants will be able to get an understanding of the government's policies, plans and strategies to address climate change issues that will guide them to plan for conducting climate performance audit.

Read the slide and **Discuss**.

Slide 4

1. National Strategies, Acts and Funding

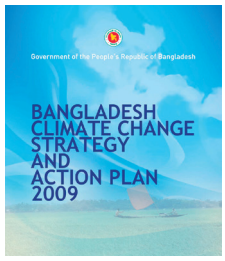
- Bangladesh Climate Change Strategy and Action Plan (BCCSAP)
- Climate Change Trust Act (CCTA)
- Bangladesh Climate Change Trust (BCCT)
- Bangladesh Climate Change Trust Fund (BCCTF)
- Bangladesh Climate Change Resilience Fund (BCCRF)
- SDGs Financing Strategy: Bangladesh Perspective

Ask the participants if they can identify some of the government responses to climate change.
Note the responses.
Tell: That they can categorise government's responses into strategies, acts, and funding arrangements.
Take some responses.
Show the slide and discuss.

Slide 5

Bangladesh Climate Change Strategy and Action Plan (BCCSAP)

- BCCSAP was formulated in 2008 and revised in 2009 for 10 years (2009-2018).
- Six thematic areas, 44 programs and 145 actions.



Thematic Areas (6)	Food security, social protection and health	Comprehensive disaster management	Infrastructure	Research and knowledge management	Mitigation and low carbon development	Capacity building and institutional strengthening
Programs (44)	9	4	8	7	10	6
Actions (145)	29	10	31	24	33	18

Tell: BCCSAP 2009 is the most prominent government initiative to align climate change policies with action.

Discuss: The thematic areas, programmes, and actions.

Distribute: Appendix 3-A

Explain the slide.

Slide 6

Exercise 3-A

- The participants are required to discuss among their group and prepare their group answer.
- Total time for the exercise is 20 minutes.
  - ✓ 10 minutes for group discussion and solution.
  - ✓ 10 minutes for presentation and discussion.

Give instructions for the exercise.

Distribute the exercise, **Facilitate** group work.

Collect group results and **Distribute** suggested solution.

Slide 7

Climate Change Trust Act (CCTA)

- Bangladesh Climate Change Trust Act (CCTA) was introduced in 2010
- Gives legal mandate to form Bangladesh Climate Change Trust (BCCT)
- Guides-
  - ✓ Preparation, adoption and implementation of projects from BCCTF.
  - ✓ Constitution of the Board of Trustees.
  - ✓ Determining functions of the Board of Trustees.
  - ✓ Formation of technical committee etc.

Explain the slide.

Slide 8

Bangladesh Climate Change Trust (BCCT)

- Established on 13 October 2010
- Entrusted with the responsibility of utilising funds to combat the adverse impacts of climate change.
- A Board of Trustees chaired by the Minister for Environment, Forest and Climate Change is responsible for general direction and administration of the Trust.
- A 13-member Technical Committee headed by the secretary, MoEFCC to assist the Board of Trustees.

Discuss the slide.

Slide 9

Bangladesh Climate Change Trust Fund (BCCTF)

- Created by the Government's own resources to finance projects for implementation of BCCSAP.
- BCCTF approves projects which fit with the priority actions and programs of BCCSAP.
- Guidelines and formats have been issued by BCCT for taking up projects under BCCTF.
- Till FY2020-21, a total of Tk 3900 crore has been allocated to BCCTF.
- Up to August 2020, a total of 789 projects have been approved of which 728 belongs to ministries/division and the remaining 61 to NGOs.
- Most of the funds are allocated to projects for climate change adaptation.

Read the slide.

Slide 10

Ministry-wise projects and allocation from BCCTF

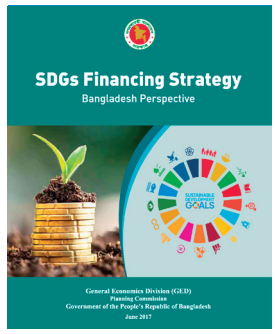
S.l	Name of Ministry	Number of Projects	Allocation (in crore taka)
1	Ministry of Water Resources	132	1,043.77
2	Local Government Division	441	1,312.96
3	Ministry of Environment, Forest and Climate Change	68	415.15
4	Ministry of Agriculture	21	135.55
5	Ministry of Disaster Management and Relief	8	125.52
6	Ministry of Power, Energy and Mineral Resources	3	56.02
7	Ministry of Shipping	3	51.76
8	Ministry of Education	29	76.66
9	Ministry of Defence	9	45.21
10	Ministry of Health and Family Welfare	3	22.12
11	Ministry of Science and Technology	2	19.31
12	Ministry of Women and Children Affairs	2	8.00
13	Ministry of Chattogram Hill Tracks Affairs	3	8.53
14	Ministry of Fisheries and Livestock	1	2.00
15	Ministry of Home Affairs	1	2.00
16	Ministry of Civil Aviation	1	1.00
17	Ministry of Public Administration	1	0.19
	Total	**728**	3,325.75

Discuss the slide.

Slide 11

SDGs Financing Strategy: Bangladesh Perspective

- Government assessed SDGs financing needs through Planning Commission.
- Prepared “SDGs Financing Strategy: Bangladesh Perspective” is for the period from FY 2017 to 2030.
- A framework that outlines the SDG goal and target wise additional estimated cost at 2015-16 constant price.
- Suggested some financing options which includes (1) Private sector financing, (2) Public sector financing, and (3) Public Private Partnership (PPP) financing.



Discuss the slide.

Slide 12

Government's efforts towards climate change adaptation

- Comprehensive disaster management projects have been implemented.
- Early warning systems for floods and cyclones have been developed.
- Irrigation schemes to enable farmers to grow a dry season rice crop in areas subject to heavy monsoon flooding and in other parts of the country, including drought prone areas have been introduced.
- Agricultural research programmes have been implemented to develop saline, drought and flood- adapted high yielding varieties of rice and other crops.

Ask the participants to share their knowledge about government's response/action to adapt climate change.

Solicit response and **Note** some responses.

Discuss the slide with their response.

Slide 13

Government's efforts towards adaptation [contd..]

- Flood management schemes to protect low-lying rural areas from severe floods have been implemented
- Flood protection and drainage schemes have been implemented to protect urban areas from rainwater and river flooding during the monsoon
- Over 6000 km of embankments and polder schemes implemented to raise agricultural productivity in coastal areas by preventing tidal flooding and incursion of saline water
- Over 4000 cyclone shelters have been constructed

Brief the participants about government's responses.

Slide 14

Government's efforts towards climate change mitigation

- Bangladesh puts emphasis on the development of renewable energy, particularly solar homes and biogas plants so that the emission is small as possible without compromising access to energy.
- The government, in partnership with civil society, has implemented a major nationwide programme of social forestry and has planted coastal greenbelts as a mitigation strategy.
- Pledge bound to reducing greenhouse gas emissions from agriculture and urban waste management.
- The country is further committed to the development of forestry resources.
- Bangladesh is also exploring all avenues including the mechanisms under REDD (Reducing Emission from Deforestation and Forest Degradation).

Ask: The participants to mention some of the government's responses/actions to mitigate adverse effects climate change.

Solicit response and **Note** some responses.

Discuss on the slide and their responses.

Slide 15

2. National Policies and Plans

- National Adaptation Programme of Action (NAPA)
- Bangladesh Delta Plan 2100
- Perspective Plan 2021-2041.
- Five Year Plan.
- National Determined Contribution (NDC).
- Country Investment Plan for Environment, Forestry and Climate Change (CIP-EFCC).

Ask: The participants if they can name some of the national policies and plans that articulates climate change responses.

If the participants can mention some**, ask** them to elaborate their knowledge about those**.**

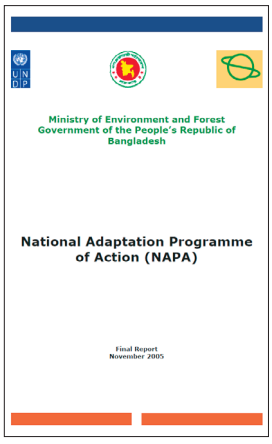
Note: Some responses.

Read the slide

Slide 16

National Adaptation Program of Action (NAPA)

- Formulated in 2005 as a response to the decision of COP 7 of the UNFCCC.
- Various adaptation measures were suggested which includes-
  - ✓ Coastal afforestation with community participation.
  - ✓ Providing drinking water to coastal communities .
  - ✓ Research and capacity building.
  - ✓ Information dissemination to vulnerable community .
  - ✓ Construction of flood shelter, and information and assistance centre.
  - ✓ Mainstreaming adaptation to climate change into policies. and programs in different sectors.
  - ✓ Exploring options for insurance and other emergency preparedness measures.



Discuss the points of the slide.

Slide 17

Perspective Plan (2021-2041)

- Focuses on the government's commitment of following a low carbon path in pursuing its development agenda without compromising accelerated economic growth and poverty reduction.
- The plan focuses on the following specific strategies, policies and institutional reforms-

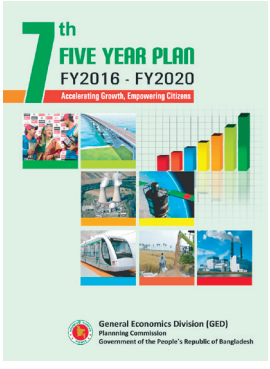
✓ Integrating environmental costs into macroeconomic framework.
✓ Implementing the Delta Plan to build resilience and reduce vulnerability to climate change.
✓ Reduce air and water pollution.
✓ Removal fuel subsidies.
✓ Adoption of green tax on fossil fuel consumption.
✓ Taxation of emission from industrial units.
✓ Prevention of surface water pollution.
✓ Geo-spatial data analysis for evidence-based decision making.

Read the slide.

Slide 18

7th Five Year Plan (2016-2020)

- Promote a whole-of government approach for climate change readiness.
- Enhance understanding, knowledge, capacity and coordination.
- Prioritise programmes and projects .
- Improved implementation, monitoring and shared learning .
- Enhance Climate Change Adaptation (CCA) financing.
- Integrate gender sensitivity in project design.
- Food security, social protection and health.
- Managing hazards and disasters.
- Infrastructural functioning and maintenance.
- Curbing internal migration and displacement.



Discuss The points in detail.

Slide 19

Nationally Determined Contributions (NDC)

- Bangladesh's NDC is basically a mitigation action but also has an adaptation component.
- Cut emissions by 5 percent from business-as-usual level by FY 2030 and will increase the limit to 15 percent if external finance is available.
- Targeted sectors are power, transport and industry.
- National Adaptation Plan (NAP) will implement the adaptation element of the NDC.
- NDC Sectoral Action Plans for the power, industry and transport sectors will take into account the mitigation element.

Explain the slide.

Slide 20

Bangladesh Delta Plan 2100

- A water centric, multi sectoral, techno-economic, long-term adaptive plan
- To integrate climate change adaptation and plan for a future delta that ensures water safety, food security and economic growth.
- Highlighting the following-
  - ✓ Climate change, environment, and ecological issues
  - ✓ National and trans boundary water management
  - ✓ Delta vision, goals and policy option
  - ✓ Managing water resources
  - ✓ Sustainable land use and spatial planning across the dynamic delta
  - ✓ Sustainable agriculture, food security, nutrition and livelihoods
  - ✓ Urban water management
  - ✓ Investment planning, financing and implementation strategy

Ask the participants if they heard about the Delta Plan. If they are aware about it, **Ask** them to say the basic features of the plan.

Record some responses and then **Discuss** the slide linking their responses.

Slide 21

Delta Vision

BDP higher level national goals are the following:

1. Eliminate extreme poverty by 2030.
2. Achieve upper middle-income status by 2030.
3. Being a prosperous country beyond 2041.

BDP specific goals are the following:

1. Ensure safety from floods and climate change related disasters.
2. Ensure water security and efficiency of water usages .
3. Ensure sustainable and integrated river systems and estuaries management.
4. Conserve and preserve wetlands and ecosystems and promote their wise use.
5. Develop effective institutions and equitable governance for in country and trans-boundary water resources management.
6. Achieve optimal use of land and water resources.

Tell: The BDP 2100 aims to achieve three higher level national goals together with six BDP specific goals. **Shed** light on the slide.

Slide 22

BDP Projects in Different Climate Hotspots

SL	Climate Hotspots	Total Projects
1	Coastal Zone	23
2	Rivers and Estuaries	7
3	Urban Areas	12
4	Barind and Drought Prone	9
5	Chattogram Hill Tracts	8
6	Haor and Waterland	6
7	Cross Cutting	15
	Total	80

Tell: Bangladesh Delta Plan has identified a total of 80 projects for implementation under the investment plan in the first phase up to 2040.

Emphasise: The government will need to raise US$ 37 billion by 2030 to implement the plan over three phases: a short-term plan by 2030, a medium-term plan by 2050, and a long-term plan by 2100 for ensuring food and water security and fighting disasters, according to BDP 2100.

Slide 23

3. National Frameworks

- Climate Fiscal Framework (CFF)
- Ministry Budget Framework (MBF)
- DPP/TAPP/ Other Formats

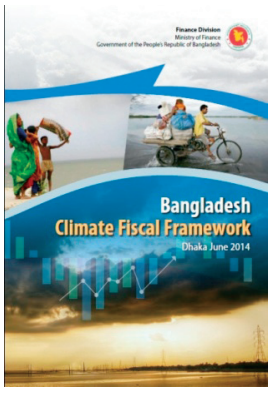
Ask: The participants if they can mention some of the national frameworks dealing with climate change.

If they can do so, **tell** them to highlight the basic element of those.

Slide 24

Climate Fiscal Framework (CFF)

- Adopted in 2014 and updated in 2020 to provide incentives and guidance prioritized climate actions
- Analysed the fiscal and financial policies, plans to identify the demand and supply side of climate funds including public and private sector climate finance
- It explores ways to include climate change issues in PFM systems and processes including accountability, performance management and governance structure



Discuss the slide.

Slide 25

Country Investment Plan for Environment, Forestry and Climate Change (CIP-EFCC)

- Adopted in 2016 for a period of 5 years within the framework of BCCSAP.
- Provides strategic framework for planning and coordination of national and international investment for the environment, forestry and climate change sectors.
- Based on four pillars including 'adaptation, mitigation and resilience to climate change'.
- Four inter-related sub-programs.
  i) Disaster risk reduction.
  ii) Sustainable infrastructure development.
  iii) Mitigation and low carbon development.
  iv) Increased resilience at community level.

Tell: The total cost of CIP is estimated at out US$11.7 billion, of which 40% (i.e., about US$4.7 billion) is already financed from government's own budget. So, the financing gap is estimated at about US$7 billion of total CIP cost.

Slide 26

Ministry Budget Framework (MBF)

- MBF to bring all climate-related spending under a single budget monitoring, reporting, and auditing framework.
- To develop a clear linkage between BCCSAP and budget compilation, implementation, monitoring, and evaluation systems.
- BC issued by Finance Division with instructions for inclusion of climate change marker in relevant sections of MBF.
- MBFs of 25 Ministries/Divisions have been made climate inclusive.
- Following climate inclusive MBF, climate finance tracking system is embedded in BACS and iBAS++

Refer the participants Appendix 3-C for the details of making climate inclusive MBF.

Slide 27

DPP/TAPP/ Other Formats

- Section 1.1.7 of DPP/TAPP manual requires that the DPP/TAPP should explain the effect of climate change.
- There should have an explanation of climate effect on other projects and as well as the ways to mitigate if there is any negative climate effect of the project on other ongoing projects.
- Section 24.0 of the DPP/TAPP format made it binding to state the effect/impact, of climate change and any adaptation and specific mitigation measures thereof.

Discuss the points.

Slide 28

DPP/TAPP/ Other Formats [contd..]

- Guidelines for project preparation from BCCTF requires that-
  - ✓ Any proposed project must be prepared in line with the Thematic Areas and Programmes of BCCSAP.
  - ✓ There must have specific Programmes and Activities to address the risk of climate change and intended benefits must be stated in the project proposal.
  - ✓ There should be no foreign consultant in the project financed under Climate Change Trust Fund.
  - ✓ Project proposal must be prepared as per the format prescribed in the guidelines as 'Project Proposal under Climate Change Trust Fund (PPCCTF)'.

Discuss The slide.

Slide 29

DPP/TAPP/ Other Formats [contd..]

- Guidelines for project preparation from BCCTF requires that-
  - ✓ Executing Agency will send project proposal to Climate Change Unit of MoEFCC through Administrative Ministry if it is considered technically acceptable that the project will ensure effective results for addressing negative impact of climate change.
  - ✓ The Technical Committee of CCTF will examine whether the project proposal is acceptable.
  - ✓ Project proposal recommended by the Technical Committee will be submitted to Trustee Board of BCCT for consideration and decision.

Read The slide

Slide 30

Exercise 3-B

Objective: The purpose of this exercise is to challenge the participants' understanding about the adequacy and effectiveness of government's policies and plans for responding to climate change.

Time required: Total time for the exercise is 20 minutes

- 10 minutes for group discussion and solution
- 10 minutes for presentation and discussion

Instructions: The participants are required to discuss among the group and prepare their group response on the following question.

- ✓ From the audit point of view do you think that government's policies and plans are adequate and effective in responding to climate change? Justify your answer.

Slide 31

Summary

- Government has adopted a good number of policies and strategies, enacted laws and developed frameworks to address climate change vulnerability.
- The auditors have to see whether those policies, strategies and frameworks are adequate and are aligned with international conventions and protocols and they meet the requirements of the country's vulnerability.
- They are also required to see whether these policies, strategies and frameworks are being implemented efficiently and effectively to meet the interests of the citizens most affected by climate change.

Ask: The participants to summarise the session.

Take: Two / three responses.

Discuss: The main points covered in the session.

Slide 32

Thank: The participants for their active participation.

4.5. EXERCISE

Exercise 3-A

Objective: The purpose of this exercise is to enable the participants to test their understanding about government's response to climate change.

Time required: Total time for the exercise is 20 minutes

- 10 minutes for group discussion and solution
- 10 minutes for presentation and discussion

Instructions: The participants are required to discuss among their group and prepare their group answer on the following two questions:

1. Outline 5 ways through which BCCSAP could be successfully used as a tool for strengthening climate finance governance in Bangladesh.

2. From your knowledge and understanding outline 5 options through which government's response to climate change could be more effective.

Exercise 3-B

Objective: The purpose of this exercise is to challenge the participants' understanding about the adequacy and effectiveness of government's policies and plans for responding to climate change.

Time required: Total time for the exercise is 20 minutes

- 10 minutes for group discussion and solution
- 10 minutes for presentation and discussion

Instructions: The participants are required to discuss among the group and prepare their group response on the following question.

From the audit point of view, do you think that government's policies and plans are adequate and effective in responding to climate change? Justify your answer.

4.6. SOLUTION TO EXERCISE

Solution_Exercise 3-A

1. The following are some of the possible options through which BCCSAP could be used as a successful tool for strengthening climate finance governance in Bangladesh:

    a. BCCSAP should have been costed to show how much resources are needed for each Thematic Area which could help effective planning and budgeting.

    b. There should have been an effective scrutiny, monitoring and evaluation mechanism to ensure that project design is fully in compliance with the Thematic Areas, Programmes and Actions mentioned in BCCSAP.

    d. There should have been a mechanism in place to evaluate the implementation status and effectiveness of BCCSAP.

    e. Capacity of ERD for fund mobilisation from external sources should be enhanced.

2. The following are some of the possible options through which government's response to climate change could be more effective:

    a. Budget scrutiny by the Parliament through climate lens.

    b. Capacity building and improvement of fiduciary systems for getting external resources.

    c. Ensuring need-based project preparation.

    d. Oversight bodies give special focus on government's response to climate change.

    e. Ensuring people's participation in climate project preparation and implementation.

4.7. APPENDICES

Appendix 3-A

Thematic Areas and Programmes of BCCSAP 2009

ANNEX	BCCSAP PROGRAMMES
Theme	**T1: Food Security, Social Protection and Health**
Programme	P1. Institutional capacity for research towards climate resilient cultivars and their dissemination P2. Development of climate resilient cropping systems P3. Adaptation against drought P4. Adaptation in fisheries sector P5. Adaptation in livestock sector P6. Adaptation in health sector P7. Water and sanitation programme in climate vulnerable areas P8. Livelihood protection in ecologically fragile areas P9. Livelihood protection of vulnerable socio-economic groups (including women)
Theme	**T2: Comprehensive Disaster Management**
Programme	P1. Improvement of flood forestting and early warning P2. Improvement of cyclone and storm surge warning P3. Awareness raising and public education towards climate resilience P4. Risk management against loss on income and property
Theme	**T3: Infrastructure**
Programme	P1. Repair and maintenance of existing flood embankments P2. Repair and maintenance of cyclone shelters P3. Repair and maintenance of existing coastal polders P4. Improvement of urban drainage P5. Adaptation against Floods P6. Adaptation against tropical cyclones and storm surges P7. Planning and design of river training works P8. Planning, design and implementation of resuscitation of river and khals through dredging and de-siltation work
Theme	**T4: Research and Knowledge Management**
Programme	P1. Establishment of a centre for knowledge management and training on climate change P2. Climate change modelling at national and sub-national levels P3. Preparatory studies for adaptation against sea level rise P4. Monitoring of ecosystem and biodiversity changes and their impacts P5. Macroeconomic and sectoral economic impacts of climate change P6. Monitoring of internal and external migration of adversely impacted population and providing support to them through capacity building for their rehabilitation in new environment P7. Monitoring of impact on various issues related to management of tourism in Bangladesh and implementation in priority action plan
Theme	**T5: Mitigation and Low Carbon Development**
Programme	P1. Improved energy efficiency in production and consumption of energy P2. Gas exploration and reservoir management P3. Development of coal mines and coat fired power stations P4. Renewable energy development P5. Lower emission from agricultural land p6. Management of urban waste p7 Afforestation and reforestation programme P8. Repid expansion on energy saving devices eg. Compact Florescent Lamps (CFL) P9. Energy and Water Efficiency in Built Environment P10. Improvement in energy consumption pattern in transport sector and options for mitigation
Theme	**T6: Capacity Building and Institutional Strengthening**
Programme	P1. Revision of sectoral policies for climate resilience P2. Main-streaming climate change in national, sectoral and spatial development programmes P3. Strengthening human resource capacity P4. Strengthening gender consideration in climate change management P5. Strengthening institutional capacity for climate change management P6. Main-streaming climate change in the Media

Appendix 3-B

Climate relevant criteria

Code[19]	Climate Relevance Criteria[20]	Relevance (%)
01	**Food security, social protection, and health**	
0101	Implementation of specific climate policy-strategies or food security, social protection and health related activities funded from the climate fund	100
0102	Institutional capacity for research towards climate resilient cultivars and their resilience	73
0103	Development of climate resilient cropping systems and production technologies	69
0104	Adaptation against drought, salinity, submergence and heat	66
0105	Adaptation in the fisheries sector	62
0106	Adaptation in livestock sector	48
0107	Adaptation in health sector	40
0108	Water and sanitation programme for climate vulnerable areas	46
0109	Livelihood protection in ecologically fragile and climate vulnerable zones	52
0110	Livelihood protection of vulnerable socio- economic groups (including women)	38
02	**Comprehensive disaster management**	
0201	Implementation of specific climate policy-strategies or comprehensive disaster management related activities funded from the climate fund	100
0202	Improvement of flood forecasting and early warning systems	61
0203	Improvement of cyclone and storm-surge warning	68
0204	Awareness raising and public education towards climate resilience	46
0205	Risk management against loss of income and property	77
03	**Infrastructure**	
0301	Implementation of specific climate policy-strategies or Infrastructure related activities funded from the climate fund	100
0302	Repair and maintenance of existing flood embankments	68
0303	Repair and maintenance of existing cyclone shelters	70
0304	Repair and maintenance of existing coastal polders	80
0305	Improvement of urban drainage	61
0306	Adaptation against floods	70
0307	Adaptation against future cyclones and storm-surges	72
0308	Planning, design and construction of river training works	48
0309	Planning, design and implementation of resuscitation of the network of rivers and khals through dredging and de-salutations work	68
04	**Research and knowledge management**	
0401	Implementation of specific climate policy-strategies or Research and knowledge management related activities funded from the climate fund	100
0402	Establishment of a centre for research, knowledge management and training on climate change	70

[19] The codes have been used in the IT-based climate finance module of the government's Integrated Budgeting and Accounting system (iBAS++) for classification and reporting purposes.

[20] The set of criteria is aligned with the BCCSAP-2009 Thematic and Programme Areas and for which the relevance weight was worked out based on the climate sensitivity comparing with the business as usual development scenario. Details of the assessment is provided in Appendix-1. A detail description of the criteria along with the possible adaptation and mitigation projects/activities are also provided in Appendix-2.

Code	Climate Relevance Criteria	Relevance (%)
0403	Climate changemodelling at national and sub-national levels	90
0404	Preparatory studies for adaptation against sea level rise and its impacts	84
0405	Monitoring of eco system and bio-diversity changes and their impacts	40
0406	Macroeconomic and sectoral economic impacts of climate change	83
0407	Monitoring of Internal and external migration and providing support of capacity building for rehabilitation	48
0408	Monitoring of impact for management of tourism and improvement of priority action plan	32
05	**Mitigation and low-carbon development**	
0501	Implementation of specific climate policy-strategies or Mitigation and low-carbon development related activities funded from the climate fund	
0502	Improved energy efficiency	69
0503	Gas exploration and reservoir management	28
0504	Development of coal mines and coal fired power station	12
0505	Renewable energy development	81
0506	Lower emission from agricultural land	60
0507	Management of urban waste	46
0508	Forestation and reforestation program	69
0509	Rapid expansion of energy saving devices e.g., CFL	68
0510	Energy and water efficiency in built environment	48
0511	Improving in energy consumption pattern in transport sector and options for mitigation	28
06	**Capacity building and institutional strengthening**	
0601	Implementation of specific climate policy-strategies or capacity building and institutional strengthening related activities funded from the climate fund	100
0602	Revision of sector policies for climate resilience	68
0603	Mainstreaming climate change in national, sector and spatial development program	77
0604	Strengthening human resource capacity	48
0605	Strengthening gender consideration in climate change management	26
0606	Strengthening institutional capacity for climate risk management	66
0607	Mainstreaming climate change in the media	30
07	**Not Climate Relevant** [21]	
0701	Not climate relevant	0

[21] If a project or activity is not aligned with any of the criteria and sub-criteria mentioned in this table, it should be assessed as 0% i.e. 'Not Climate Relevant' project. However, there will be projects where part of the project allocation is 'Not Climate Relevant' but the remaining allocations have relevance with one or two criteria/sub-criteria above, the project should be assessed as climate relevant along with the 'Not Climate Relevant' criteria. But the 'order' of the criteria-based assessment must follow the amount of climate allocation for each relevant criterion i.e. the criteria with highest climate allocation must come first and so on to a maximum of three criteria for each project/ programme.

Appendix 3-C

Inclusion of Climate Dimension in the MBFs

জরুরি
বাজেট অগ্রাধিকার

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
অর্থ মন্ত্রণালয়, অর্থ বিভাগ
বাজেট অনুবিভাগ-১

বাজেট পরিপত্র-১

নং-০৭.১০১.০২০.০০.০০.০১০.২০১৮-৫৪০ তারিখঃ ০৩ ডিসেম্বর ২০১৯ / ১৮ অগ্রহায়ণ ১৪২৬

বিষয়: **মন্ত্রণালয়/বিভাগ ও অন্যান্য প্রতিষ্ঠানসমূহের মধ্যমেয়াদি বাজেট কাঠামো সংশোধন ও হালনাগাদকরণ।**

সরকারি ব্যয়ের দক্ষতা ও কার্যকারিতা বৃদ্ধি এবং সরকারের কৌশলগত লক্ষ্য ও উদ্দেশ্যসমূহ অর্জন নিশ্চিত করার লক্ষ্যে মধ্যমেয়াদি বাজেট কাঠামো পদ্ধতিতে বাজেট প্রণয়ন করা হচ্ছে। এ প্রক্রিয়া তিনটি প্রধান পর্যায়ে বিভক্ত, যথা: (১) কৌশলগত পর্যায়; (২) প্রাক্কলন পর্যায়; এবং (৩) বাজেট অনুমোদন পর্যায়। কৌশলগত পর্যায়ের প্রথম ধাপে প্রশাসনিক মন্ত্রণালয়/বিভাগ এবং অন্যান্য প্রতিষ্ঠানকে বিদ্যমান বাজেট কাঠামো[১] হালনাগাদ করতে হয়। এ পরিপত্রে বিবৃত প্রক্রিয়া/পদ্ধতি অনুসরণের মাধ্যমে সকল মন্ত্রণালয়/বিভাগ এবং অন্যান্য প্রতিষ্ঠান[২] তাদের বাজেট কাঠামো সংশোধন/হালনাগাদ করে অর্থ বিভাগ ও পরিকল্পনা কমিশনে প্রেরণ করবে। পরবর্তীতে অর্থ বিভাগ ও পরিকল্পনা কমিশন সংশ্লিষ্ট মন্ত্রণালয়/বিভাগ এবং অন্যান্য প্রতিষ্ঠানের সাথে আলোচনাক্রমে বাজেট কাঠামো চূড়ান্ত করবে।

২. মন্ত্রণালয়/বিভাগ এবং অন্যান্য প্রতিষ্ঠানের বাজেট কাঠামো Ministry Budget Framework (MBF) সংশোধন বা হালনাগাদকরণের উদ্দেশ্য: মন্ত্রণালয়/বিভাগসমূহের বাজেট কাঠামো সংশোধন/হালনাগাদ করার প্রধান উদ্দেশ্য হচ্ছে: (১) সরকারের মৌলিক নীতি নির্ধারণী দলিলসমূহে প্রতিফলিত কৌশলগত নীতি ও অগ্রাধিকারের সাথে বাজেট বরাদ্দের যোগসূত্র স্থাপন করা; (২) মন্ত্রণালয়/বিভাগ ও অধীনস্থ দপ্তর/সংস্থাসমূহের কর্মকৃতির সাথে বাজেট বরাদ্দের যোগসূত্র অধিকতর শক্তিশালী করা; এবং (৩) মধ্যমেয়াদে প্রাপ্য সম্পদের ভিত্তিতে সংশ্লিষ্ট মন্ত্রণালয়/বিভাগ এবং অন্যান্য প্রতিষ্ঠানের জন্য একটি বাস্তবসম্মত ব্যয় পরিকল্পনা প্রস্তুত করা।

(....)

৪. বাজেট কাঠামোর (MBF) গঠন: মন্ত্রণালয়/বিভাগ/অন্যান্য প্রতিষ্ঠানের বাজেট কাঠামো দু'টি প্রধান ভাগে (Parts) এবং ৬টি অংশে (Sections) বিভক্ত থাকবে। প্রথম ভাগ (Part-A) সংশ্লিষ্ট মন্ত্রণালয়/বিভাগ/অন্যান্য প্রতিষ্ঠান এবং দ্বিতীয় ভাগ (Part-B) সংশ্লিষ্ট মন্ত্রণালয়/বিভাগ/অন্যান্য প্রতিষ্ঠানের আওতাধীন বিভিন্ন অধিদপ্তর/অধস্তন দপ্তর/প্রাতিষ্ঠানিক ইউনিট/সংস্থা প্রস্তুত করবে। মন্ত্রণালয়/বিভাগ/অন্যান্য প্রতিষ্ঠানের বাজেট কাঠামোর প্রথম ও দ্বিতীয় ভাগে অন্তর্ভুক্ত অংশসমূহ এবং ফরমসমূহ নীচের সারণিতে সংক্ষেপে দেখানো হল:

মধ্যমেয়াদি বাজেট কাঠামো-প্রথম ভাগ (মন্ত্রণালয়/বিভাগ/অন্যান্য প্রতিষ্ঠান কর্তৃক পূরণীয়)		মধ্যমেয়াদি বাজেট কাঠামো-দ্বিতীয় ভাগ (অধিদপ্তর/ পরিদপ্তর/ অধস্তন দপ্তর/ প্রাতিষ্ঠানিক ইউনিট/সংস্থা কর্তৃক পূরণীয়)	
অংশ-১ :	মন্ত্রণালয়/বিভাগ/অন্যান্য প্রতিষ্ঠানের মিশন স্টেটমেন্ট ও প্রধান কার্যাবলি	**অংশ-৬.১:**	অধিদপ্তর/পরিদপ্তর/অধস্তন দপ্তর/প্রাতিষ্ঠানিক ইউনিট/সংস্থার সাম্প্রতিক অর্জন
অংশ-২ :	মন্ত্রণালয়/বিভাগ/অন্যান্য প্রতিষ্ঠানের কৌশলগত উদ্দেশ্য ও কার্যক্রমসমূহ	**অংশ-৬.২:**	কার্যক্রমসমূহ, ফলাফল নির্দেশক এবং লক্ষ্যমাত্রা (Activities, Output Indicators and Targets)
অংশ-৩ :	দারিদ্র্য নিরসন, নারী উন্নয়ন ও জলবায়ু কার্যক্রম সংক্রান্ত তথ্য	**অংশ-৬.৩:**	অপারেশন ইউনিট, সুনির্দিষ্ট কার্যক্রম/স্কিম/ প্রকল্পওয়ারি মধ্যমেয়াদি ব্যয় প্রাক্কলন
অংশ-৪.১:	অগ্রাধিকার খাত/কর্মসূচিসমূহ	**ফরম-৩:**	অধস্তন দপ্তর/ প্রাতিষ্ঠানিক ইউনিট গ্রুপের রাজস্ব ও প্রাপ্তির প্রাথমিক লক্ষ্যমাত্রা
অংশ-৪.২ :	মধ্যমেয়াদি ব্যয় প্রাক্কলন ও প্রক্ষেপণ (২০২০-২১ হতে ২০২২-২৩):	**ফরম- ৪:**	অধস্তন দপ্তর/ প্রাতিষ্ঠানিক ইউনিট গ্রুপের প্রাথমিক ব্যয়সীমা
অংশ-৪.২.ক:	দপ্তর/সংস্থা/অপারেশন ইউনিট ওয়ারি ব্যয়	**ফরম-৬(ক):**	প্রাতিষ্ঠানিক ইউনিট/ টাস্ক/ সংস্থার পরিচালন কার্যক্রমের প্রাথমিক ব্যয়সীমা
অংশ-৪.২.খ :	অর্থনৈতিক গ্রুপ কোডওয়ারি ব্যয়	**ফরম-৬(খ):**	উন্নয়ন কার্যক্রমভুক্ত খাদ্য কর্মসূচি/বিশেষ কর্মসূচি/স্কিম/প্রকল্পের প্রাথমিক ব্যয়সীমা
অংশ-৫ :	মন্ত্রণালয়/বিভাগ/অন্যান্য প্রতিষ্ঠানের প্রধান কর্মকৃতি নির্দেশকসমূহ (KPI)	**ফরম- ৭:**	অর্থনৈতিক কোডভিত্তিক রাজস্ব ও প্রাপ্তির প্রাথমিক প্রাক্কলন ও প্রক্ষেপণ
ফরম-১ :	অধিদপ্তর/ পরিদপ্তরের রাজস্ব ও প্রাপ্তির প্রাথমিক লক্ষ্যমাত্রা	**ফরম-৮(ক-১):**	অর্থনৈতিক কোডভিত্তিক পরিচালন ব্যয়ের সাধারণ/বিশেষ কার্যক্রমের প্রাথমিক প্রাক্কলন ও প্রক্ষেপণ
ফরম-২ :	অধিদপ্তর/পরিদপ্তরের প্রাথমিক সম্ভাব্য ব্যয়সীমা	**ফরম-৮(ক-২):**	অর্থনৈতিক কোডভিত্তিক পরিচালন ব্যয়ের সহায়তা/স্থানীয় সরকারসমূহে স্থানান্তর কার্যক্রমের প্রাথমিক প্রাক্কলন ও প্রক্ষেপণ
		ফরম-৮(খ-১):	অর্থনৈতিক কোডভিত্তিক উন্নয়ন ব্যয়ের এডিপি বহির্ভূত কার্যক্রমের প্রাথমিক প্রাক্কলন ও প্রক্ষেপণ
		ফরম-৮(খ-২):	অর্থনৈতিক কোডভিত্তিক উন্নয়ন ব্যয়ের এডিপিভুক্ত প্রকল্পের প্রাথমিক প্রাক্কলন ও প্রক্ষেপণ

(....)

৬. **দারিদ্র্য, নারী উন্নয়ন ও জলবায়ু সহিষ্ণুতা সংক্রান্ত তথ্য:**

৬.১ দারিদ্র্য ও নারী উন্নয়ন সংক্রান্ত তথ্য: মন্ত্রণালয়/বিভাগ/অন্যান্য প্রতিষ্ঠানের কৌশলগত উদ্দেশ্যসমূহ দারিদ্র্য নিরসন এবং নারী উন্নয়নকে কীভাবে প্রভাবিত করবে সুনির্দিষ্ট তথ্য-উপাত্তসহ সে সম্পর্কিত যৌক্তিকতা বাজেট কাঠামোর প্রথম ভাগের অংশ-৩ -এ লিপিবদ্ধ করতে হবে। দারিদ্র্য নিরসন ও নারী উন্নয়নে কৌশলগত উদ্দেশ্যের প্রভাব বিশ্লেষণ এবং প্রকল্প ব্যয়ের ব্যবহার নির্ণয়ের ক্ষেত্রে **সংযোজনী-৫ (ক)** এর নির্দেশনা অনুসরণ করতে হবে।

৬.২ জলবায়ু অভিযোজন ও প্রশমনের ওপর প্রভাব: মন্ত্রণালয়/বিভাগ/অন্যান্য প্রতিষ্ঠানের কৌশলগত উদ্দেশ্য জলবায়ু পরিবর্তনের প্রভাব মোকাবেলায় (অভিযোজন ও প্রশমন) কিভাবে ভূমিকা রাখবে এ অংশে সুনির্দিষ্ট তথ্য ও উপাত্তসহ তার বিশ্লেষণ প্রদান করতে হবে। Bangladesh Climate Change Strategy and Action Plan (BCCSAP)-এ বর্ণিত ৬টি থিমেটিক এরিয়া ও এর আওতায় ৪৪টি কার্যক্রমের ভিত্তিতে জলবায়ু অর্থায়ন নিরূপনের প্রক্রিয়া সম্পন্ন করা হবে। এ অংশ ৩০টি মন্ত্রণালয়/বিভাগের ক্ষেত্রে প্রযোজ্য হবে। উল্লেখ্য, এ সকল মন্ত্রণালয়/বিভাগের তালিকা এবং এ বিষয়ে অনুসরণীয় নির্দেশাবলী সংযোজনী ৫ (খ)-এ সন্নিবেশিত আছে।

সংযোজনী-২

মন্ত্রণালয়/বিভাগ এবং অন্যান্য প্রতিষ্ঠানের মধ্যমেয়াদি বাজেট কাঠামোঃ প্রথম ভাগ

(সংশ্লিষ্ট মন্ত্রণালয়/বিভাগ এবং অন্যান্য প্রতিষ্ঠান কর্তৃক পূরণীয়)

মন্ত্রণালয়/বিভাগঃ.....

(....)

অংশ-৩: দারিদ্র্য নিরসন, নারী উন্নয়ন ও জলবায়ু কার্যক্রম সংক্রান্ত তথ্য

৩.১ দারিদ্র্য নিরসন, নারী উন্নয়ন এবং জলবায়ু অভিযোজন ও প্রশমনের ওপর মধ্যমেয়াদি কৌশলগত উদ্দেশ্যসমূহের প্রভাব

- উপরের অংশ-২ এর ১ নং কলামে বর্ণিত কৌশলগত উদ্দেশ্যসমূহ এবং এ অংশে বর্ণিত কৌশলগত উদ্দেশ্যসমূহ যাতে অভিন্ন হয় তা নিশ্চিত করতে হবে;
- প্রতিটি কৌশলগত উদ্দেশ্য এবং সংশ্লিষ্ট কার্যক্রমসমূহ সরকারের দারিদ্র্য নিরসন, নারী উন্নয়ন এবং জলবায়ু অভিযোজন ও প্রশমনে কীভাবে অবদান রাখবে তা পৃথকভাবে বর্ণনা করতে হবে;
- দারিদ্র্য নিরসন, নারী উন্নয়ন এবং জলবায়ু অভিযোজন ও প্রশমনের ওপর কৌশলগত উদ্দেশ্যসমূহের প্রভাব বর্ণনার ক্ষেত্রে **সংযোজনী-৫ (ক)** এ প্রদত্ত নির্দেশনা অনুসরণ করতে হবে।

৩.২ দারিদ্র্য নিরসন, নারী উন্নয়ন ও জলবায়ু কার্যক্রম সম্পর্কিত বরাদ্দ

চূড়ান্ত বাজেট কাঠামোতে (MBF) দারিদ্র্য নিরসন ও নারী উন্নয়ন কার্যক্রমে মন্ত্রণালয়/বিভাগভিত্তিক বরাদ্দ সম্বলিত একটি সারণি RCGP ডাটাবেজ থেকে প্রস্তুতপূর্বক এই অংশে সংযোজন করা হবে। এছাড়া, জলবায়ু অভিযোজন ও প্রশমনে মন্ত্রণালয়/বিভাগ ভিত্তিক বরাদ্দ সম্বলিত একটি সারণি iBAS++ এর জলবায়ু মডিউল হতে এ অংশে সংযোজন করা হবে। বাজেট কাঠামো চূড়ান্তকরণের পর অর্থ বিভাগ কর্তৃক এই সারণি প্রস্তুত করা হবে।

সংযোজনী-৫ (খ)

মধ্যমেয়াদি বাজেট কাঠামোতে জলবায়ু পরিবর্তনের প্রভাব বিশ্লেষণের ক্ষেত্রে অনুসরণীয় নির্দেশাবলী

জলবায়ু অর্থায়ন নিরূপণের ধাপসমূহঃ

এই পদ্ধতিতে মোট ৫টি ধাপ রয়েছে, যার মধ্যে নিম্নবর্ণিত দু'টি ধাপের কাজ সংশ্লিষ্ট ব্যবহারকারী সম্পন্ন করবেন। অবশিষ্ট ৩টি ধাপের কাজ স্বয়ংক্রিয়ভাবে iBAS++ এ সম্পাদিত হবে।

ধাপ ১: জলবায়ু প্রাসঙ্গিকতার মানদন্ডকে বিসিসিএসএপি-র থিমেটিক এরিয়ার সাথে যুক্তকরণ

জলবায়ু অর্থায়ন চিহ্নিত করার উদ্দেশ্যে মন্ত্রনালয়/বিভাগসমূহের আওতাধীন বাস্তবায়িত প্রতিটি প্রকল্পকে প্রাথমিকভাবে বিসিসিএসএপি-র আওতাধীন ৬টি থিমেটিক এরিয়ার সাথে সংযুক্ত করতে হবে। প্রকল্পসমূহের বহুমুখিতা বিবেচনায় একটি প্রকল্প এক বা একাধিক থিমেটিক এরিয়ার সাথে সংশ্লিষ্ট হতে পারে। সেক্ষেত্রে, সবচেয়ে বেশি অর্থায়ন সংশ্লিষ্ট থিমেটিক এরিয়াটি সবার আগে এবং সর্বাপেক্ষা কম অর্থায়ন সংশ্লিষ্ট থিমেটিক এরিয়াটি সর্বশেষে চিহ্নিত করতে হবে। এভাবে প্রতিটি প্রকল্পের সাথে সংশ্লিষ্ট সর্বোচ্চ ৩টি থিমেটিক এরিয়া চিহ্নিত করা যাবে। একাধিক থিমেটিক এরিয়া সংশ্লিষ্ট প্রকল্পের ক্ষেত্রে অবশ্যই মনে রাখতে হবে যেন থিমেটিক এরিয়া চিহ্নিতকরণ প্রক্রিয়াটি জলবায়ু অর্থায়ন সংশ্লিষ্টতার ক্রমানুসারে সাজানো হয়। অন্যথায় জলবায়ু অর্থায়ন নিরূপণ প্রক্রিয়াটি সঠিক ফলাফল নিশ্চিত নাও করতে পারে।

SESSION 4

SELECT AUDIT TOPICS AND PRIORITISE

5. SESSION 4: SELECT AUDIT TOPICS AND PRIORITISE

Duration: 120 minutes

5.1. SESSION-AT-A-GLANCE

Learning Objective	Materials Required	Session Structure	Teaching Method	Time Required
At the end of the session, it is expected that the participants would be able to select climate change performance audit topic. They would also be able to prioritise audit areas.	1. Participant's Notes 2. Slides 3. Computer 4. Multimedia Projector 5. Audio Visual Aid 6. Flip Charts 7. Stationary	**Session Overview**	1. Lecture 2. Discussion	5 minutes
		Learning Objective	1. Lecture	1 minute
		Key Teaching Points (KTP) **KTP-1:** Risk Analysis and Prioritising Topics for Selection.	1. Lecture 2. Discussion 3. Exercise	104 minutes
		Evaluation	1. Question-Answer	5 minutes
		Summary	1. Lecture 2. Discussion	5 minutes
			Total Time:	**120 minutes**

5.2. PARTICIPANT'S NOTES

SELECT AUDIT TOPICS AND PRIORITISE

Session overview:

In the last three sessions, we discussed climate change and vulnerability, international responses to climate change, and national responses to climate change. We hope that the participants have been able to gather ideas about different aspects of climate change from these deliberations. In this session, we shall discuss the factors which should be taken into consideration by the audit team while selecting the audit topics. We shall also try to explore how to prioritise particular audit topic among many choices.

Learning objectives:

After this session, it is expected that the participants would be able to select climate change performance audit topic. They would also be able to prioritise audit areas.

Basic concepts:

Auditors should select audit topics through the SAI's strategic planning process by analysing potential topics and conducting research to identify risks and problems. Determining which audits will be carried out is usually part of the SAI's strategic planning process. If appropriate, auditors should contribute to this process in their respective fields of expertise. They may gather knowledge from previous audits, and information from the strategic planning process may be relevant for the auditor's subsequent work.

In this process, auditors should consider that audit topics should be sufficiently significant as well as auditable and in keeping with the SAI's mandate. The topic selection process should aim to maximise the expected impact of the audit while taking into account the audit capacities (e.g., human resources and professional skills).

Formal techniques to prepare the strategic planning process, such as risk analysis or problem assessments, can help structure the process but need to be complemented by professional judgment to avoid lop-sided assessments.

Strategic planning

Strategic plan represents a policy statement from which short-term performance audit plans can be prepared. Strategic planning is the basis for the selection of audit topics. Linked to a SAI's annual planning system, it may be a useful tool in setting priorities and selecting audits. An SAI generally prepares the strategic plan. This plan generally covers 3-5 years depicting, inter alia, the number of performance audits including climate performance audit to be conducted by different audit directorates.

The aim of strategic planning is to determine the future programme of performance audit work and the relative priorities of various projects, together with the staff and other resources needed to carry out the programme. It also analyses the organisation's mandate, objectives, vision and mission, critical success factors, and SWOT of the institution. The strategic plan should ensure that it reflects proper priorities. For inclusion of climate issues in SAI's strategic plan the following should be considered:

- International and national legal documents related to climate change e.g., UNFCCC, Kyoto Protocol, UN Convention to Combat Desertification (UNCCD), Paris agreement, CCTA etc.
- National policy documents to address climate change issues e.g., BCCSAP, NAPA, CIP-EFCC, Perspective Plan, Five Year Plan, Ministry Budget Framework (MBF), Climate Fiscal Framework (CFF) etc.
- National responses to address climate change issues i.e., the projects and programmes etc.
- Stakeholders' expectations.
- National and international media reports.
- Research reports prepared by Think Tank Organisations.

Climate performance auditing should be directed towards areas where an external, independent audit may add value in promoting economy, efficiency and effectiveness. In financial auditing, the audit objects are often defined for the SAI by its own basic legislation. The SAI usually has greater freedom in the choice of climate performance audit objects and audit approaches. The SAI must carefully consider the strategy for selecting topic for climate performance audits that help to set priorities and make selections.

The auditor should be able to make choice about audit areas without any outside pressure. The SAI must maintain neutrality, but maintenance of the SAI's independence does not preclude requests to the SAI from the executive, proposing matters for audit. However, if it is to enjoy adequate independence, the SAI must be able to decline any such request. Strategic planning is the basis for the selection of audit topics and possible pre-studies. The planning might be carried out with the following steps:

1) Determining the potential audit areas from which the strategic choices are to be made. The selection of audit areas involves strategic choice for the SAI. The number of potential areas is considerably high and the SAI's capacity is limited. This means that the choices must be made with care.
2) Establishing the selection criteria to be used for these choices. The main selection criterion is the contribution of audit to the modernisation and improvement of the functioning of the government and the bodies under it. As for step 2, the general selection criteria would be as follows:

Added value: Adding value is about providing new knowledge and perspectives. The more the prospects of carrying out a an audit of good quality, together with less the subject has been covered earlier by audits or other reviews, the greater the added value might be.

Important problem areas: The greater the risk in relation to economy, efficiency, and effectiveness or public trust, the more important the problems tend to be. A problem may be judged important or material if knowledge about it would likely to influence the user of the performance audit report. Active and problem-oriented monitoring makes it easier to identify areas for audits.

1. Risk Analysis and Prioritising Topics for Selection

Risk or uncertainties: The strategic planning may be based on risk analysis, or less theoretical analysis of indications of existing or potential problems. The stronger the public interest involved where there is reason to suspect inefficiency, the greater the risks (the less the knowledge), and the greater the uncertainty. The accumulation of such indicators or factors linked to an entity or a government programme may represent an important signal to SAIs and should induce them to plan audits whose range and scope will depend on the indices detected. Factors that may indicate higher risk (or uncertainty) could be the following:[22]

- The financial or budgetary amounts involved are substantial, or there have been significant changes to the budget.
- Areas traditionally prone to risk (e.g., IT systems procurement, technology, environment issues and health).
- New or urgent activities or when changes in conditions (e.g., requirements and demands) are involved.
- Management structures that are complex with possible confusion about responsibilities.
- Lack of reliable, independent, and updated information on the economy, efficiency or the effectiveness of a government programme.

Some SAIs may choose topics based on strategic choices rather than selection criteria. Sometimes these strategic choices may reflect the constitutional and legal conditions and the established traditions. They may also reflect political realities (i.e. certain topics are not expected to be subjected to auditing). Consequently, strategic planning system allows for different ambitions and decisions.

In a changing society, it is quite natural that public activities are regularly reviewed to see whether they fulfil the goals and solve the problems for which they were created. As time proceeds, new demands replace old

[22] INTOSAI (2019) *GUID 3920: The Performance Auditing Process*

ones. Since demands and conditions constantly change, performance auditing will have to be prepared to monitor and follow development and trends, review priorities, and use new approaches and methods. If a SAI defines itself as an instrument for change, it is important that its priorities for performance auditing reflect the need for improvement in the public sector. For example, in a situation with a large budget deficit or old-fashioned management style, performance auditing may provide contributions to savings, better use of resources, or modernisation of management. If, on the other hand, problems concerning unemployment, environment, equity, transparency, services to the clients, etc. are in focus in the public debate, performance auditing may give priority to such issues. In other words, strategic planning may aim to do more than produce viable subjects for audits. Ideally it should integrate audit topics or audit themes in an overall perspective. Some SAIs conduct special studies to build up knowledge or skills either within a single area of government or in the area defined by an audit theme to assist the strategic planning process.

The strategic planning process normally results in a coherent and cogent audit programme for the SAI. The programme lists the audit areas and provides a brief account of the provisional problems, questions, and other arguments supporting each of them. Ideally the programme then serves as a basis for operational planning and resource allocation.

For choosing individual climate performance audit topic and prioritising, an auditor should follow the following four step approaches:

Step 1: ***Mapping the Strategic Plan***- Examine the strategic plan formulated by the Office of the Comptroller and Auditor General (OCAG) of Bangladesh to examine if any climate performance audit has been included in the plan. If any climate performance audit is included in the strategic plan, the auditor should venture to understand the rationale behind its inclusion.

Step 2: ***Developing Knowledge About Climate Change Aspects***- At this stage, the auditor should first develop knowledge about climate change from a global perspective. He should try to understand the international responses to climate change. He should try to grasp, at least, UNFCCC, Kyoto protocol, Marrakesh accords, Bali action plan, IPCC, Convention on Biological Diversity (CBD), UN Convention to Combat Desertification (UNCCD) and Paris agreement.

Having exposure to global climate change, the auditor must develop knowledge about Bangladesh's vulnerability to climate change. The auditor should try to get an idea of the climate change related problems and their impacts.

Responsibility rests with the government to carry out assessments of the vulnerability to climate change in order to identify appropriate adaptation and mitigation measures. These assessments will serve as the main source of information for the auditors. They may, however, gather information from other sources also. This happens when it appears that the government has not adequately assessed the situation or because the auditors want a second opinion where they can seek information from non-governmental organisation (NGOs), neighbouring SAIs and other SAIs.

To understand the need for adaptation and mitigation policy in Bangladesh, the auditor should conduct study in the following areas:

- The actual and potential impacts of climate change;
- The adaptive capacity;
- The mitigation capacity; and
- The vulnerability to climate change.

Step 3: ***Mapping Government's Response to Climate Change***- At this stage, the auditor should try to understand the government's response to climate change. The auditor should be able to identify if government's response is enough to address the issue of adaptation and mitigation. To understand government's response to adaptation, the auditor should seek answer to the following key questions:

- What are the objectives and targets of adaptation policies?
- What are the policy instruments for adaptation?
- Who are the public players and what are their roles and responsibilities?

While in getting to understand about government's response to mitigation, the auditor should seek answer to the following key questions:

- What are the international mitigation commitments?
- What are the national targets for mitigating GHG emission?
- Which are the relevant responsible public bodies and what are their roles and responsibilities?
- What are the key policy instruments for reducing GHG emission?

But climate change response is more than adaptation and mitigation. The auditor should also be able to determine that the government's responses are aligned with the thematic areas of BCCSAP. To complete the work mentioned in step 2 and step 3 the auditor should, at least, consult the following documents:

a) Bangladesh Climate Change Strategy and Action Plan (BCCSAP).
b) Climate Change Trust Act, 2010.
c) Bangladesh Climate Change Trust (BCCT).
d) Bangladesh Climate Change Trust Fund (BCCTF).
e) The Perspective Plan (2021-2041).
f) The 8th Five-year Plan (2021-2025).
g) Country Investment Plan for Environment, Forestry and Climate Change (CIP-EFCC).
h) Nationally Determined Contributions (NDC).
i) National Adaptation Programme of Action (NAPA).
j) Bangladesh Delta Plan 2100.

Step 4: ***Assessing Risk for Choosing Audit Topics and Prioritising***- In steps 2 and 3 the auditor identified the need for adaption and mitigation and the government's response to climate change. Having this information, in step 4 the auditor selects audit topics by making a comparison between climate change threats and the government's response. This can be described as risk analysis. Risk analysis is an analytical process to identify areas that have high risk exposure or where there are opportunities for performance improvements.

The auditor could look into the following key areas to analysis the risk and decide upon audit topics:[23]

- Whether the targets and objectives are being achieved.
- Is there any risks related to the use of policy instruments.
- Whether the government/entity doing things in the right way.
- Whether financial resources are misused.
- Whether the government has assessed the key vulnerabilities in a desirable manner.
- Whether the government has developed an efficient overall plan or strategy.
- Whether the government addressed the most vulnerable sectors for adaptation and mitigation.
- Whether there any risk related to the results of government's adaptation and mitigation programs.
- Whether government is focusing on keeping the costs of adaption and mitigation as low as possible.

[23] INTOSAI WGEA (2010) *Auditing the Government Response to Climate Change: Guidance for Supreme Audit Institutions*

For assessing risk, the auditor can use the following Input-Output-Outcome model:[24]

Performance	Inputs	Production / Delivery process	Outputs	Outcome
Risk Assessment	Resources assigned	Action done	Services provided	Objectives met
	Economy	**Efficiency**		**Effectiveness**
	• Is money being spent at the right time, in the right amount and reliably? • Are physical, material and human resources used efficiently?	Are policies, procedures and controls established to ensure timeliness, quantity and quality at lowest cost?	Are completed work units and services appropriate to ensure timeliness, quantity and quality at lowest cost?	Are short and long-term results in line with objectives and intensions at lowest costs?
	Unit cost of inputs.	Governance Productivity Unit costs of outputs		Goal achievement Cost-effectiveness Customer satisfaction

The SAI auditors may undertake performance audits on government projects or programmes dealing with climate issues. These projects or programmes could be funded by Climate Change Trust Fund (CCTF) or they may be funded from Annual Development Programme. In such a situation, the auditor should be careful in selecting the project or programs. The auditor should focus on materiality aspect in selecting the project. Every year a good number of projects are being implemented by different government ministries and divisions with financing from government budget. Of these projects, some projects involve large amount of money. To add value to audit, the auditors may consider large projects having substantial investment. Moreover, while conducting audit of projects or programmes, the auditor should see if the project activities are climate relevant.

Another way of selecting project for climate performance audit is to keep abreast of newspaper and print media reports. These days many newspapers and electronic media are performing investigative journalism. They are coming with reports highlighting financial irregularities and corruption in many development projects implemented by different government agencies.

Summary:

Selection of correct audit topic is very important for the audit team as well as the SAI. Wrong selection will negate the purpose of audit and send an unrighteous message across the stakeholders. Audit topics should be sufficiently important as well as be auditable. Stakeholders must have interest in the audit topic. In selecting audit topic, the auditor should first approach the SAI, strategic plan. They should examine it to see if any climate performance audit topic has been included in the plan. Second, the auditor should try to understand the adaptation programme of the government to determine if the programme is enough to meet the adaptation requirements of the country. Third, the auditor should examine the mitigation activities of the government to find out if those are meeting the government's international commitments as well as national needs. By making a gap analysis pertaining to adaptation and mitigation the auditors can chose audit topics and priorities audit areas. Fourth, the auditors can pick up large development projects relating to climate change to see if the project is ensuring value for money. Fifth, the auditor can select audit topic from newspapers and media reports if they unearth any serious financial irregularities.

References:

1. INTOSAI WGEA (2010) *Auditing the Government Response to Climate Change: Guidelines for Supreme Audit Institutions*. Norway: INTOSAI WGEA. (2019).
2. INTOSAI (2019) *ISSAI 3000: Performance Audit Standard*. VIENNA: INTOSAI General Secretariat.
3. INTOSAI (2019) *GUID 3920: The Performance Auditing Process*. VIENNA: INTOSAI General Secretariat.

[24] ibid

5.3. INSTRUCTOR'S GUIDE

	Instructor's guide	Reference	Participant's Response
1.0	**Welcome** the participants. **Introduce** yourself to the participants. **Show** the title of the session.	Slide 1	
	Briefly discuss on the session overview. **Tell** the participants about the learning objectives of the session.	Slide 2 Slide 3	
2.0	**KTP-1: Risk Analysis and Prioritising Topics for Selection**		
	Ask the participants to share their knowledge about selecting and prioritising audit topic for climate performance audit.		Note some responses and discuss
	Tell them that for selecting climate performance audit topic, they need to follow 4-step approach.	Slide 4	
	Discuss on 4-step approach for prioritising audit topic.	Slide 5-6	
	Challenge the understanding of the participants on the issue of government's response to climate change adaptation using Exercise 4-A.	Slide 7 Exercise 4-A	
	After the exercise **Discuss** and **Distribute** the solution of exercise.	Solution Exercise 4-A	
	Tell that in the subsequent slide we will discuss in detail how you will map government's response to climate change.		
	Continue discussion on the issue of climate change mitigation for prioritising audit topic.	Slide 8-17	
	Inquire the participants if they familiar with risk assessments in the planning process.		Obtain some responses
	Discuss the basics of risk assessment in the planning process.	Slide 18	
	Ask if they have any ideas about a potential risk in how the governments handle climate change.		Obtain some responses
	Tell that lack of good governance could work as a risk indicator, because lack of these systems might indicate inefficiency and risks of ineffectiveness.	Slide 19	
	Discuss the factors those are indicators of high risk.	Slide 20	

	Ask the participants to shed light on the key areas to analysis the risk and decide upon audit topics.		Take some responses
	Discuss the key areas to analysis the risk and decide upon audit topics.	Slide 21	
	Detail the key questions to analysis the risk and decide upon audit topics.	Slide 22-33	
	Discuss on Input-Output-Outcome model for risk analysis.	Slide 34-35	
	Tell that weaknesses in the governance level (Efficiency) often lead to lack of intended results (effectiveness) and misspent resources (Economy).		
	Tell how to rank audit topics among many choices. **Discuss** Risk-Materiality-Significance-Impact-Auditability.	Slide 36	
	Deepen the participants' knowledge on prioritising audit topics using the Exercise 4-B.	Slide 37 Exercise 4-B	
	Distribute suggested solution to Exercise 4-B	Solution Exercise 4-B	
3.0	**Summarise** the session by pointing out the key issues of the session. **Thank** the participants for their active participation in the discussion and declare the end of Session 4.	Slide 38 Slide 39	

5.4. SLIDES

Slide 1

Session 4

SELECT AUDIT TOPICS AND PRIORITISE

Slide 2

Session overview

- This session will discuss the factors which should be taken into consideration by the audit team in selecting audit topics.
- We shall also discuss how to prioritise particular audit topic among many choices.

Read the slide and **Discuss**.

Slide 3

Learning objective

- In this session the participants will be able to select climate change performance audit topic. They would also be able to prioritise audit areas.

Read the slide and **Discuss**.

Slide 4

Selecting and Prioritising Audit Topic

4-step Approach

- Mapping the strategic plan.
- Developing knowledge about climate change aspects.
- Mapping government's response to climate change.
- Assessing risk for choosing audit topics and prioritising.

Ask the participants to share how they think about selecting and prioritising audit topic for climate performance audit.

Tell: How will you select and prioritise topic for climate performance audit.

Slide 5

Step 1: Mapping the Strategic Plan

- Has the topic or issue been included in the strategic plan for climate performance audit?
- What is the rationale and objectives behind its inclusion?
- What are the climate relevance and impact of the issue/topic?

Tell: The auditors need answer of the above questions to have an understanding about the climate relevance of the topic to be selected for audit.

Discuss: the points in the slide.

Slide 6

Step 2: Developing Knowledge About Climate Change Aspects

- Develop knowledge about climate change from a global perspective (session 1)
- Get an idea of the climate change related problems and their impacts (session 1)
- Develop knowledge about Bangladesh's vulnerability to climate change (session 1)
- Build understanding on the adaptation and mitigation need for Bangladesh (session 1)
- Build understanding on the international responses to climate change (session 2)
- Get an understanding on the national responses to climate change (session 3)

Tell: In session 1 we have discussed in details the aspects of climate change from national and global perspectives. We have got knowledge on climate change vulnerability and their impacts-global and national. We have also developed sound knowledge about Bangladesh's vulnerability to climate change.

Tell: In session 2 we have got an understanding of the international responses to climate change.

Mention: We have talked about government's responses to climate change in session 3.

Tell: Based on all this knowledge the auditors' next step (step 3) will be to map government's responses to climate change. The next slides discusses step 3.

Slide 7

Step 3: Mapping Government's Response to Climate Change

Exercise 4-A

- **Objective:** Identify if government's response is enough to address the issue of adaptation and mitigation.
- **Time required:** Total time for the exercise is 15 minutes
  - ✓ 10 minutes for preparing the answer
  - ✓ 5 minutes for discussion

Tell: The next step of the audit is to identify if government's response is enough to address the issue of adaptation and mitigation.

To understand the issue, we will now do a small brain-storming exercise.

What we will do in this exercise is to list out the relevant questions to be answered regarding adequacy of government's response to climate change adaptation and mitigation.

Give: Instructions for the exercise and Discuss after the exercise.

Slide 8

What are the Objectives and Targets of Adaptation and Mitigation?

- International commitments.
- Regional agreements.
- National policies, national and sectoral goals.

Tell: There are international climate change commitments as well as plans for implementation of these commitments on regional and national level. We will look into to those. The key here is to identify targets against which to measure government's performance.

Slide 9

Mapping International Commitments

- UNFCCC.
- Kyoto Protocol under the UNFCCC.
- Convention on Biological Diversity.
- Water agreements.
- The Sustainable Development Goals.

Tell: Article 4 of UNFCCC discusses about the government's commitment to climate adaptation and mitigation. Specifically it mentions that all Parties shall formulate appropriate strategies, policies, plans and targets to adapt to and mitigate climate change. The Kyoto Protocol sets out legally binding targets for emission reduction.

Refer: We have discussed detailed on UNFCCC and Kyoto Protocol in session two and the participants should recall that. So here we will concentrate our discussion on Convention on Biological Diversity, Water agreements and The Sustainable Development Goals.

Biodiversity: The Convention on Biological Diversity (CBD) has goals and targets that are relevant to climate change, e.g., goal 7 (address challenges to biodiversity from climate change, and pollution) and target 7.1 (maintain and enhance resilience of the components of biodiversity to adapt to climate change). The details can be seen in the INTOSAI WGEA guide Auditing Biodiversity: Guidance for Supreme Audit Institutions.In addition, the CBD has a specific section on climate change and biodiversity.

Water issues: Several international agreements are described in the INTOSAI WGEA reportAuditing Water Issues: An Examination of SAIs' Experiences and the Methodological Tools They Have Successfully Used. Among other things, the agreements concerning to desertification, water resources and conservation management, and marine resources conservation and management are notable.

Sustainable development: By signing the World Summit on Sustainable Development (WSSD), more than 180 leaders have committed to working towards sustainable development and poverty reduction and to creating a more sustainable earth together with addressing climate change.

Slide 10

Mapping Regional Agreements

- Regional agreements for adaptation
- Regional agreements for mitigation

Ask: The participants if they can highlight some of the regional agreements which are made for adapting and mitigating adverse impacts of climate change.

Take: Some responses.

Tell: For us, the regional agreement is South Asian Association for Regional Cooperation (SAARC). SAARC member states have expressed their deep concern for the regional challenges related to environmental degradation and climate change and have taken many initiatives to address climate change issues. Some of the examples are as follows:

- In 1991, SAARC conducted a study on Protection and Preservation of the Environment and the Cause and Consequences of Natural Disaster.
- The Technical Committee on Environment was formed in 1992.
- SAARC Disaster Management Centre was established in 2006.
- The three-year SAARC Action Plan on Climate Change was formulated in 2008 which includes agenda of cooperation for adaptation, mitigation and management of impacts and risks of climate change.
- SAARC Expert Group on Climate Change was formed in 2010.

Slide 11

Mapping National Policies, National and Sectoral Goals

National policies for adaptation:

- Overall: legislative framework.
- Sector: direct or indirect relevance.
- Reducing vulnerability of people and infrastructure.
- Providing information on threats.
- Protecting public goods (habitats, species, resources).

Tell: Targets and objectives may not necessarily be directly related to adaptation, but several sectors–with their own targets–may be affected by climate change. For instance, a country may have set a target for food production. Agriculture is a sector very likely to be affected by climate change, and thus needs to be incorporated into any strategy for achieving goals related to food production. Food production targets then become very relevant in an audit of the adaptation efforts of a government.

Public policy is important in terms of facilitating adaptation. According to the IPCC, this includes reducing the vulnerability of people and infrastructure, providing information on risks/threats to private and public investment and decision-making, and protecting public goods such as habitats, species and culturally important resources.

Slide 12

Mapping National Policies, National and Sectoral Goals [contd..]

What are the policy instruments for adaptation?

- Organisational.
- Legal.
- Economic.
- Informational.

Tell:

Organisational policy instruments-
Adaptation is a complex task in most countries, where many players are involved – both in assessing the threats, and planning and implementing measures – and where many policy instruments will have to work together. Implementation is often left to local levels of government or the private sector, and central government must focus on providing the necessary tools, incentives and guidance for these players.

Legal policy instruments-
National adaptation legislation can be divided into two categories: overall or national adaptation requirements and specific adaptation requirements. Specific requirements can be incorporated into other legislation, such as planning laws or biodiversity laws. It may also be mandatory to carry out environmental impact assessments.

Economic policy instruments-

- Grant support for third parties (vulnerability assessments, alternative economic activity).
- Funding for research and technology development.
- Covering additional costs for adaptation.
- Funding for emergency preparedness systems.
- Funding for adaptation in developing countries.
- Information, campaigns, guidance, advisory activities.
- Warning systems (extreme weather, forest fires, etc.).

Tell: Following is an example of policy instrument to address flooding-

- Organisation: intergovernmental group (ministries, local levels of government), stakeholder involvement
- Legislation: planning laws
- Funding: research programmes on future climate change
- Information: early-warning systems

Slide 13

Mapping National Policies, National and Sectoral Goals [contd..]

What are the policy instruments for mitigation?

- International policy instruments.
- National economic policy instruments.
- Legislative instruments.
- Cross-sectoral vs. sector-specific instruments.
- Technology development, deployment and transfer to Trustee Board of BCCT for consideration and decision.

Tell: International policy instruments are established under The Kyoto Protocol, Clean Development Mechanism, Joint Implementation, Emissions Trading, Afforestation and REDD.

Tell: Under the Kyoto Protocol market based flexible mechanisms were established to help Parties to the Protocol reach their emission targets. These flexible mechanisms are international policy tools, such as trading in emissions rights or reductions. Under Clean Development Mechanism, there are investment provisions in projects reducing GHG emissions in Non-annex countries like Bangladesh by Annex I countries. Joint Implementation provides opportunity for investments by an Annex B Party in projects for reduction or removal of GHG emissions in countries that are also Annex B Parties. Emissions trading provides Assigned Allowance Units (AAUs) corresponding to their gap on GHG emissions (Kyoto target). The Parties are allowed to trade the units among them if GHG emissions are below the target. This gives the AAUs an economic value. Under the Protocol credits can also be earned through emission removals. Land-use, land-use change, afforestation, reforestation activities (LULUCF) issues removal units credits (RMU).

Slide 14

Mapping National Policies, National and Sectoral Goals [contd..]

What are the economic policy tools for mitigation?

- The polluter pays principle
- Tax levied on activities creating GHG emissions
- Tradable permits
- Subsidies and grants promoting reduction activities

Read the slide and give examples relevant in the region. Probably the auditors will know how economic policy tools work, so try to relate them to climate change.

Tell: Examples could be:

- Taxation on extraction of oil and natural gas
- Tax on use of fossil fuels
- Having to buy permits to emit GHGs
- Non-fossil fuels cheaper than fossil fuels.
- Carbon-grades taxes for energy efficient cars
- Economic subsidies for establishing plants for renewable energy sources

Slide 15

Mapping National Policies, National and Sectoral Goals [contd..]

What are the legislative and other administrative instruments for mitigation?

- Regulations instructing emission levels, technology standards and abatement.
- Technology to minimise emissions.
- Standards for, e.g., energy efficiency and requirements for buildings.
- Voluntary agreements between government and sectoral actors.

Read the slide and give examples relevant for the country. Probably the auditors will know of how legislative tools work, so try to bring out ones relevant to climate change. If the auditors are not familiar with performance audit, give special emphasis to the efficiency and results of the tools, and underline the necessity for more than just correct implementation of laws and regulations.

Slide 16

Mapping National Policies, National and Sectoral Goals [contd..]

Who are the players and what are their responsibilities?

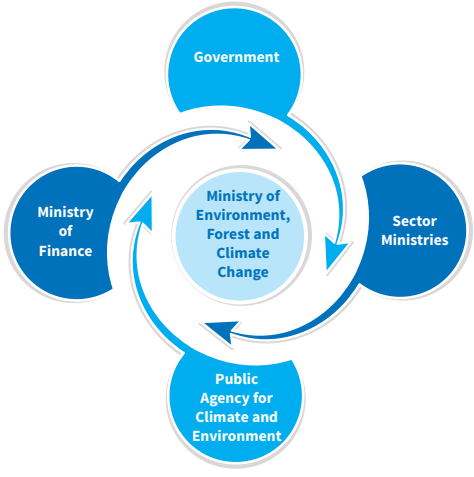
- ✓ Ministries
  - Overall responsibility.
  - Sector responsibility.
- ✓ Local levels of government.
- Other players involved: private sector, research community, citizens.

Tell: Usually, the Ministry of Environment, Forest and Climate Change is responsible for coordinating climate policies. Also, public agencies responsible for monitoring GHG emissions as well as other climate related activities. However, as mitigation is a cross-sectoral challenge goals and responsibilities are often related to ministries responsible for emission sectors.

Slide 17

Who are the players and what are their responsibilities?[contd..]

Example of the
map of governmental players:



Explain how different governmental players are related in climate change response: The graph shows an example of how different governmental bodies can be related in their response to climate change mitigation.

The big circle in the centre represents the Ministry of Environment, Forest and Climate Change that has the main responsibility for climate change policy, and coordination of government response. The Ministry of Environment, Forest and Climate Change needs to adjust to decisions made by government. Although the minister is part of the government, the government may make decisions that are not in line with the need for climate change response.

Slide 18

Step 4: Assessing Risk for Choosing Audit Topics and Prioritising

- Objective is to analyse the risks related to the government's response to climate change.
- Make a comparison between climate change threats and the government's response.
- The greater the negative consequences relating to the risk, the more consideration should be given to the problem.
- It is a planning tool to identify areas where there is a potential for improvement at the management level. It does this by focusing on areas prone to risk.
- When the auditor focuses on the areas prone to risks, they will contribute in a more efficient way to better governance.

Inquire the participants if they are familiar with risk assessments in the planning process.

Tell: Can you explain what is risk and what are the objectives or purposes of assessing risk?

Collect some responses.

Read the slide

Tell: The word "Risk" can be used to mean a lot of things. Governments often speak of risk assessment as assessing the risks or vulnerabilities related to climate change. In auditing that is referred as "threats". For us, meaning of risk is audit risk. Risk analysis however, is a tool auditors can use to identify areas where the potential for improvements in the government's response are the greatest. This in turn will help auditors perform audits that add the most value in terms of improving governance.

Slide 19

Assessing Risk [contd..]

Risk in climate change projects may arise due to the absence or inadequacy of-

1. Good governance:

- Effective accountability arrangements.
- Transparency in decision-making.
- Involving the public.
- Management by objectives and results.

2. Good management:

- Implement internal control systems.

Ask if the participants have any idea about a potential risk in the way the government handles climate change.

Note: Responses.

Show: The slide.

Explain Criteria for good governance are needed as audit criteria in order to determine whether the government's response is efficient or not.

Tell that those criteria are often missing in national standards and were therefore developed in the climate change project. They are based on global standards, general principles and common understanding.

Read criteria for good governance.

Add that good management includes:

- Define objectives and expected results.
- Develop implementation strategies.
- Provide the information needed to assess efficiency and goal achievement.
- Use appropriate risk-based management.

Slide 20

Assessing Risk [contd..]

Factors that may indicate higher risk (or uncertainty) could be the following:

- The financial or budgetary amounts involved are substantial, or there have been significant changes in the amounts involved.
- Areas traditionally prone to risk (procurement, technology, environment issues, health, etc, or areas of unacceptable risk) are involved.
- New or urgent activities or changes in conditions (requirements, demands) are involved.
- Management structures are complex, and there might be some confusion about responsibilities.
- There is no reliable, independent, and updated information on the efficiency or the effectiveness of a government programme.

Read the slide.

Slide 21

Assessing Risk [contd..]

- **Key areas to analysis the risk and decide upon audit topics:**
  - ✓ Whether the targets and objectives are being achieved.
  - ✓ Risks related to the use of policy instruments.
  - ✓ The government/entity doing things in the right way.
  - ✓ Whether financial resources are misused.
  - ✓ The government has assessed the key vulnerabilities in a desirable manner.
  - ✓ The government has developed an efficient overall plan or strategy.
  - ✓ The government addressed the most vulnerable sectors for adaptation and mitigation.
  - ✓ Risks related to the results of government's adaptation and mitigation programs.
  - ✓ The government is focusing on keeping the costs of adaption and mitigation as low as possible.

Ask the participants to tell what the key areas for the auditors to analysis are the risk and decide upon audit topics.

Take some responses.

Show the slide and Discuss.

Slide 22

Assessing Risk [contd..]

- **Key questions:**
  - ✓ Has the government assessed the key vulnerabilities in a proper manner?
  - ✓ Has the government developed an efficient overall strategy?
  - ✓ Has the government addressed the need for adaptation in the most vulnerable sectors and areas?
  - ✓ What are risks related to the results of government-led adaptation?

Read the slide

Tell: Where to find information regarding risks?

- ✓ Government reports to the Parliament.
- ✓ Official reporting, evaluations, etc.
- ✓ Scientific publications.
- ✓ Press coverage.
- ✓ Interviews (NGO, Scientists, officials).

Slide 23

Assessing Risk [contd..]

- Key questions:
  - ✓ Is there a risk of targets and objectives not being achieved?
  - ✓ Are there risks related to the use of policy instruments?
  - ✓ Is there a risk government is not doing things in the right way?
  - ✓ Is there a risk of financial resources being misstated?
  - ✓ Does the government focus on keeping the costs low?

Read the slide.

Slide 24

Assessing Risk [contd..]

- Has the government assessed the key vulnerabilities in a proper manner?
  - ✓ Are all vulnerable sectors covered?
  - ✓ Is the assessment sufficiently detailed?

Read the slide

Slide 25

Assessing Risk [contd..]

- Has the government developed an efficient overall strategy?
  - ✓ Is the strategy based on vulnerability assessments?
  - ✓ Does the strategy correspond to identified vulnerabilities?
  - ✓ Does the strategy facilitate government action that is in line with the principles of good governance?

Read the slide.

Tell: One approach is to assess whether government agencies have identified and taken appropriate steps in handling future climate change impacts.

Slide 26

Assessing Risk [contd..]

- Has the government addressed the need for climate change action in the most vulnerable sectors and areas? (1)
  - ✓ Extreme weather events.
  - ✓ Flooding.
  - ✓ Water supply.
  - ✓ Agriculture, fisheries, food supply.
  - ✓ Biodiversity.
  - ✓ Health.
  - ✓ Etc.

Ask the participants what they know about the government's response within vulnerable sectors and ask for their opinion as to whether this response is adequate or sufficient.

Take some responses and Discuss.

Slide 27

Assessing Risk [contd..]

- Has the government addressed the need for climate change action in the most vulnerable sectors and areas? (2)
  - ✓ Example: Flooding
  - ✓ The threat of flooding increases with climate change.
  - ✓ Lack of planning
  - ✓ Insufficient funding

Tell: The threat of flooding is expected to increase with climate change. Part of this comes from more frequent and intense rainfall, part from more snow and intensified periods of melting, and part from rising sea levels. This makes planning an essential part of adaptation to both current and future impacts of climate change. And to make good plans, good projections will have to be made, for instance for intensity of rainfall. New infrastructure or areas regulated for housing must take into account that the impacts of climate change may make them more affected by floods. Lack of planning is a clear indication that the government is not doing enough to prevent unnecessary harm from floods.

Slide 28

Assessing Risk [contd..]

- What are the risks related to the results of government-led adaptation?
  - ✓ Have the policy objectives and targets been achieved?
  - ✓ Can effectiveness gains be attributed to the policy pursued?

Read the slide.

Tell: Keep in mind that auditing results (goal achievement) in adaptation is difficult, for a number of reasons:

1) Adaptation is often a long-term process, and an adaptation measure may be regarded as adequate in a 20-year perspective, but not necessarily in a 50- or 100-year perspective.
2) Targets are often not very concrete.
3) Difficult to assess cost-effectiveness of adaptation measures.

Slide 29

Assessing Risk [contd..]

- Is there a risk of targets and objectives not being achieved?
  - ✓ Are emission trends in line with the targets?
  - ✓ Are targets operationalised and divided between emission sectors?

Read the slide.

Slide 30

Assessing Risk [contd..]

- Are there risks related to the use of policy instruments?
  - ✓ Has government implemented enough policy instruments to bring about actual decrease in emissions?
  - ✓ Do the implemented policy instruments lead to the intended goals?
  - ✓ Are policy tools implemented early enough to ensure target achievement?

Read the slide.

Slide 31

Assessing Risk [contd..]

- Is there a risk government is not doing things in the right way?
  - ✓ Are management systems in place?
  - ✓ To which extent is the organisational structure suited to implementing climate change policies?
  - ✓ Are human resources capable of tackling the challenges of managing climate change policies.

Read the slide.

Slide 32

Assessing Risk [contd..]

- Is there a risk of financial resources being misstated?
  - ✓ How are the internal control systems of the entity in question?
  - ✓ How is accountability, transparency, and involvement of relevant stakeholders?
  - ✓ Are there lacking clear guidelines on how to report emissions?
  - ✓ Are emission trading transactions or grants being reported properly?

Read the slide.

Slide 33

Assessing Risk [contd..]

- Does the government focus on keeping the costs low?
  - ✓ Have proper routines and procedures for procurements and acquisitions been established?
  - ✓ Have costs been minimised through good procurement, for instance, by using good-practice tendering procedures?
  - ✓ Are estimates of costs if no adaptation takes place higher than the adaptation costs?
  - ✓ Is money spent being spent at the right time, in the right amounts, and in a reliable way?
  - ✓ Are physical, material and human resources used efficiently?
  - ✓ Has the government considered costs of mitigation?

Read the slide.

Slide 34

Assessing Risk [contd..]

For assessing risk, the auditor can use the following Input-Output-Outcome model:

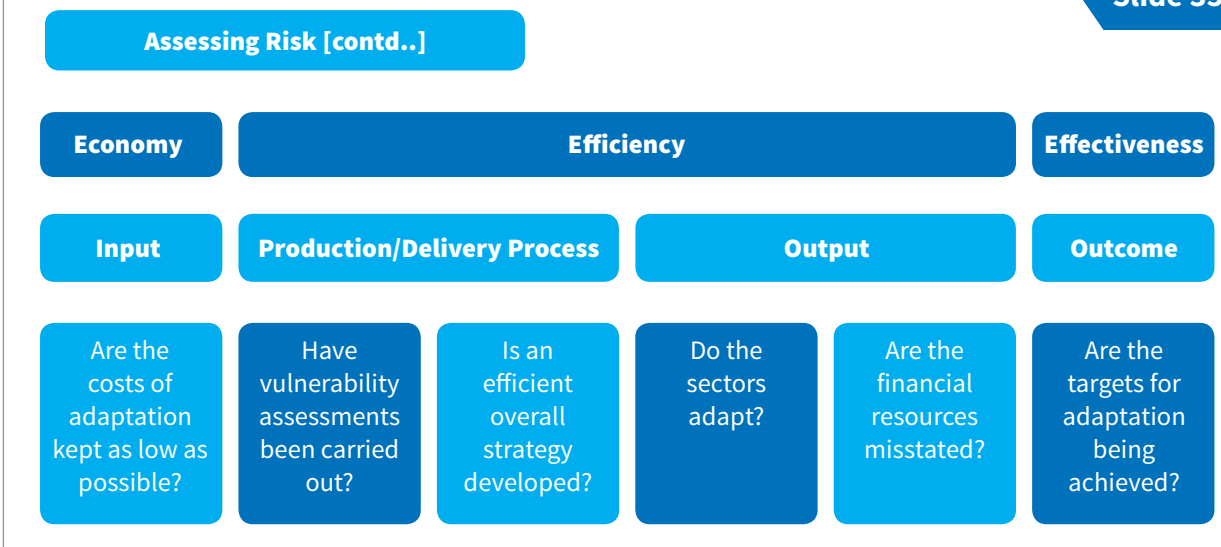
Performance	Inputs	Production / Delivery process	Outputs	Outcome
	Resources assigned	Action done	Services provided	Objectives met
Risk Assessment	**Economy**	**Efficiency**		**Effectiveness**
	• Is money being spent at the right time, in the right amount and reliably? • Are physical, material and human resources used efficiently?	Are policies, procedures and controls established to ensure timeliness, quantity and quality at lowest cost?	Are completed work units and services appropriate to ensure timeliness, quantity and quality at lowest cost?	Are short and long-term results in line with objectives and intensions at lowest costs?
	▪ Unit cost of inputs.	▪ Governance. ▪ Productivity. ▪ Unit costs of outputs.		▪ Goal achievement . ▪ Cost-effectiveness. ▪ Customer satisfaction.

Tell: Risks related to three aspects of government performance are:

- Economy: Keeping the costs low.
- Efficiency: Is the governance satisfactory?
- Effectiveness: Does the government reach its targets and objectives?

Explain the slide.

Slide 35

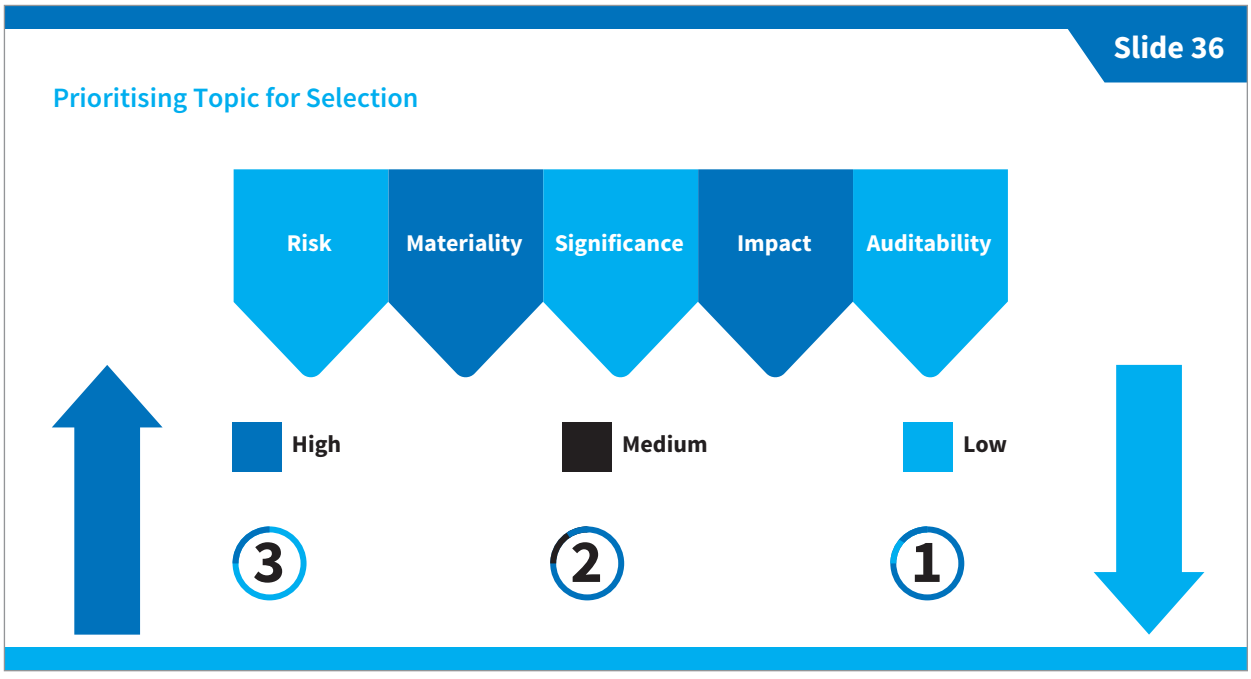


Tell: This figure shows the key questions for assessing risks related to economy, efficiency and effectiveness.

A lot of what government does in terms of adaptation, is related to the delivery process. As we talked about earlier, governments is often activator and organiser. This means that the way the government facilitates the delivery process is very important for adaptation auditing. The most important aspects of this are policy formulation, legislative and regulatory framework and establishing procedures for cooperation and coordination.

As implementation is often left to others, the output and outcome of adaptation efforts are often difficult to assess. Indeed, analysing the effectiveness of adaptation measures involves many unknown factors, such as the costs of non-action versus the cost of adapting, as well as the potential damages from future climate change. There is also a matter of time-frame. For example, an adaptation measure may be appropriate in a 50-year perspective, but insufficient if a 100-year time perspective is taken into account.

This does not necessarily mean that effectiveness auditing is impossible for adaptation. If there are clear targets to auditing against (such as target to maintain food production at a certain level), audits can measure performance against these given the impacts of climate change.



Tell: The auditors can attribute each component as High, Medium, Low and can rank them assigning values 3, 2, and 1 respectively. The topic which gets highest total rank can be selected for audit.

Slide 37

Exercise 4-B

Objective: The purpose of this exercise is to enable the participants to prioritise topics for audit.

Time required: Total time for the exercise is 35 minutes.

- ✓ 20 minutes for group discussion and solution.
- ✓ 15 minutes for presentation and discussion.

Instructions: The participants are required to prioritise the following projects:

- ✓ Climate Resilient Participatory Afforestation and Reforestation Project (CRPARP).
- ✓ Reconstruction of Embankment and Riverbank Protection work in Ramnagar-Rahimnagar Area under Rupsa Upzila of Khulna District.
- ✓ Climate Resilient Ecosystem and Livelihoods (CREL) Project.
- ✓ Details of the projects are given in **Appendix 4**.

Slide 38

Summary

- Selection of wrong topic will negate the purpose of audit and send an unrighteous message across the stakeholders.
- Audit topics should be sufficiently important as well as auditable.
- 4-step approach should be followed.

Slide 39

Thank
YOU

5.5. EXERCISE

Exercise 4 - A

Objective: The purpose of this exercise is to enable the participants to identify if government's response is enough to address the issue of adaptation and mitigation.

Time required: Total time for the exercise is 15 minutes

- 10 minutes for preparing the answer
- 5 minutes for discussion

Instructions: Using the information given and knowledge earned from previous sessions, the participants are required to identify whether government's actions to adapt to and mitigate climate change vulnerabilities are adequate. They can prepare their solution in the form of questions (who/which/what/how etc) to be answered to determine that government's responses are adequate.

Exercise 4-B

Objective: The purpose of this exercise is to enable the participants to prioritise topics for audit.

Time required: Total time for the exercise is 35 minutes.

- 20 minutes for group discussion and solution.
- 15 minutes for presentation and discussion.

Instructions: The participants are required to prioritise the following projects:

1. Climate Resilient Participatory Afforestation and Reforestation Project (CRPARP).
2. Reconstruction of Embankment and Riverbank Protection work in Ramnagar-Rahimnagar Area under Rupsa Upzila of Khulna District.
3. Climate Resilient Ecosystem and Livelihoods (CREL) Project.

Details of the projects are given in Appendix 4.

The participants may consider the following risk factors in prioritising the projects for audit:

i. The financial or budgetary amounts involved are substantial, or there have been significant changes in the amounts involved.
ii. Areas traditionally prone to risk (procurement, technology, environment issues, health, etc, or areas of unacceptable risk) are involved.
iii. New or urgent activities or changes in conditions (requirements, demands) are involved.
iv. Management structures are complex, and there might be some confusion about responsibilities.
v. There is no reliable, independent, and updated information on the efficiency or the effectiveness of a government programme.
vi. Whether the targets and objectives are being achieved.
vii. Whether the government/entity doing things in the right way.
viii. Whether financial resources are misused.

They may also use the following risk assessment table for prioritising the projects.

<table>
<tr><td rowspan="2">Performance</td><td>Inputs</td><td>Production / Delivery process</td><td>Outputs</td><td>Outcome</td></tr>
<tr><td>Resources assigned</td><td>Action done</td><td>Services provided</td><td>Objectives met</td></tr>
<tr><td rowspan="3">Risk Assessment</td><td>Economy</td><td colspan="2">Efficiency</td><td>Effectiveness</td></tr>
<tr><td>• Is money being spent at the right time, in the right amount and reliably?
• Are physical, material and human resources used efficiently?</td><td>Are policies, procedures and controls established to ensure timeliness, quantity and quality at lowest cost?</td><td>Are completed work units and services appropriate to ensure timeliness, quantity and quality at lowest cost?</td><td>Are short and long-term results in line with objectives and intensions at lowest costs?</td></tr>
<tr><td>▪ Unit cost of inputs.</td><td colspan="2">▪ Governance
▪ Productivity
▪ Unit costs of outputs</td><td>▪ Goal achievement
▪ Cost-effectiveness
▪ Customer satisfaction</td></tr>
</table>

5.6. SOLUTION TO EXERCISE

Solution_Exercise 4-A

The auditor should seek answer to the following key questions regarding adaptation responses:

- What are the objectives and targets of adaptation policies?
- What are the policy instruments for adaptation?
- Who are the public players and what are their roles and responsibilities?

The auditor should seek answer to the following key questions regarding mitigation responses:

- What are the international mitigation commitments?
- What are the national targets for mitigating GHG emission?
- Which are the relevant responsible public bodies and what are their roles and responsibilities?
- What are the key policy instruments for reducing GHG emission?

Solution_Exercise 4-B

Rank	Project	Justification			
		Budget	Management Structures	Objectives Achieved?	Prone to Risk
1	Climate Resilient Participatory Afforestation and Reforestation Project (CRPARP)	Very High (3)	Very Complex (3)	No measurable output indicator (3)	High (3)
2	Climate Resilient Ecosystem and Livelihoods (CREL) Project	High (2)	Complex (2)	No measurable output indicator (3)	Medium (2)
3	Reconstruction of Embankment and Riverbank Protection work in Ramnagar-Rahimnagar Area under Rupsa Upzila of Khulna District	Low (1)	Simple (1)	Partial output indicator (2)	Low (1)

Ranking:

Project	Budget	Management Structures	Objectives Achieved?	Prone to Risk	Total weight	Rank
Climate Resilient Participatory Afforestation and Reforestation Project (CRPARP)	3	3	3	3	12	1
Climate Resilient Ecosystem and Livelihoods (CREL) Project	2	2	3	2	9	2
Reconstruction of Embankment and Riverbank Protection work in Ramnagar-Rahimnagar Area under Rupsa Upzila of Khulna District	1	1	2	1	5	3

5.7. APPENDIX

Appendix 4

Project-A

Climate Resilient Participatory Afforestation and Reforestation Project (CRPARP)

Implementing Agency	:	Bangladesh Forest Department (BFD) and Arannayk Foundation (AF)	
Executing Ministry	:	Ministry of Environment, Forest and Climate Change	
Project Duration	:	July 2013 to December 2016	
Total Project Cost	:	GoB (In Kind)	BDT 810.00 lakh
		RPA	BDT 25,563.39 lakh
		AF	BDT 161.88 lakh
		Total	**BDT 2,65,35.27 lakh**
		Equivalent to US$ 35.00 million (approx.)	

Geographic Location of the Project:

Division	District	Upazila/ Location
Dhaka	Dhaka	Project Office, Mohakhali, Dhaka
		RIMS, Bana Bhaban, Agargaon, Dhaka
Chittogram	Chattogram	Anwara, Banshkhali, Boalkhali, Chandanish, Fatikchari, Hathazari, Lohagora, Mirsharai, Pekuya, Patia, Sandip, Rangunia, Satkania, Sitakundu.
	Cox's Bazar	Chokoria, Cox's Bazar Sadar, Kutubdia, Moheshkhali, Ramu, Teknaf, Ukhiya.
	Noakhali	Companygonj, Hatiya, NoakhaliSadar, Subarna Char, Kabirhat, Senbag, Begumgonj, Sonamuri.
	Laxmipur	LaxmipurSadar, Kamalnagar, Ramgoti.
	Feni	Fulgazi, Sonagazi, Porshuram, Chagolnaiya, FeniSadar, Dagonbhuiyan.
Barisal	Barishal	Agailjhara, Babugonj, Bakergonj, Banaripara, Barishal Sadar, Gournadi, Hijla, Mehandigonj, Muladi, Ujirpur.
	Bhola	Bhola Sadar, Borhanuddin, Char Fashion, Lalmohon, Monpura, Tajumuddin.
	Patuakhali	Golachipa, Kolapara, Mirjagonj, PatuakhaliSadar, Rangabali, Dashmina.
	Bargguna	Amtoli, Patharghata, BargunaSadar, Bamna.

Project Objectives: The overall objective of the project is to reduce forest degradation and increase forest coverage through participatory planning and monitoring and to contribute in building the long-term resilience of the communities in coastal and hilly areas to climate change.

The specific objectives of the project are:

i. To establish newly afforested and reforested areas using climate resilient species to work as windbreak along the coastal and hilly areas.

ii. To support alternative livelihoods of forest dependent communities.

iii. To strengthen the institutional capacity of the Forest Department to manage forest in a participatory and sustainable manner.

Project Activities:

- Plantation to increase forest areas through afforestation and reforestation.
- Creation of Core Zone, Mangrove and Jhaw forests.
- Plantation through participatory afforestation and reforestation under Social Forestry Rules.
- Employment creation for the poor people living near forests in the project areas.
- To expand alternative livelihood support of the forest-dependent communities.
- To enhance institutional capacity of the Forest Department.
- Acquisition of motor vehicles, engine boats, motorcycles, computers, photocopiers and other office equipment for the BFD.
- Procurement of furniture for different offices under BFD.
- Procurement of DSLR and Digital Cameras.
- Strengthening RIMS supplying computer hardware, software, printers, plotter, smart board, GPS etc and providing training for RIMS personnel.
- Procurement of very high-resolution satellite images.
- Construction of 76 camp offices.
- Technical study for land use mapping and for strengthening RIMS.
- Updating Forestry Master Plan for Bangladesh and Forest Management Policy.

Project-B

Reconstruction of Embankment and Riverbank Protection work in Ramnagar-Rahimnagar Area under Rupsa Upzila of Khulna District.

The project is financed by Climate Change Trust Fund (CCTF) with an estimated cost of Tk. 13,76.38 lakh and Tk. 434.66 lakh from Operation and Maintenance (OM) budget of Ministry of Water Resources.

Main physical work of the project is the protective work along the left bank of Atharobaki River from km 0.00 to km 1.00 = km 1.00 near Ramnagar – Rahimnagar village in Rupsa Upzila.

The project is being implemented by Bangladesh Water Development Board (BWDB) of Ministry of Water Resources. Superintending Engineer (SE), Khulna is the Project Director (PD) and he is responsible for overall performance of the project execution. Executive Engineer (XEN), Khulna O&M Division-2 is responsible for the field level execution of the project activities. Overall monitoring responsibility in the field rests on the Chief Engineer (CE), South-Western Zone, BWDB, Khulna.

Project Period: The span of the project is from December, 2012 to June, 2016.

Project Objectives:

- Protection of riverbank from erosion in the project area.
- Protecting the project area from intrusion of saline water.
- Reviving polder system by repairing the damaged embankments.
- Making agricultural production free from climate risk.
- Ensuring social protection.
- Creating employment.

Project-C

Climate Resilient Ecosystem and Livelihoods (CREL) Project

The project is financed by Government of Bangladesh and USAID with a cost of Tk. 110,15.41 lakh equivalent to US$ 144.46 lakh. Finance Division is the implementing entity of the project. Ministry of Environment, Forest and Climate Change is the sponsoring ministry and Forest Department is responsible for the execution of the project. WINROCK International, an international NGO selected by USAID, will work as the co-executing agency which has partnered with a team of national and international partners called Partner Agencies. Duration of the project is from July 2013 to June 2018.

Project objectives: Overall objective of the project is to enhance organisational, financial and functional capacities of the Co-management Committees (CMCs) in the CREL sites that the Protected Areas (PAs) and

the surrounding landscapes are co-managed ensuring biodiversity conservation and livelihoods in the changing climate. Specific objectives of the project are:

- Ensuring climate resilient sustainable management and conservation of natural resources and biodiversity in PAs and surrounding landscape; strengthening planning an implementation capacity of co-management bodies in high biodiversity and high climate vulnerable areas.
- PA co-management plans will be developed for 17 PAs through consultation with the CMCs and approval from the FD.
- Alternative climate resilient economic opportunities for most vulnerable people in and around PAs and selected wetlands.
- Improved governance for co-management of resources addressing weaknesses in national policies and institutions regarding resource use rights, governance, forest management, and the capacity to deal with the effects of climate change.
- Better understanding, awareness, sensitivity and orientation the wider stakeholders for successful co-management of natural resources.

Expected outputs of the project:

Component 1: Improved governance of natural resources and biodiversity.

- Strengthen national legal and institutional framework for existing PA management system.
- Development and implementation of an action plan addressing the barriers to CMC sustainability.
- Integration of climate change consideration and land use planning into PA management plans for sustainable natural resource management and biodiversity conservation.
- Enhanced coverage of areas under natural resource management and biodiversity conservation.

Component 2: Enhanced capacity of key stakeholders.

- Completed assessments of knowledge and institutional capacity of key stakeholders including the government and the Co-management Organisations (CMOs).
- A series of local, national and regional trainings and cross-learning visits for key stakeholders on various aspects of natural resource management, community engagement, and climate change adaptation issues.
- Develop capacity of the key ministries and agencies on natural resource management, biodiversity conservation, and climate change adaptation.
- Strengthen capacity of the CMOs on technical, organisational and financial aspects for their long-term sustainability.
- Periodic assessments of biodiversity and global climate change (GCC) threats, key species in targeted PAs and ecosystem valuation of targeted PAs completed and incorporated in PA management planning.
- A total of 80,000 stakeholders with increased capacity to adapt to impacts of climate vulnerability and change.

Component 3: Strengthen implementation of climate-resilient natural resources management.

- Local climate change adaptation plans developed and incorporated as an integral part of PA management plans.
- Development of sustainable financing mechanism based on the revenue-sharing mechanism in the PAs from but not limited to dedicated government budgets, tourism revenue, conservation financing mechanisms and climate change funds.
- Identification, exploration and execution of opportunities for linkages with other USAID programmes and other development partners.

Component 4: Improved livelihoods are environmentally sustainable and resilient to climate change.

- Analysis and promotion of environment-friendly, climate-resilient and sustainable livelihood options for targeted beneficiary groups.
- Increased income from climate-resilient and sustainable livelihood activities for targeted beneficiaries.
- Improved access to household/community level, climate-resilient basic infrastructures for targeted community.
- A total of 5,00,000 people with increased climate change resilient economic benefits.

SESSION 5

DESIGN THE AUDIT: AUDIT OBJECTIVES, AUDIT CRITERIA, AUDIT SCOPE

6. SESSION 5: DESIGN THE AUDIT: AUDIT OBJECTIVES, AUDIT CRITERIA, AUDIT SCOPE

Duration: 120 minutes

6.1. SESSION-AT-A-GLANCE

Learning Objective	Materials Required	Session Structure	Teaching Method	Time Required
At the end of the session, it is expected that the participants would be able to develop climate performance audit planning on their own.	1. Participant's Notes 2. Slides 3. Computer 4. Multimedia Projector 5. Audio visual Aid 6. Flip charts 7. Stationary	**Session Overview**	1. Lecture	3 minutes
		Learning Objective	1. Lecture 2. Discussion	2 minutes
		Key Teaching Points (KTP) **KTP-1:** Audit Objectives and Audit Scope.	1. Lecture 2. Discussion 3. Exercise	45 minutes
		KTP-2: Audit Criteria: Generic and Individual Audit.	1. Lecture 2. Discussion 3. Exercise	55 minutes
		Evaluation	1. Quiz	10 minutes
		Summary	Discussion	5 minutes
			Total Time:	**120 minutes**

6.2. PARTICIPANT'S NOTES

DESIGN THE AUDIT: AUDIT OBJECTIVES, AUDIT CRITERIA, AUDIT SCOPE

Session overview:

In the previous session we have discussed the selection of audit topics by the audit team. We have made an attempt to highlight the different ways through which the auditors can select the right topic for conducting the climate performance audit. After selecting the topic and priority areas, the audit team has to develop the audit plan incorporating audit objectives, audit criteria and audit scope. In the audit planning process, these three elements play a very crucial role. The production of quality climate performance audit reports is not possible if the audit team cannot correctly and properly formulate the audit objectives, audit criteria and audit scope. In this session, we shall discuss these three elements of audit planning in detail. We shall discuss audit objectives, audit criteria and audit scope to help the auditors to design audit plan. We shall try to explain how the auditors should develop these elements of climate performance audit planning. We shall cite examples, wherever possible, to make the session interesting and easily understandable to the participants.

Learning objectives:

At the end of the session, it is expected that the participants would be able to develop audit objectives, audit criteria and audit scope which are the main components of a climate performance audit plan.

1. Audit Objectives and Audit Scope

1.1 Audit objectives

1.1.1 Audit objectives for each audit should be carefully considered and expressed as precisely as possible so that the auditor can arrive at a conclusion against each objective. Audit objectives relate to the reasons for conducting the audit and should be established early in the execution process to help in determining the areas to be audited and reported on. They should identify the audit subject matter together with performance aspects to be examined, for example, the economy, efficiency and effectiveness in the selected organisation or programme or project. To determine audit objectives relating to auditing adaptation and mitigation aspects, the auditors can consider the following audit questions:[25]

- Have the responsible ministries identified the climate change-related threats?
- Does the government have an overreaching policy, plan or strategy in place?
- Is the governance of the climate change response in terms of adaptation and mitigation efficient?
- Are policy instruments effective?
- Will the government meet its emission targets or commitments?

1.1.2 While developing audit objectives it should be borne in mind that normative audit objectives (are things as they ought to be) and analytical audit objectives (why are things not as they ought to be?) are more likely to add value.[26]

Many audit objectives can be developed as an overall audit question which can be broken down into more sub-questions. They should be thematically related, complementary, not overlapping and collectively exhaustive to address the overall audit question (see Box 1).

[25] INSOSAI WGEA (2010) *Auditing the Government Response to Climate Change: Guidance for Supreme Audit Institutions.*

[26] INSOSAI (2019) *ISSAI 300: Performance Audit Principles.*

Box 1 : Audit Case: Riverbank protection work by BWDB

Civil Audit Directorate (former) conducted a performance audit on the development project titled "Reconstruction of embankment and riverbank protection work in Ramnagar-Rahimnagar area under Rupsha Upazila of Khulna District." The project was financed from climate change trust fund (CCTF) and was implemented by Bangladesh Water Development Board (BWDB).

The project document outlined the following project objectives:

a. Protection of riverbank from erosion in the project area.
b. Protecting the project area from intrusion of saline water.
c. Reviving polder system by repairing the damaged embankments.
d. Ensuring social protection.
e. Creation of employment opportunities.

The audit team developed the overall objective of audit in the following way:

"The overall purpose of audit is to assess whether the project objectives have been achieved and the activities of the project are climate sensitive."

Specific audit objectives were the following:

a. Whether the project design is climate sensitive.
b. To determine if fund management supported effective implementation of the project.
c. Whether the riverbank protection work has been done as per project design and specification.
d. Whether polder system has been revived with repair of embankment to prevent intrusion of saline water in the project area.
e. Whether flood and saline water hampers agro-production.
f. To ascertain whether social protection has been ensured through the project activities.
g. To ascertain whether climate sensitive sustainable employment creation have been ensured under the project.
h. Have the reconstruction of embankment and riverbank protection work been done according to the specification in a cost-effective manner.

1.2. Audit scope:

1.2.1 Audit scope is the determination of the range of the activities and the period of records that are to be made subject to an examination. Audit scope defines the boundary of the audit. It addresses such things as specific questions to be asked, the type of study to be conducted and the character of investigation. Further, it comprises the work of collecting information and the analysis to be executed.

In the strategic planning phase, the audit is generally defined in a very broad term. Scoping individual audit involves limiting the audit down to a relatively few matters of importance that relate to the audit objective.

The scope of an audit may be determined by looking into the following important aspects:

- The specific questions or hypothesis that are to be examined.
- The kind of study that seems to be appropriate.
- The key players involved and the auditee.
- The limitations on the number of locations to be covered.
- The limitations on the time frame to be covered.

1.2.2 Where less resources are involved but potential impact of the project or programme or activity is significant, the scope of audit may be focused to the effectiveness of the project or programme or activity in achieving impact. The auditor may also narrow down the scope of audit to the areas where there is evidence that the planned targets are not being met or where the results of the audit will have the greatest impact.

1.2.3 While scoping the audit, the auditors should consider the externalities of other government and non-government activities. Outcomes and impact of a project or programme or activity may be positively or negatively affected by other projects or programmes or activities. A critical task for climate performance auditors may be to isolate those externalities and identify the effect of the project or programme or activity is under audit. However, some programmes may have both positive and negative impacts, intended or unintended. Auditors need to identify each type of impacts.

1.2.4 The auditors should consider the entity's own assessment of the likelihood impacts of the project or programme or activity. They should review the adequacy of:

- The design of the project or programme or activity, its environment and baseline conditions.
- The completeness of the range of key impacts identified.
- The data used to assess the likelihood of the impacts and their expected scale

1.2.5 Scoping of climate performance audit may include the governance of climate issues which interact in various policy areas, programmes and projects. Possible cross-cutting issues may include the topics like-sustainable development, national capabilities to address the policies related to address climate issues, cost-benefit analysis of regulation and interventions, and mainstreaming climate change, performance criteria in resource allocation system etc.

An example of determining audit scope is given in Box 2.

Box 2 : Audit Case: Afforestation and Reforestation Programme

The Foreign Aided Projects Audit Directorate carried out a performance audit relating to a development project titled "Climate Resilient Participatory Afforestation and Reforestation Project (CRPARP). The project was financed from Climate Change Trust Fund and executed by the Ministry of Environment Forest and Climate Change. The project was implemented during July 2012- December 2016. The overall objectives of the project were:

"To reduce forest degradation and increase forest coverage through participatory planning/ monitoring and to contribute in building the long-term resilience of selected communities in coastal and hilly areas to climate change."

The specific objectives of the project have been listed as follows:

a. To establish newly afforested and reforested arrears using climate resilient species to work as windbreak along the coastal and hilly areas.
b. To support alternative livelihood of forest- dependent communities.
c. To strengthen the institutional capacity of the forest department to manage forest in a participatory and sustainable manner.

The audit identified the following areas as audit scope:

a. Examination of afforestation and reforestation activities carried out during July2012-December 2016.
b. Examination of participatory planning/monitoring activities carried out during the project period.
c. Assessing alternative livelihood generation activities.
d. Examination of enhancement of institutional capacity of forest department.
e. Examination of expenditure related to project activities covering the project period.
f. Examination of all project related documents for all project period.
g. Visiting predetermined important locations.

2. Audit Criteria: Generic and Individual Audit

2.1 Audit criteria are standards of performance against which the economy, efficiency and effectiveness of project, programmes or activities can be measured. Audit criteria reflect normative (ideal) model for the subject matter under study. Performance is examined against suitable criteria. Audit criteria represent best or good practice. Criteria stand for what should be. When criteria are compared with ground reality, audit finding emerges. Meeting or exceeding the criteria indicates best practice; but a failure to meet them would indicate that there is scope for improvement.

Audit criteria provide a basis for examining the evidence, formulating audit findings and arriving at conclusions on the audit objectives. They also provide a basis for discussions within the audit team and with SAI higher authority and in communication with the auditee.

2.2 The audit question, the audit approach and the audit objectives determine the relevance and the type of suitable criteria and user confidence in the findings and conclusions of a climate performance audit greatly depends on the criteria. The audit criteria can be qualitative or quantitative. It may be general or specific, focusing on what should be according to laws, regulations or objectives. It may also be what is expected according to sound principles, scientific knowledge and best practices; or what could be (given better conditions).[27]

2.3 The audit criteria should be developed objectively. It requires rational consideration and sound judgment from SAI auditors and audit team. The audit team should have:

- A general understanding of the area to be audited, and be familiar with relevant legal and other documents as well as recent studies and audits in the area.
- Good knowledge of the motives and the legal basis of the government programme or activity to be audited and the goals and objectives set by the government.
- Reasonable understanding of the expectations of the stakeholder.
- Good knowledge about national and international climate related Acts, Rules, Policies, Conventions, and Protocols.

2.4 Climate change audit criteria can be national if there is a climate change policy/law or can be international, especially if the country had signed and ratified UN Convention and Protocol on Climate Change. The Kyoto Protocol commits Annex I Parties to make use of several national policies and measures, including:

- Increase energy efficiency.
- Protection and enhancement of sinks of GHGs.
- Promotion of sustainable forms of agriculture.
- Development of new technologies.
- Phasing out of market imperfections of all GHG emitting sectors.
- Limitation of GHG emissions from the transport sector.
- The limitation of methane emission.

The auditor can determine criteria from the relevant aspects of good governance when auditing climate change issues. They can be used for both adaptation and mitigation issues. While considering good governance aspects to be used as audit criteria, the auditors should concentrate on general processes and systems that contribute to achieving climate change targets. The following can be used as criteria:

- Effective accountability arrangements between government departments and public entities.
- Transparency in decision making.
- Involving the public and engaging stakeholders.
- Management of objectives and results.

[27] INTOSAI (2019) *ISSAI (3000): Performance Audit Standard*.

2.5 Characteristics of quality climate Performance Audit Criteria[28]

- *Relevance:* Relevant audit criteria contribute to conclusions that assist decision making by intended users and to conclusions that answer on the audit questions.
- *Reliability:* Criteria should be reliable. It should result in consistent conclusion when used by another auditor in the similar circumstances.
- *Objectivity:* Criteria should be objective. It should be free from any bias.
- *Understandability:* Criteria should be clearly stated. It should not be subject to ambiguity and different interpretations.
- *Completeness:* It implies that all significant criteria should be developed for assessing performance.

2.6 Goals set by the executive or legislature are sometimes vague and conflicting. To address such issues, the auditors need to explain the goals to make them more operational, measurable and audit friendly. One possibility available to SAI auditor is to consult the experts and stakeholders in the field to answer questions as to how the goals be interpreted and measured. In case of conflicting, vague and long-term goals the auditor should narrow the scope somewhat and look for short-term perspectives and direct criteria.

2.7 Sources of climate performance Audit Criteria

Audit criteria can be developed from the controls, standards, results, commitments and targets adopted by the organizsation itself or imposed by legislative bodies. The audit criteria can be qualitative or quantitative, general or specific, focusing on what should be according to laws, regulations or objectives; what is expected, according to sound principles, scientific knowledge and best practices.

Legislations, regulations, international agreements and binding standards issued by recognised authorities are used as the most uncontroversial sources of audit criteria. When organisations do not have reliable or sufficient standards for measuring performance, required criteria may be sourced from the regulations, law, standards developed by professional bodies. If criteria are not available from the above sources, the auditor can focus on performance achieved in comparable organisations, best practices determined through benchmarking or consultation, or criteria developed by the auditor through an analysis of activities.

In developing audit criteria, input can be taken from the auditee. The criteria should be discussed with the auditee, but it is ultimately the responsibility of auditors to select workable criteria. In the event that a disagreement persists, the audit report needs to explain the audit criteria used and why it was appropriate for the audit.

Audit criteria can be obtained from the following sources:

- ✓ Climate change related laws and regulations governing the operation of the audited organization.
- ✓ Decisions made by the Public Accounts Committee, legislature or the executive.
- ✓ References to historical comparisons or comparison with best practice.
- ✓ Professional standards, experiences and values.
- ✓ Key performance indicators set by the entity or the government.
- ✓ Independent expert advice and know-how.
- ✓ New or established specific knowledge and other reliable information.
- ✓ Criteria used previously in similar audits or by other SAIs.
- ✓ Organisations inside or outside the country, carrying out similar activities or having similar programmes.
- ✓ Performance standards or previous inquiries by the legislature.
- ✓ General management and subject-matter literature.

[28] INTOSAI (2019) *GUID 3910: Central Concepts for Performance Auditing*.

These sources can be broadly classified as 'authoritative' sources and 'non-authoritative' sources. Under authoritative sources fall laws, documented policies and goals, generally accepted standards etc and under non-authoritative sources come academic literature, indicators or measures used by similar organisations engaged in similar functions. Examples of audit criteria are shown in Box 3:

Box 3 : Examples of audit criteria

A. Audit Criteria for Audit of Adaptation	
Audit Objectives	Audit Criteria
1) To ascertain whether Ministry of Environment, Forest and Climate Change has been able to generate fund from foreign sources to bolster adaptation works in the climate change affected areas.	a) Ministry of Environment, Forest and Climate Change has received fund from the Adaptation Fund under the Kyoto Protocol.
	b) Ministry of Environment, Forest and Climate Change has received fund from the Special Climate Change Fund.
	c) Ministry of Environment, Forest and Climate Change received fund from the Least Developed Countries Fund.
2)To examine whether Ministry of Fisheries and Livestock has made arrangements for adaptation in the fisheries sector.	a) Potential threats to fish spawning growth of fish in the freshwater fisheries sector have been assessed; adaptive measures have been developed including pond fisheries, river based cage aquaculture.
	b) Potential threats to the spawning and growth of fish in the coastal zone and brackish water have been assessed; appropriate adaptive measures and cultural practices have been developed.
	c) Potential threats to the marine fish sector have been assessed; adaptive measures have been developed.
	d) Potential impacts on the shrimp sector have been assessed; appropriate adaptive measures and cultural practices have been developed.
	e) Potential impacts on the migration of fish and hilsa fish have been assessed; appropriate adaptive measures have been developed.

B. Audit Criteria for Audit of Mitigation	
Audit Objectives	Audit Criteria
1)To ascertain whether Ministry of Power, Energy and Mineral Resources has taken steps for mitigation of adverse impacts of climate change.	a) Investment has been made for raising efficiency in supply and distribution of energy.
	b) Arrangements have been made for switching from coal to gas, nuclear energy.
	c)Initiative has been taken for renewable heat and power (hydroelectric power, solar, wind, geothermal and bioenergy).
	d)Investment has been made for early applications of carbon capture and storage (CCS, e.g., storage of removed carbon oxide from natural gas).
2)To ascertain whether Ministry of Communication has taken measures for mitigating climate change.	a) More fuel-efficient vehicles have been imported.
	b) Cleaner diesel vehicles are being imported.
	c) Biofuels have been resorted to.
	d) Modal shifts have been made from road transport to rail and public transport.
	e) Non-motorised transport (cycling, walking) is being encouraged.
3)To examine whether Ministry of Environment, Forest and Climate Change has adopted measures for mitigating climate change.	a) Afforestation programme has been undertaken and sustained.
	b) Reforestation programme has been undertaken and sustained.
	c) Forest management has been improved.
	d) Deforestation has been reduced.
	e) Harvested wood product management has been improved.
	f) Arrangements are in place for use of forestry products for bioenergy to replace fossil fuel use.

Summary:

Audit objectives imply what we wish to achieve by conducting audit. In the audit planning process, the formulation or determination of audit objectives is very important. Audit objectives should be developed very precisely to help the auditors reach a conclusion against each objective. Many audit objectives can be formed as an overall audit question which can be broken down into more precise sub-questions. It is better to develop several audit objectives, which need not always be broken down into sub-questions. Audit scope is the fixation of the amount of activities and the period of records that will be made subject to examination. It defines the boundary of audit. It also enumerates the offices and places which should be visited to accomplish the audit work in a desirable manner.

References:

1. INTOSAI WGEA (2010) *Auditing the Government Response to Climate Change: Guidelines for Supreme Audit Institutions.* Norway: INTOSAI WGEA.
2. OCAG of Bangladesh (2000) *Performance Audit Manual.* Dhaka: Office of the Comptroller and Auditor General of Bangladesh.
3. INTOSAI (2019) *ISSAI 300*: *Performance Audit Principles*. VIENNA: INTOSAI General Secretariat.
4. INTOSAI (2019) *ISSAI 3000*: *Performance Audit Standard.* VIENNA: INTOSAI General Secretariat.
5. INTOSAI *GUID 3910*: *Central Concepts for Performance Auditing.* VIENNA: INTOSAI General Secretariat.
6. INTOSAI (2019) *GUID 3920*: *The Performance Auditing Process.* VIENNA: INTOSAI General Secretariat.

6.3. INSTRUCTOR'S GUIDE

	Instructor's guide	Reference	Participant's Response
	Welcome the participants.		
	Introduce yourself to the participants.		
	Show the title of the session.	Slide 1	
	Briefly discuss on the session overview.	Slide 2	
	Tell the participants about the learning objectives of the session.	Slide 3	
1.	**KTP-1: Audit Objectives and Audit Scope**		
	Inquire the participants' knowledge about audit objective.		Take some responses
	Define audit objective. **Explain** the importance of audit objective.	Slide 4	
	Ask the participants if they can give some examples of audit objectives for auditing the aspects of climate change adaptation and mitigation.		Obtain some responses
	Emphasise on the matters to be considered while determining audit objective.	Slide 5	
	Build participants' knowledge on determining audit objectives on climate change issue through Exercise 5-A.	Slide 6 Exercise 5-A	
	Distribute Solution_Exercise 5-A.	Solution_ Exercise 5-A	
	Discuss on and Give practical example from the Audit Case: Riverbank protection work by BWDB.	Slide 7-8	
	Define audit scope.	Slide 9	
	Discuss the aspects for determining audit scope.	Slide 10	
	Discuss the major focus for scoping climate change audits	Slide 11-13	
	Discuss on and Give practical example from the Audit Case: Afforestation and Reforestation Program.		
2.	**KTP-2: Audit Criteria: Generic and Individual Audit.**		
	Discuss the basic concepts of audit criteria.	Slide 14-15	
	Inquire the knowledge of the participants about the requirements of determining climate performance audit criteria.	Slide 16	Obtain some responses.
	Explain the characteristics of audit criteria.	Slide 17	
	Ask the participants if they have any idea about generic criteria for climate performance audit.		Note some responses.
	Discuss on generic criteria for climate performance audit.	Slide 18	
	Give examples of generic climate performance audit criteria.	Slide 19-20	
	Build solid foundation on generic criteria for climate performance audit using exercise. Distribute Exercise 5-B.	Slide 22 Exercise 5-B	
	Distribute the suggested solution of Exercise 5-B.	Solution_ Exercise 5-B	
	Discuss about individual audit criteria for climate performance audit.	Slide 23	
	Evaluate the learning of the participants using a small Quiz 5.	Slide 24	
	Summarise the session. **Ask** the participants to tell the key areas covered in the session. **Ask** someone to volunteer.	Slide 25	
	Thank the participants for their active participation in the discussion and declare the end of Session 5.	Slide 26	

6.4. SLIDES

Slide 1

Session 5

DESIGN THE AUDIT: AUDIT OBJECTIVES, AUDIT CRITERIA, AUDIT SCOPE

Slide 2

Session overview

- After selecting the topic and priority areas, the audit team has to develop the audit plan incorporating audit objectives, audit criteria and audit scope.
- Quality climate performance audit report depends greatly on these three elements.
- In this session, we shall discuss these three elements of audit planning in detail that lead the auditors to design audit plan.

Read the slide and **Discuss**.

Slide 3

Learning objective

- At the end of the session, it is expected that the participants would be able to develop audit objectives, audit criteria and audit scope which are the main components of a climate performance audit plan.

Read the slide and **Discuss**.

Slide 4

1. Audit Objectives and Audit Scope

- **Audit Objective**
  - ✓ Audit objectives are audit questions
  - ✓ They should be carefully considered and expressed as precisely as possible so that the auditor can arrive at a conclusion against each objective
  - ✓ They should identify the audit subject matter together with performance aspects to be examined
  - ✓ Audit objectives can be developed as an overall audit question which can be broken down into more sub-questions
  - ✓ They should be thematically related, complementary, not overlapping and collectively exhaustive to address the overall audit question

Ask the participants to define audit objective.

Take responses and Discuss.

Show the slide.

Tell: Audit objective can be considered as the guide to any performance audit. Hence, audit objectives for each audit should be carefully considered and expressed as precisely as possible so that the auditor can arrive at a conclusion against each objective.

Emphasise: Audit objectives relate to the reasons for conducting the audit and help in determining the areas to be audited and reported on. They should identify the audit subject matter together with performance aspects to be examined, for example, the economy, efficiency and effectiveness in the selected organisation or programme or project.

Discuss: The contents of the slide.

Slide 5

Audit Objective [contd..]

To determine audit objectives relating to auditing adaptation and mitigation aspects, the auditors can consider the following audit questions:

- Have the responsible ministries identified the climate change-related threats?
- Does the government have an overreaching policy, plan or strategy in place?
- Is the governance of the climate change response in terms of adaptation and mitigation efficient?
- Are policy instruments effective?
- Will the government meet its emission targets or commitments?

Tell: For determining audit objectives for conducting performance audit of any climate financed project or programme or auditing government's policies/strategies/actions addressing climate change, it is very important to understand the critical question areas related to climate change.

Ask the participants what are the questions that the auditors must ask to determine audit objectives relating to auditing climate change adaptation and mitigation aspects.

Take responses from the participants and then **Discuss** the slide.

Slide 6

Exercise 5-A

Objective: The purpose of this exercise is to enable the participants to sharpen their knowledge on determining audit objective for auditing climate change issues.

Time required: Total time for the exercise is 20 minutes

- ✓ 10 minutes for group discussion and solution
- ✓ 10 minutes for presentation and discussion

Instructions: The participants are required to determine audit objective on the scenario given in the exercise

Give instructions for the exercise.

Slide 7

Audit Objective: Example

- Overall audit objective:
  - ✓ "The overall purpose of audit is to assess whether the project objectives have been achieved and the activities of the project are climate sensitive."
- Specific audit objectives are the following:
  - ✓ Whether the project design is climate sensitive.
  - ✓ Whether effective internal control systems are in place relating to procurement, financial management and project management activities.
  - ✓ To determine if fund management supported effective implementation of the project.

Tell: An audit team conducted a climate performance audit on a project titled 'Reconstruction of Embankment and Riverbank Protection work in Ramnagar-Rahimnagar Area under Rupsa Upzila of Khulna District'. The project was financed from CCTF and hence to fulfil the terms and conditions of CCTA and CCTF. Based on the objectives outlined in the DPP and considering the requirements of CCTA and CCTF, the team determined these audit objectives.

Slide 8

Audit Objective: Example [contd..]

- Whether the riverbank protection work has been done as per project design and specification.
- Whether polder system has been revived with repair of embankment to prevent intrusion of saline water in the project area.
- Whether flood and saline water hampers agro-production.
- To ascertain whether social protection has been ensured through the project activities.
- To ascertain whether climate sensitive sustainable employment creation have been ensured under the project.
- Have the reconstruction of embankment and riverbank protection work been done according to the specification in a cost-effective manner.

Go through: the points

Slide 9

Audit Scope

- Audit scope defines the boundary of the audit.
- It addresses such things as specific questions to be asked, the type of study to be conducted and the character of investigation.
- Scoping individual audit involves limiting the audit down to a relatively few matters of importance that relate to the audit objective.

Tell: Once the audit objectives have been determined, the auditor's next step is to decide audit scope and audit criteria. However, the audit objectives guide the auditors to determine audit scope.

Read the slide and **Explain** the points.

Slide 10

Audit Scope [contd..]

- The scope of an audit may be determined by looking into the following important aspects:
  - ✓ The specific questions or hypothesis that are to be examined.
  - ✓ The kind of study that seems to be appropriate.
  - ✓ The key players involved and the auditee.
  - ✓ The limitations on the number of locations to be covered.
  - ✓ The limitations on the time frame to be covered.

Tell: The scope of an audit may be determined by considering various factors critical for the specific audit operation.

Read the slide and **Explain** the points.

Slide 11

Audit Scope [contd..]

- Where few resources are involved but potential impact of the project or programme or activity is significant, the scope of audit may be focused to the effectiveness of the project or programme or activity in achieving impact.
- The auditor may also narrow down the scope of audit to the areas where there is evidence that the planned targets are not being met or where the results of the audit will have the greatest impact.

Discuss the slide.

Slide 12

Audit Scope [contd..]

- The auditors should consider the positive or negative externalities of other government and non-government activities.
- A critical task for climate performance auditors may be to isolate those externalities and identify the effect of the project or programme or activity is under audit.
- Some programmes may have both positive and negative impacts, intended or unintended. Auditors need to identify each type of impacts.

Discuss the slide.

Slide 13

Audit Scope [contd..]

- Scoping of climate performance audit may include the governance of climate issues which interact in various policy areas, programmes and projects.
- Possible cross-cutting issues may include the topics like-
  - ✓ sustainable development.
  - ✓ national capabilities to address the policies related to address climate issues.
  - ✓ cost-benefit analysis of regulation and interventions.
  - ✓ mainstreaming climate change etc.

Discuss the slide.

Slide 14

2. Audit Criteria: Generic and Individual Audit

- Audit criteria are standards of performance against which the economy, efficiency and effectiveness of project, programmes or activities can be measured.
- Audit criteria represent best or good practice. Meeting or exceeding the criteria indicates best practice; but a failure to meet them would indicate that there is scope for improvement.
- When criteria are compared with ground reality, audit finding emerges.

Tell: After determining the audit objective and scope, the next step is to determine audit criteria.

Emphasise: That audit criteria is the most important part of audit plan linked to audit objective.

Explain the basic concepts of criteria as noted in the slide.

Slide 15

Audit Criteria [contd..]

- The audit criteria can be qualitative or quantitative.
- It may be ***general/generic*** or ***specific***, focusing on what should be according to laws, regulations or objectives.
- It may also be what is expected according to sound principles, scientific knowledge and best practices; or what could be (given better conditions).
- Climate performance audit criteria can be national if there is a climate change policy/law or can be international, especially if the country had signed and ratified UN Convention and Protocol on Climate Change.

Explain the basic concepts of criteria as noted in the slide.

Slide 16

Audit Criteria [contd..]

- Criteria can be determined from the relevant aspects of good governance and good management when auditing climate change issues.
- They can be used for both adaptation and mitigation issues.
- While considering good governance aspects to be used as audit criteria, the auditors should concentrate on general processes and systems that contribute to achieving climate change targets.
- The following can be used as criteria:
  - ✓ Effective accountability arrangements between government departments and public entities.
  - ✓ Transparency in decision making.
  - ✓ Involving the public and engaging stakeholders.
  - ✓ Management of objectives and results.

Ask the participants what the aspects are for determining audit criteria.

Note responses of the participants.

Tell: The relevant aspects of good governance can be the requirements of determining climate performance audit criteria.

Explain the points of the slide.

Tell: When identifying audit criteria, it is time to go back to the targets, commitments, strategy and plans you mapped in step 3. Also remember that parliament may have sent signals about the intentions of a certain policy in their assessment of the area.

Explain: That the principles of good governance will always serve as possible audit criteria. Good governance requires the presence of:

- ✓ Management by objectives and results
- ✓ Transparency in decision making
- ✓ Effective accountability arrangement between government departments and public entities
- ✓ Involving the public and engaging relevant stakeholders

When it comes to principles of good management, we are mainly speaking of good internal control systems. This means assessing risk, control environment, monitoring, control activities and information and communication.

Slide 17

Audit Criteria [contd..]

Following the principles of good governance and good management:

1. Good governance:
   - ✓ Effective accountability arrangements
   - ✓ Transparency in decision-making
   - ✓ Involving the public
   - ✓ Management by objectives and results
2. Good management:
   - ✓ Implement internal control systems

Read the slide. **Explain** criteria for good governance are needed as audit criteria in order to determine whether the government's response is efficient or not.

Tell that those criteria are often missing in national standards and were therefore developed in the climate change project. They are based on global standards, general principles and common understanding.

Read criteria for good governance.

Add that good management includes:

- Define objectives and expected results.
- Develop implementation strategies.
- Provide the information needed to assess efficiency and goal achievement.
- Use appropriate risk-based management.

Tell that criteria for good management is based on COSO standards

Slide 18

Audit Criteria [contd..]

- ***Relevance:*** Audit criteria should contribute to conclusions that assist decision making by intended users and to conclusions that answer on the audit questions.
- ***Reliability*:** Criteria should result in consistent conclusion when used by another auditor in the similar circumstances.
- ***Objectivity*:** Criteria should be free from any bias.
- ***Understandability*:** Criteria should not be subject to ambiguity and different interpretations.
- ***Completeness*:** Criteria should be developed for assessing performance. Criteria should be sufficient for the audit and do not omit relevant factors.

Discuss the characteristics of criteria.

Slide 19

Generic Criteria for Climate Performance Audit

- These are the standards or benchmarks in broader terms.
- Basically, for evaluating performance at ministry/division/entity level.
- In many cases they are cross-cutting issue for several ministries/divisions/entities.
- To examine the overall performance of government's response to climate change.
- Thematic areas, programmes and actions of BCCSAP set out the basis of generic criteria.

Ask the participants if they have any idea about generic criteria for climate performance audit.

Obtain responses from the participants.

Tell: Criteria can be generic or specific. They are for evaluation of overall performance of an programme or activity.

Generic criteria can be obtained from National Policies, Strategies Plans, and Acts related to climate change. They can also be derived from global policies, strategies and best practices related to climate change issues.

Discuss the points mentioned in the slide.

Slide 20

Examples of Generic Criteria

Audit Criteria for Audit of Adaptation	
Audit Objectives	Audit Criteria
1) To ascertain whether Ministry of Environment, Forest and Climate Change has been able to generate fund from foreign sources to bolster adaptation works in the climate change affected areas.	a) Ministry of Environment, Forest and Climate Change has received fund from the Adaptation Fund under the Kyoto Protocol.
	b) Ministry of Environment, Forest and Climate Change has received fund from the Special Climate Change Fund.
	c) Ministry of Environment, Forest and Climate Change received fund from the Least Developed Countries Fund.
2)To examine whether Ministry of Fisheries and Livestock has made arrangements for adaptation in the fisheries sector.	a) Potential threats to fish spawning growth of fish in the freshwater fisheries sector have been assessed; adaptive measures have been developed including pond fisheries, river based cage aquaculture.
	b) Potential threats to the marine fish sector have been assessed; adaptive measures have been developed.
	c) Potential impacts on the shrimp sector have been assessed; appropriate adaptive measures and cultural practices have been developed.
	d) Potential impacts on the migration of fish and hilsa fish have been assessed; appropriate adaptive measures have been developed.

Discuss the points mentioned in the slide.

Slide 21

Examples of Generic Criteria [contd..]

Audit Criteria for Audit of Mitigation	
Audit Objectives	**Audit Criteria**
1) To ascertain whether Ministry of Power, Energy and Mineral Resources has taken steps for mitigation of adverse impacts of climate change.	a) Investment has been made for raising efficiency in supply and distribution of energy.
	b) Arrangements have been made for switching from coal to gas, nuclear energy.
	c)Initiative has been taken for renewable heat and power (hydroelectric power, solar, wind, geothermal and bioenergy).
2) To ascertain whether Ministry of Communication has taken measures for mitigating climate change.	a) More fuel-efficient vehicles have been imported.
	b) Cleaner diesel vehicles are being imported.
	c) Biofuels have been resorted to.
	d) Modal shifts have been made from road transport to rail and public transport.
3) To examine whether Ministry of Environment, Forest and Climate Change has adopted measures for mitigating climate change.	a) Afforestation and reforestation programme has been undertaken and sustained.
	b) Forest management has been improved.
	c) Deforestation has been reduced.
	d) Harvested wood product management has been improved.
	e) Arrangements are in place for use of forestry products for bioenergy to replace fossil fuel use.

Discuss the points mentioned in the slide.

Slide 22

Exercise 5-B

Objective: The purpose of this exercise is to enable the participants to determine generic audit criteria for climate performance audit.

Time required: Total time for the exercise is 30 minutes

- ✓ 20 minutes for group discussion and solution
- ✓ 10 minutes for presentation and discussion

Instructions: The participants are required to determine generic audit criteria, as many as they can, against each audit objective keeping climate perspective in their minds.

Read the slide.

Slide 23

Criteria for Individual Audit

- For auditing a specific climate relevant topic or issue
- Specific to individual programme/project
- Project/Programme goals may be vague or conflicting
- Strategies, policies and guidelines applicable to individual project/programme to be audited
- Linkage with generic criteria

Tell: Criteria for individual audit focuses on the specific climate relevant topic or issue or project taken for performance audit. For auditing a project, criteria to be determined basically on the information given in the DPP or TAPP. However, the information given in the DPP or TAPP sometimes may be vague and conflicting and may not include any measurable indicator. To address such issues, the auditors need to explain the goals to make them more operational, measurable and audit friendly. One possibility available to SAI auditor is to consult the experts and stakeholders in the field to answer questions as to how the goals be interpreted and measured.

Another solution is to use the generic criteria so far as they fit with the objectives of the individual project.

Slide 24

Quiz 5

- The participants are required to list sources of climate performance audit criteria as many as they can, based on their knowledge and discussion in the session.

Ask the participants are required to list sources of climate performance audit criteria (generic and specific) as many as they can based on their knowledge and discussion in the session.

Record responses.

Discuss on the responses.

Slide 25

Summary

- The participants need to tell the key areas covered in the session
- Someone to volunteer

Ask the participants to tell the key areas covered in the session. **Ask** someone to volunteer.

Slide 26

6.5. EXERCISE

Exercise 5-A

Objective: The purpose of this exercise is to enable the participants to sharpen their knowledge on determining audit objective for auditing climate change issues.

Time required: Total time for the exercise is 20 minutes .

- 10 minutes for group discussion and solution.
- 10 minutes for presentation and discussion.

Instructions: The participants are required to determine audit objective on the following issue.

Scenario: Bangladesh is the most vulnerable to climate change. The coastal areas of the country suffer the extreme. Due to frequent flood and cyclone, agriculture and livestock sector experience severe damage each year.

To address the climate change issues government has undertaken several policies and strategies. One of the landmark strategies is Bangladesh Climate Change Strategy and Action Plan 2009. Government has enacted Climate Change Trust Act 2009. With this legal backup, the government has formed Climate Change Trust (CCT) and under it the Climate Change Trust Fund (CCTF) has been created from its own resources to finance sectors affected by climatic shocks. Various projects have been taken by ministries to combat climate change impacts. Up to FY2020-21, BCCTF received a total allocation of Tk. 3900 crore and till August 2020, a total of 789 projects under BCCTF have been approved of which 728 projects are being implemented by the government Ministries/Divisions while the remaining 61 projects are being implemented by different NGOs under the supervision of Palli Karma Sahayak Foundation (PKSF). Among the Ministries/Divisions, Local Government Division received highest allocation Tk. 1,312.96 crore followed by Ministry of Water Resources and Ministry of Environment, Forest and Climate Change with allocation Tk. 1,043.77 crore and 415.15 crore respectively.

(amount in crore taka)

S.l	Name of Ministry	Number of Projects	Allocation (Tk. in crore)
1	Ministry of Water Resources	132	1,043.77
2	Local Government Division	441	1,312.96
3	Ministry of Environment, Forest and Climate Change	68	415.15
4	Ministry of Agriculture	21	135.55
5	Ministry of Disaster Management and Relief	8	125.52
6	Ministry of Power, Energy and Mineral Resources	3	56.02
7	Ministry of Shipping	3	51.76
8	Ministry of Education	29	76.66
9	Ministry of Defence	9	45.21
10	Ministry of Health and Family Welfare	3	22.12
11	Ministry of Science and Technology	2	19.31
12	Ministry of Women and Children Affairs	2	8.00
13	Ministry of Chittagong Hill Tracks Affairs	3	8.53
14	Ministry of Fisheries and Livestock	1	2.00
15	Ministry of Home Affairs	1	2.00
16	Ministry of Civil Aviation	1	1.00
17	Ministry of Public Administration	1	0.19
	Total	**728**	**3,325.75**

Source: BCCTF 2019

Since, agriculture and livestock depend very much on natural resources and climatic conditions, these sectors are likely to be the most affected by climate change. Government has undertaken various measures to lessen the loss and damage of the climate victim citizens including adaptation measures. Yet there is much to be done.

Based on the above case you are to determine audit objectives for conducting climate performance audit on government's response on this issue.

Exercise 5-B

Objective: The purpose of this exercise is to enable the participants to sharpen their knowledge on determining generic criteria for audit of adaptation and mitigation.

Time required: Total time for the exercise is 30 minutes

- 20 minutes for group discussion and solution
- 10 minutes for presentation and discussion

Instructions: The participants are required to determine audit criteria against each audit objective.

Subject Matter 1: Food Security, Social Protection and Health

Audit Objectives	Audit Criteria
1) To examine whether Ministry of Agriculture has built institutional capacity to develop climate resilient cultivars of food and other crops.	
2) To examine whether Ministry of Agriculture has developed climate resilient cropping systems appropriate to different agro-climate regions and sub- regions.	
3) To examine whether Ministry of Health and Family Welfare has taken appropriate measures to address the impacts of climate change on disease patterns.	

Subject Matter 2: Comprehensive Disaster Management

Audit Objectives	Audit Criteria
1. To ascertain whether the Ministry of Water Resources has improved flood forecasting and early warning systems.	
2. To assess if Ministry of Finance and other line Ministries, the insurance sector have ensured risk management against loss of income and property.	

Subject Matter 3: Infrastructure

Audit Objectives	Audit Criteria
1. To examine whether Ministry of Water Resources has ensured continued flood protection.	
2. To ascertain whether Ministry of Water Resources and Ministry of Disaster Management and Relief have taken adequate steps for adaptation against floods and making flood prone areas more resilient.	

Subject Matter 4: Mitigation and Low Carbon Development

Audit Objectives	Audit Criteria
1) To assess whether Ministry of Power, Energy and Mineral Resources; Ministry of Industries; Ministry of Agriculture; Ministry of Communications; Ministry of Finance have taken steps to ensure an energy secure and low-carbon development of the economy.	
2) To assess whether Ministry of Local Government, Rural Development and Cooperatives has ensured livable cities while lowering GHG (methane) emissions.	
3) To examine whether Ministry of Environment, Forest and Climate Change has ensured adequate and sustainable sinks for GHGs.	
4) To ascertain whether Ministry of Housing and Public Works has made arrangements to improve energy and water efficiency.	
5) To examine whether Ministry of Power, Energy and Mineral Resources has stepped in to improve energy use efficiency in transport sector.	

Exercise 5-C

Objective: The purpose of this exercise is to enable the participants to determine audit objective and audit criteria for individual climate performance audit.

Time required: Total time for the exercise is 20 minutes

- 10 minutes for group discussion and solution
- 10 minutes for presentation and discussion

Instructions: The participants are required to determine audit objective and audit criteria for climate performance audit based on the following information keeping climate perspective in their minds.

Project Summary:

Project Title	:	Climate Resilient Participatory Afforestation and Reforestation Project (CRPARP).	
Development Partner	:	World Bank, BCCRF Grant.	
Funding Agencies	:	DFID, EU, Sweden (SIDA), USAID, Swiss, AusAid and Denmark.	
Implementing Agency	:	Bangladesh Forest Department (BFD) and Arannayk Foundation.	
Executing Ministry	:	Ministry of Environment, Forest and Climate Change.	
Date of actual commencement of the Project	:	03 July 2013	
Date of project completion	:	31 December 2016	
Total Project Cost	:	GoB (In kind)	BDT 810.00 lakh
		RPA	BDT 25,563.39 lakh
		AF	BDT 161.88 lakh
		Total	**BDT 26,535.27 lakh**
		Equivalent to US$ 35.00 million (approx.)	
Project Office	:	Office of the Project Director, CRPARP Ban Bhaban (Old), Mohakhali, Dhaka.	

Geographic Location of the Project:

Division	District	Upazila/ Location
Dhaka	Dhaka	Project Office, CRPARP, Ban Bhaban (Old), Mohakhali, Dhaka.
		RIMS, Bana Bhaban, Agargaon, Dhaka.
Chattogram	Chattogram	Anwara, Banshkhali, Boalkhali, Chandanish, Fatikchari, Hathazari, Lohagora, Mirsharai, Pekuya, Patia, Sandip, Rangunia, Satkania, Sitakundu.
	Cox's Bazar	Chokoria, Cox's Bazar Sadar, Kutubdia, Moheshkhali, Ramu, Teknaf, Ukhiya.
	Noakhali	Companygonj, Hatiya, NoakhaliSadar, Subarna Char, Kabirhat, Senbag, Begumgonj, Sonamuri.
	Laxmipur	LaxmipurSadar, Kamalnagar, Ramgoti.
	Feni	Fulgazi, Sonagazi, Porshuram, Chagolnaiya, FeniSadar, Dagonbhuiyan.
Barishal	Barishal	Agailjhara, Babugonj, Bakergonj, Banaripara, Barisal Sadar, Gournadi, Hijla, Mehandigonj, Muladi, Ujirpur.
	Bhola	Bhola Sadar, Borhanuddin, Char Fashion, Lalmohon, Monpura, Tajumuddin.
	Patuakhali	Golachipa, Kolapara, Mirjagonj, PatuakhaliSadar, Rangabali, Dashmina.
	Bargguna	Amtoli, Patharghata, BargunaSadar, Bamna.

Project Objectives:

The overall objective of the project is to reduce forest degradation and increase forest coverage through participatory planning and monitoring and to contribute in building the long-term resilience of the communities in coastal and hilly areas to climate change.

The specific objectives of the project are:

iv. To establish newly afforested and reforested areas using climate resilient species to work as windbreak along the coastal and hilly areas.

v. To support alternative livelihoods of forest dependent communities.

vi. To strengthen the institutional capacity of the Forest Department to manage forest in a participatory and sustainable manner.

Project Activities:

Summary of project activities are given below:

- Plantation to increase forest areas through afforestation and reforestation.
- Creation of Core Zone, Mangrove and Jhaw forests.
- Plantation through participatory afforestation and reforestation under Social Forestry Rules.
- Employment creation for the poor people living near forests in the project areas.
- To expand alternative livelihood support of the forest-dependent communities.
- To enhance institutional capacity of the Forest Department.
- Acquisition of motor vehicles, engine boats, motorcycles, computers, photocopiers and other office equipment for the BFD.
- Procurement of furniture for different offices under BFD.
- Procurement of DSLR and Digital Cameras.
- Strengthening RIMS supplying computer hardware, software, printers, plotter, smart board, GPS etc and providing training for RIMS personnel.
- Procurement of very high-resolution satellite images.
- Construction of 76 camp offices.
- Technical study for land use mapping and for strengthening RIMS.
- Updating Forestry Master Plan for Bangladesh and Forest Management Policy.

Estimated cost of the Project:

The total estimated cost of the project as per RDPP is shown in the Table:

(Figure in Lac Taka)

Financing Pattern		Original	1st Revised	2nd Revised
GoB (In kind)		810.00	810.00	784.64
PA	RPA	27,378.00 (BCCRF)	27,378.00 (US$ 33.80 million)	26,678.84 (US$ 33.80 million)
	DPA	162.00 (AF)	162.00 (AF)	160.52 (AF)
	Total	27,540.00	27,540.00	26,839.36
Total		**28,350.00**	**28,350.00**	**27,624.00**

Actual cost of the Project:

Project resources and expenditure as of 31st December, 2016

(Figure in Lac Taka)

Resources	As of 31/12/2016
Government of Bangladesh	-
Grant/Loan from development partner (WB)-PIU	21,809.09
Grant from development partner (WB)-AF	3754.30
Other resources (AF Contribution)	161.88
Opening balance	746.23
Total Resources	**26,471.50**
A. Expenditure incurred by AF	
1. Alternative Livelihood	3916.18
Sub Total:	**3,916.18**
B. Expenditure incurred by BFD	
Travel expenses.	166.22
Contingent staff and consultancy.	4,522.06
Petrol, oil and lubricant.	434.20
Printing, stationeries, workshop, meeting etc.	83.72
Repair and maintenance.	68.27
Motor vehicles.	160.96
Computer and accessories.	115.21
Other office equipment.	595.13
Afforestation.	12,218.36
Training.	447.92
Civil works.	2,729.44
Others /O.C.C.	216.78
Sub Total:	**21,798.27**
Total Expenditure (A+B)	**25,714.45**

Component wise project resource and expenditure

(Figure in Lac Taka)

Component	Budget				Expenditures			
	GoB (In kind)	PA		Total	GoB (In kind)	PA		Total
		RPA (BCCRF)	PA (AF)			RPA (BCCR)	PA (AF)	
Component 1: Afforestation and Reforestation Programme	-	16,760.34	-	16,760.34	-	16,030.85	0	16,030.85
Component 2: Alternative Livelihood Support to FDCs	-	3,788.88	160.52	3,949.50	-	3,754.30	161.88	3,916.18
Component 3: Capacity Development for Forest Resources Planning and Management	-	4,588.97	-	4,588.97	-	4,522.06	-	4,522.06
Component 4: Project Management	784.64	1,540.65	-	2,325.9	784.64	1,245.36	0.00	2,030.00
Total	784.64	26,678.84		27,624.10	784.64	25,552.55	161.88	26,499.09

Financial operation and control:

i) GoB Fund: Funding from GoB is 'In kind' only.

ii) RPA: The CRPARP project is basically implemented by the Bangladesh Forest Department but the component 2 of the project, Alternative Livelihood Support programmes, is implemented by the Arannyak Foundation. Consequently, the project fund was administered by the Bangladesh Forest Department and the Arannyak Foundation.

Two special (CONTASA) accounts, one with the Sonali Bank Ltd. was managed by PD and another special account was managed by Arannyak Foundation. RPA Fund had been transferred to the special accounts directly by the donor agency on the basis of withdrawal applications (SOE Procedures). The RPA fund from the special account managed by the PD was transferred to 11 (eleven) operating accounts (one managed by PD and remaining ten accounts managed by 10 DFOs) from time to time. Expenditures were incurred from the 11 operating accounts as and when required. The RPA fund from the special account managed by the Arannyak Foundation was exclusively used by the Foundation itself.

iii) Others (AF): Arannyak Foundation used its own fund directly and sent statement to the PD.

Project Components:

Component 1: Afforestation and Reforestation

CRPARP aimed to establish new afforested and reforested areas of total 17,500 ha block plantation and 2,000 km strip plantation through participatory approaches in sixty-four Upazilas of nine Districts under Chattogram and Barishal Divisions.

According to the project documents, under block plantation, seven types of plantations such as Mangrove, Mound, Enrichment, Buffer Zone, Buffer Zone-Non-Mangove, Jhaw and Core Zone plantations have been established. The project has completed block plantation in 17,500 hectares of land of which 10,015 hectares are in the hilly areas of Chattogram and Cox's Bazar and 7485 hectares are in the coastal forest area.

Component 2: Alternative Livelihood Support to the Forest Dependent Communities

This component was implemented by Arannayk Foundation (AF) with two Partner NGOs (PNGOs)- Uttaran and YPSA. The objective of this component was to improve and diversify non-forest-based livelihood opportunities of the poor and forest dependent households; and to reduce dependence on forest and ensure the sustainable use, conservation and protection of the forest resources. As per relevant reports of the implementing agency.

- AF and PNGOs have selected 6,000 extreme poor and vulnerable households from 200 villages in the project areas and the households have been organised into 200 hundred Forest Dependent Groups (FDGs).
- More than 80 percent of the Alternative Income Generating (AIG) members are female.
- AF and the PNGOs have formed 21 Community Patrolling Groups (CPGs). Each CPG is composed of 21 members selected from the FDGs.
- 55 union level federations have been established with the members of the FDGs.
- 55 Mutual Rotating Savings and Loan Funds (MRSLF) have been established at the 55 union level Federations to provide loan support for AIG Activities (AIGAs).
- AF has contributed 3.5 tonnes of different types of vegetable seeds and 36,000 fruit seedlings among the members of the FDGs.
- It was also reported that Taka 1,392.11 lakh has been disbursed to MRSLF Accounts of union-based Federations to match their Taka 1,614.11 lakh (approx) savings fund.
- It was also reported that AF distributed 6,000 improved cooking stoves to the 6,000 households with a view to reducing the fuel wood consumption by 50 percent.

Component 3: Capacity Development for Forest Resource Planning and Management.

Institutional Capacity Development - As part of institutional capacity development, a technical study for Land Use Mapping, Assessment and Monitoring of Afforestation and Reforestation sites have been done by IUCN. Technical studies to strengthen Forest Resource Monitoring and Assessment System and Forest Resource Management Information System have been completed. The project has updated the Forestry Sector Master Plan and National Forest Policy which have been submitted to the higher authorities for approval.

Organisational Capacity Development - To develop organisational capacity, a total of 76 forest camp offices were constructed in 10 forest divisions. The camp offices were built in such a so that they can be used as cyclone centre during natural calamities.

Professional Capacity Development - According to the project documents, a number of officers have completed overseas short courses, exposure visits and study tours. 5 officers have completed Masters in Climate Change and Forestry from U.K. About 17,000 local level beneficiaries have also been trained. Local skill development trainings for 73 BFD officials have been completed from the project. Another Training Program for 380 officials have also been completed.

The Project has purchased high configured desktop PCs, printers, digital SLR camera, software- e-Cognition, ENVI, ARCGIS, ERDAS, hardware accessories etc to strengthen RIMS unit. Plotter, Large Format Scanner, Network attached storage etc have also been procured for RIMS during the project period.

Component 4: Project Management.

This component supports Project Implementation Unit (PIU) for effective implementation of component 1 and 3. The PIU provides necessary support for financial management, social and environmental safeguards, communication and procurement to AF and field offices.

6.6. SOLUTION TO EXERCISE

Solution_Exercise 5-A

Overall Audit Objective:

To verify the extent to which the actions of the Ministry of Agriculture, Ministry of Fisheries and Livestock, Ministry of Disaster Management and Relief, and Ministry of Finance are promoting successfully the adaptation of the agriculture and livestock sector to possible climate change shocks.

Specific Audit Objectives:

1. To examine whether Ministry of Agriculture has taken steps to develop climate resilient cropping systems appropriate to flood prone coastal areas of the country.
2. To examine whether Ministry of Agriculture has developed early warning and weather forecasting for crop production against diseases, insects, drought, flood storms, tidal surges.
3. Adaptive measures in drought, saline, submergence by appropriate cultivars, cropping patterns and land and water management practices have been developed and tested by the Ministry of Agriculture.
4. To assess whether Ministry of Fisheries and Livestock has assessed potential threats to the poultry and livestock sectors.
5. Adaptive measures to threats in the livestock sectors have been developed and disseminated among farmers.
6. Veterinary services system including animal health measures in light of the likely increase in disease prevalence has been strengthened.
7. To examine if Ministry of Disaster Management and Relief has improved cyclone and storm warnings system and dissemination in the coastal areas.
8. Awareness raising programs have been implemented for local communities about impacts of climate change.
9. To assess if an effective insurance scheme has been devised by Ministry of Finance for losses in assets due to climate change impact.

Solution_Exercise 5-B

Subject Matter 1: Food Security, Social Protection and Health	
Audit Objectives	**Audit Criteria**
1. To examine whether Ministry of Agriculture has built institutional capacity to develop climate resilient cultivars of food and other crops.	a. Local improved cultivars have been collected and preserved.
	b. Research has been undertaken to develop climate resilient varieties of rice, wheat and other food and non-food crops including vegetables.
2. To examine whether Ministry of Agriculture has developed climate resilient cropping systems appropriate to different agro-climate regions and sub-regions.	a. Agro-economic zones vulnerable to climate change have been identified.
	b. Climate resilient cropping patterns suited to different regions of the country have been developed.
	c. Production technologies (mulching, water management, polytunnels, raised beds etc.) have been developed for crop production in the vulnerable areas.
	d. Early warning and weather forecasting for crop production against diseases, insects, drought, flood storms, tidal surges have been developed.
3. To examine whether Ministry of Health and Family Welfare has taken appropriate measures to address the impacts of climate change on disease patterns.	a. Research on the impact of climate change on health (including the incidence of malaria and dengue, diarrheal diseases, heatstroke) has been undertaken.
	b. Adaptive strategies against outbreaks of malaria, dengue and other vector borne diseases have been developed.
	c. Adaptive strategies against diarrheal and other diseases, which may increase due to climate change, have been developed.
Subject Matter 2: Comprehensive Disaster Management	
Audit Objectives	**Audit Criteria**
1. To ascertain whether the Ministry of Water Resources has improved flood forecasting and early warning systems.	a. Hydro-meteorological data network have been reviewed.
	b. Telemetric stations have been set up.
	c. Awareness building programme has been undertaken at community level.
2. To assess if Ministry of Finance and other line ministries, the insurance sector have ensured risk management against loss of income and property.	a. An effective insurance scheme has been devised for losses in property due to climate change impact.
	b. An effective insurance system has been developed for loss of income to person, household and enterprises.
Subject Matter 3: Infrastructure	
Audit Objectives	**Audit Criteria**
1. To examine whether Ministry of Water Resources has ensured continued flood protection.	a. Condition of all existing flood embankments has been assessed and GIS maps have been prepared.
	b. Repair and rehabilitation of existing embankments have been completed.
2. To ascertain whether Ministry of Water Resources and Ministry of Disaster Management and Relief have taken adequate steps for adaptation against floods and making flood prone areas more resilient.	a. A flood vulnerability map based on future projected climate parameters have been developed.
	b. Flood management infrastructure in light of likely future flood levels has been planned, designed and constructed.
	c. Flood plain zoning corresponding to various levels of vulnerability has been completed.
	d. Long term improvement of flood forecasting and warning system has been established.

Subject Matter 4: Mitigation and Low Carbon Development	
Audit Objectives	**Audit Criteria**
1. To assess whether Ministry of Power, Energy and Mineral Resources, Ministry of Industries, Ministry of Agriculture, Ministry of Communications, Ministry of Finance have taken steps to ensure an energy secure and low-carbon development of the economy.	a) Study has been conducted on the future energy needs of the country.
	b) Finds out the least cost energy supply path that satisfies future energy demands based on the desired growth path of the economy.
	c) Energy efficiency in power production, transmission and distribution has been raised through appropriate investments.
	d) Energy efficiency in agricultural and industrial processes has been raised through appropriate policies and investment.
	e) Energy efficiency in domestic and commercial/ service sectors has been raised through appropriate policies and investments.
	f) Energy efficiency in transport sector has been raised through appropriate policies and investments.
2. To assess whether Ministry of Local Government, Rural Development and Cooperatives has ensured livable cities while lowering GHG (methane) emissions.	a) Urban waste dumps have been designed to capture methane in all major urban areas.
	b) CDM mechanism is in operation to set up small power plants by capturing the produced methane from waste dumps.
3. To examine whether Ministry of Environment, Forest and Climate Change has ensured adequate and sustainable sinks for GHGs.	a) Supports have been provided to existing and new coastal afforestation programmes taking into account the future rise in salinity levels due to rise in the sea level.
	b) An extensive wetland afforestation programme has been developed to protect settlements against erosion.
	c) Support has been provided to existing and new homestead and social forestry programmes.
	d) Research as to the suitability of various tree species for their carbon-locking properties has been conducted.
4. To ascertain whether Ministry of Housing and Public Works has made arrangements to improve energy and water efficiency.	a) Installation of solar thermal power or small windmill at the rooftop or nearby all buildings and infrastructures has been completed.
	b) Building code has been revised for inclusion of energy saving devices in all infrastructures.
	c)Provision for planning of construction works in energy efficient methods has been made.
5. To examine whether Ministry of Power, Energy and Mineral Resources has stepped in to improve energy use efficiency in transport sector.	a) Low cost public transport modes such as rapid transit has been promoted.
	b) The use of fossil fuel has been reduced by improving the efficiency of energy usage.
	c) Arrangements have been made for substitution of biofuels, fossil fuels as appropriate.

Solution_Exercise 5-C

Audit Objectives and Audit Criteria for Climate Resilient Participatory Afforestation and Reforestation Project (CRPARP).

Overall Audit Objective: To determine whether the objectives of CRPARP Project have been achieved in a sustainable manner to cope with climate change.

ISSUE 1: Enhancement of forest coverage through afforestation and reforestation with climate resilient species in the target areas.

Audit Objective 1.1: To determine whether plantation has been made in the areas as specified in the DPP and PIM

Audit Criteria:

a) Plantation was established on the Reserved Forest Land under the control of BFD and on the lands that are under the process of reservation.

b) Areas selected for plantation included coastal mangrove lands including newly accreted char lands, roadsides, denuded forest and hilly areas (for core zone and buffer zone plantation).

c) 'Biophysical features' have been taken into consideration while making choice of plantation type.

d) Plantation sites were be selected as per the Site Selection Criteria mentioned in the PIM.

e) Dedicated satellite images related to afforestation and reforestation programme used before the commencement and after the completion of the project.

f) Afforestation and reforestation works are supported by Pre and Post Plantation Survey Reports.

g) Project sites were selected by a transparent consultation process with the Project Area Communities.

Audit Objective 1.2: To determine whether plantation has been made with the climate resilient species specified in the project documents (DPP, PIM) to increase forest coverage.

Audit Criteria:

a) Plantation was made with the climate resilient species specified in the project documents.

b) Diversity of species enhanced as per Project Implementation Manual.

c) Plantation raising techniques described in the PIM were followed.

d) The project adopted planting models and tree species combinations that would cumulatively enhance the resilience of forest and local communities in the project areas.

e) Plantation was established with climate resilient species.

f) 'Biophysical features' were taken into consideration while making choice of plantation type.

Audit Objective 1.3: To determine whether sustainability of plantation has been ensured.

Audit Criteria:

a) 'Biophysical features' have been taken into consideration while making choice of plantation type;

b) 1st year and 3rd year monitoring reports are prepared in the prescribed forms by the concerned Management Plan Division after individual survey of every plantation site.

c) Survival rate of plantation has been increased.

d) Dedicated satellite images related to afforestation and reforestation before and after the project support plantation survival.

e Pre and post plantation survey reports support survival of plantation.

f) Physical survey of BFD, inspection reports of BFD, monitoring reports and independent reports show that plantation have survived.

ISSUE 2: Ensuring effective community participation in afforestation and reforestation activities.

Audit Objective 2.1: To determine whether participants for afforestation and reforestation have been transparently selected through public consultation and they have been involved in field level planning and implementation.

Audit Criteria:

a) Social Forestry Rules 2011 was followed while selecting participants for afforestation and reforestation.

b) Consultations with the Project Area Communities were arranged to provide a process for selecting individuals willing to work as laborers and to provide a transparent process for selecting project beneficiaries.

c) Applications were invited from the local individuals willing to work as project beneficiaries.

d) Beneficiaries were selected at least 3 months ahead of the initiation of the plantation activities and they were selected by the nine (09) member Selection Committee formed under PIM.

e) 7 types of people such as (i) landless, (ii) owner of less than 50 decimals of land, (iii) poor and destitute women, (iv) backward communities, (v) poor indigenous, (vi) poor forest villagers and (vii) insolvent freedom fighters living within one square kilometer of the social forestry area were given priority for selecting as beneficiaries.

f) List of the beneficiaries was disclosed in a union level public meeting.

g) Database for all laborers and beneficiaries was maintained.

h) Agreements mentioning the duties and responsibilities and shares of the beneficiaries and BFD were signed before plantation.

i) Plantation Management Committee (of which 1/3 member should be women) was formed for the operation of social forestry activities.

ISSUE 3: Impact of the Alternative Livelihood Support programme of AF for the Forest Dependent Communities in building the long-term resilience to climate change.

Audit Objective 3.1: To determine whether beneficiaries of ALSFDC have been selected transparently as per provisions of the project documents.

Audit Criteria:

a) Selection criteria (poverty, forest dependency, gender, social status, etc) were quantified and scored as per PIM to select beneficiaries.

b) AF and its partner NGOs coordinated with the local BFD staff to ensure that people selected as beneficiaries of ALSFDC are given priority for inclusion in SF and afforestation and reforestation programmes.

c) Village meetings were arranged for selection of ALSFDC beneficiaries.

d) Baseline survey of household was undertaken.

Audit Objective 3.2: To determine whether training and other alternative livelihood facilities were provided effectively to the members of FDGs.

Audit Criteria:

a) The PNGOs prepared and organised training programmes on aspects of (i) organisational development and management, (ii) livelihood development for the FDG members and (iii) forest conservation and climate change adaptation for both FDGs and VCF members as per the training plan prescribed in the PIM;

b) Members of the FDGs were involved in the AIGAs with the facilities given by the project.

c) HH income of the FDG members enhanced with the facilities provided by the project.

ISSUE 4: 'Sustainable Capacity Development' of BFD for Forest Resource Assessment, Programme Monitoring, Long-term Planning and Resource Management.

Audit Objective 4.1: To determine whether National Forest Policy and Forestry Master Plan have been updated with evolving trend in forestry practices, socioeconomic, livelihood and climate resilience attributes, increasing land use change pressures and new strategies.

Audit Criteria:

a) National Forest Policy was updated identifying the important policy issues.

b) Forestry Master Plan was updated aligning with the core forest policies of Bangladesh.

ISSUE 5: Climate sensitivity of the project design

Audit Objective 5.1: To determine whether the project design is supportive to BCCSAP and NDC of Bangladesh.

Audit Criteria:

a) Project objectives and activities are aligned with the thematic area(s), programme(s), objective(s), and activities of BCCSAP.

b) Project objectives and activities are aligned with the NDC objectives of Bangladesh.

6.7. QUIZ

Quiz 5

Objective: The purpose of this exercise is to assess the understanding of the participants about climate change and climate performance audit criteria.

Instruction: The participants are required to mention some sources of climate performance audit criteria.

Ask the participants to say the sources of climate performance audit criteria as many as they can.

Any participant can volunteer.

Total time: 5 minutes.

6.8. SOLUTION TO QUIZ

Solution_Quiz 5

Some sources of climate performance audit criteria:

- Project document particularly the DPP or TAPP.
- Bangladesh Climate Change Strategy and Action Plan (BCCSAP).
- Bangladesh Climate Change Trust (BCCT).
- Bangladesh Climate Change Trust Fund (BCCTF).
- Climate Change Trust Act, 2010.
- The Perspective Plan (2021-2041).
- Bangladesh Delta Plan 2100.
- Haor Master Plan, 2012.
- The 8th Five-year Plan (2021-2025).
- Country Investment Plan for Climate Change (CIPCC).
- Nationally Determined Contributions (NDC).
- National Adaptation Programme of Action (NAPA).
- The United Nations Framework Convention on Climate Change (UNFCCC).
- The Kyoto Protocol.
- Marrakesh Accords.
- Bali Action Plan.
- The Copenhagen Accord.
- Paris Agreement.

SESSION 6

DESIGN THE AUDIT: AUDIT DESIGN MATRIX

7. SESSION 6: DESIGN THE AUDIT: AUDIT DESIGN MATRIX

Duration: 120 minutes

7.1. SESSION-AT-A-GLANCE

Learning Objective	Materials Required	Session Structure	Teaching Method	Time Required
The purpose of this session is to discuss elaborately the importance and preparation process of Audit Design Matrix. It is expected that at the end of the session the participants will be able to formulate Audit Design Matrix (ADM).	1. Participant's Notes 2. Slides 3. Computer 4. Multimedia Projector 5. Audio Visual Aid 6. Flip Charts 7. Stationary	**Session Overview**	1. Lecture	4 minutes
		Learning Objective	1. Lecture 2. Discussion	1 minute
		Key Teaching Points (KTP) **KTP-1:** Audit Design Matrix for Climate Performance Audit.	1. Lecture 2. Discussion 3. Exercise	100 minutes
		Evaluation	1. Question-Answer	10 minutes
		Summary	1. Lecture 2. Discussion	5 minutes
			Total Time:	**120 minutes**

7.2. PARTICIPANT'S NOTES

DESIGN THE AUDIT: AUDIT DESIGN MATRIX

Session overview:

In our earlier session we focused on the selection of audit topics and determining priorities. We also discussed the three main elements of audit planning; audit objectives, audit criteria and audit scope. In the present session, we shall embark upon another important audit planning tool: Audit Design Matrix (ADM). We shall try to understand how Audit Design Matrix helps the development of quality audit planning. Audit Design Matrix can be described as a backup for audit planning.

Learning objectives:

The purpose of this session is to discuss elaborately the importance and preparation process of Audit Design Matrix. It is expected that at the end of the session the participants will be able to formulate Audit Design Matrix (ADM).

1. Audit Design Matrix for Climate Performance Audit.

1.1 Audit design phase is very important to the success of an audit, as otherwise there is a risk of using time and other resources unwisely. There are various elements we need to consider and decide on before starting audit work in the field.

For practical reasons, it is useful to assemble these elements into one table, which is often referred to as an Audit Design Matrix (ADM) – a tool commonly used in the audit planning phase.

1.2 ***The following are the key elements to be considered when designing an audit:***

- What is the objective of the audit?
  - ✓ What do we want to find out?
- What questions must be answered in order to obtain the audit objective?
- How can we measure performance?
  - ✓ Are there relevant national standards/criteria supporting the audit objective?
  - ✓ Can we find international good practice?
  - ✓ Can we compare different entities with one another?
- What information do we need?
- What methods can we use?
  - ✓ Where are the data located and how will they be collected and analysed?
- What do we expect to find?
  - ✓ What conclusions can we draw?

An ADM actually assembles all these into one table. The main elements of an ADM are audit questions, sub-questions, criteria, information sources, methods and expected risks. Other elements can be added to an ADM – for example, recommendations and the required audit resources.

1.3 The audit design matrix has to accomplish different functions:

- ✓ It is a planning tool to support identification of the most relevant and feasible audit design.
- ✓ It is a communication tool to describe the design to the board of the SAI, the government or others
- ✓ It is an efficiency tool to encourage systematic data collection and analysis.
- ✓ It is an effective tool to enable the appropriate connection to be made between the expected audit findings (what the audit will enable the SAI to communicate), the criteria for - and the design of - the audit (researchable questions and methodology).

1.4 The design matrix may help to define the audit objectives, researchable questions, audit criteria, audit evidence, methods of collecting audit evidence, expected audit findings (risk areas), and implementation risk. The complexity of climate change issues makes the design matrix even more pertinent when planning climate change audits. More tailored matrices are needed when conducting audits in order to address and adapt the audit to the identified risks and constraints.

A design matrix scheme:[29]

What				How	Feasibility	
Audit objective	Audit questions	Audit Criteria	Audit evidence	Method	Risk areas	Implementation risk
What do we wish to achieve through the audit?	What do we wish to find out?	What yardstick will be used?	What information do we need?	What are the data and how will they be collected and analysed?	What conclusion can we draw?	Professional uncertainty in the design and project plan?

Example of a design matrix-Mitigation

Audit objective: *What do we wish to achieve through the audit?*

The goal of the investigation is to assess the authorities' work on implementing the decision of parliament about climate change, and to show that unclear goal can prevent target achievement.

What		How		Feasibility	
Audit question	**Audit criteria**	**Audit evidence**	**Method**	**Risk areas**	**Implementation risk**
1. To what extent does the responsible Ministry fulfil its overriding management responsibility to ensure goal achievement?	The Ministry's overriding responsibility for coordinating climate efforts. The sector Ministries' general responsibility in the environment field. Good governance and management criteria.	The main emission targets and how they have been operationalised. The Ministry's decision basis and plan for achieving the target. The sector Ministries' contributions to interdepartmental processes.	Document analysis and interviews. The documents to be examined will be identified in consultation with the Ministry. The interviews will be with the responsible Ministries and other sector Ministries.		The systems may be changed during the period (for example, through reorganisation of the work)
1.1 Has the responsible Ministry ensured that the overriding goals are sufficiently clearly defined and operationalised?	Good governance and management criteria.	That the goals can be documented, that they have been operationalised in the form of sub-goals and a time schedule.	A review of public documents, and interviews.	Overriding goals exist, but the extent to which sector goals are defined and sufficiently operationalised varies.	

[29] INTOSAI WGEA (2010) *Auditing the Government Response to Climate Change: Guidance for Supreme Audit Institutions.*

1.2 Has the responsible Ministry ensured that the sector goals are sufficiently clearly defined and operationalised?	Good management criteria. In an area where goal achievement is dependent on inter sector cooperation, sector goals must be defined, known and used in the sector Ministries. Instructions for official studies and reports.	That the sector goals can be documented in public documents or in internal documents, such as minutes of meeting or similar, and used as measures for the Ministries in question.	Request relevant documentation and use interviews to check whether the goals are used in actual work.	That the goals are not sufficiently defined and operationalised in all sectors, for instance in relation to the Kyoto period. The sector Ministries do not feel enough ownership, there are conflicting objectives, and the goals are not used in day-to-day administration	
1.3 Are roles and responsibilities sufficiently defined and clarified between the responsible Ministry and other Ministries?	Goal achievement in the area is dependent on inter-sector cooperation. Clear roles and responsibilities are a precondition for setting clear goals and defining responsibility for implementation.	An overview of how the different Ministries' responsibilities are described in official reports, proposals, and governing documents, and how they are perceived by the Ministries themselves.	Public documents, minutes, remits and similar. Interviews may help to reveal whether what is documented is also put into practice.	Various alliances, coalitions and differences in Ministries' powers might be an obstacle to the defined roles and responsibilities being respected.	
	Good management criteria. UNFCCC and Kyoto protocol. The Ministry's overriding responsibility for implementing the country's climate policy.	Documentation from Ministries and agencies that provide good management information. Statistics and projections.	Officials reports to UNFCCC, misc. white papers to the parliament.	Inadequate system to measure the effect of policy instruments. Too seldom reporting to ensure good control. Uncertainty whether the measurements actually reflect actual developments.	

Summary:

In the audit planning process, Audit Design Matrix (ADM) plays a very important role. It helps the development of audit plan and thereby facilitates the conduct of audit by the audit team. Audit Design Matrix encompasses Audit Objectives, Audit Question, Audit Criteria, Audit Evidence, Method, Risk Areas, and Implementation Risk. The Audit Design Matrix is prepared on the basis of information and knowledge gathered in the planning phase during the course of study. Auditors are required to update the Audit Design Matrix as and when they acquire sufficient knowledge relating to the subject matter of audit. A well-designed Audit Design Matrix results in effective audit planning and helps the production of quality audit report.

References:

1. INTOSAI WGEA (2010) *Auditing the Government Response to Climate Change: Guidelines for Supreme Audit Institutions*. Norway: INTOSAI WGEA.
2. INTOSAI (2019) *GUID 3920: The Performance Auditing Process.* VIENNA: INTOSAI General Secretariat.
3. INTOSAI (2019) *ISSAI 3000: Performance Audit Standard.* VIENNA: INTOSAI General Secretariat.
4. INTOSAI (2019) *ISSAI 300: Performance Audit Principles.* VIENNA: INTOSAI General Secretariat.

7.3. INSTRUCTOR'S GUIDE

	Instructor's guide	Reference	Participant's Response
1	**Welcome** the participants.		
	Introduce yourself to the participants.		
	Show the title of the session.	Slide 1	
	Briefly discuss on the session overview.	Slide 2	
	Tell the participants about the learning objectives of the session.	Slide 3	
2.	**KTP-1: Audit Design Matrix for Climate Performance Audit.**		
	Inquire the participants' knowledge about audit design matrix.		Record some responses and discuss
	Explain what ADM is.	Slide 4	
	Ask the participants if they can mention some of the functions of an ADM. **Tell** them to explain the functions/ importance from their audit experience.		Note the responses and discuss
	Discuss the functions of an ADM.	Slide 5	
	Ask the participants if they can tell the elements or contents of an ADM. **Tell** them to share from their audit experience.		Take some responses and then discuss.
	Discuss in detail the key elements to be considered while developing audit design matrix.	Slide 6	
	Discuss the key elements of an ADM.	Slide 7-15	
	Explain the design matrix scheme.	Slide 16	
	Discuss the example of ADM for Flooding to build realistic knowledge on how to develop ADM.	Slide 17	
	Build solid foundation on ADM using exercise. Distribute Exercise 6.	Slide 18 Exercise 6	
	Distribute the suggested solution of Exercise 6.	Solution_Exercise 6	
	Deepen participant's understanding of ADM by discussing examples of ADM.	Slide 19-27	
3.	**Evaluate** the understanding of the participants through question-answer.		
4.	**Summarise** the session. **Thank** the participants for their active participation in the discussion and declare the end of Session 6.	Slide 20 Slide 21	

7.4. SLIDES

Slide 1

Session 6

DESIGN THE AUDIT: AUDIT DESIGN MATRIX

Slide 2

Session overview

- In the present session, we shall concentrate on an important audit planning tool: audit design matrix (ADM).
- We shall try to understand how audit design matrix helps in developing the quality of audit planning.

Read the slide and **Discuss**.

Slide 3

Learning objective

- Given the lecture, discussion and exercise it is expected that at the end of the session the participants will be able to formulate audit design matrix (ADM).

Read the slide and **Discuss**.

Slide 4

1. Audit Design Matrix for Climate Performance Audit

- There are various elements we need to consider and decide on before starting audit work in the field.
- It is very useful to assemble these elements into one table, which is often referred to as an audit design matrix (ADM).
- ADM is a planning tool commonly used in the audit planning phase.

Ask the participants what an ADM is? Ask them to tell if they have experience of preparing an ADM.

Record: Some responses and **Discuss.**

Tell: After determining audit objectives and audit criteria, the next very important part of preparing an audit plan is to complete the ADM.

Read and Explain the slide.

Emphasise: That more tailored matrices are needed when conducting specific climate performance audits to address and adapt the identified risk and constraints.

Slide 5

Functions of audit design matrix

- Supports identification of the most relevant and feasible audit design.
- Describes the design of the audit to the SAI, the government or others.
- Encourages systematic data collection and analysis.
- Enables the appropriate connection to be made between the expected audit findings, the criteria for - and the design of - the audit.

Ask the participants if they can mention some of the functions of an ADM. **Tell** them to explain the functions/ importance from their audit experience.

Record: Some responses and **Discuss**.

Read and Explain the slide.

Tell: The ADM may help to define the audit objectives, researchable questions, audit criteria, audit evidence, methods of collecting evidence, expected audit findings, and implementation risk.

Emphasise: That the complexity of climate change issues makes the ADM even more useful when planning climate performance audits.

Slide 6

Key elements of an Audit Designing Matrix (ADM)

- What is the **objective of the audit**?
  - ✓ What do we want to find out?
- What **questions** must be answered in order to obtain the audit objective?
- How can we **measure** performance?
  - ✓ Are there relevant national standards/criteria supporting the audit objective?
  - ✓ Can we find international good practice?
  - ✓ Can we compare different entities with one another?
- What **information** do we need?
- What **methods** can we use?
  - ✓ Where are the data located and how will they be collected and analysed?
- What do we **expect to find**?
  - ✓ What conclusions can we draw?

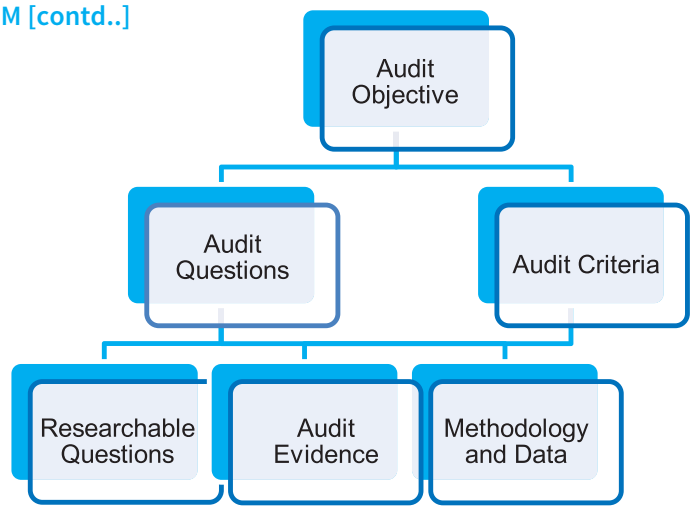
Ask the participants if they can tell the elements or contents of an ADM. Tell them to share from their audit experience.

Record: Some responses and **Discuss.**

Read and **Discuss** the slide.

Slide 7

Key elements of an ADM [contd..]



Explain: This is an illustration of the relationship between the elements necessary to design a matrix for an audit.

Tell: After having established an audit objective, one must pose audit questions, and consider available audit criteria, necessary to measure the auditee against. For some of the audit questions to be answered, it will be necessary to divide them into researchable sub-questions, with a higher level of detail. Then it is necessary to think about what evidence we need to answer the questions. We also need to consider carefully the data we need, and what methodology should be used to achieve this.

Slide 8

Key elements of an ADM [contd..]

- The audit questions:
  - ✓ Does the government have in place an overarching policy, plan or strategy?
  - ✓ Are policy instruments effective?
  - ✓ Is the governance of adaptation efficient?
  - ✓ Is the governance of the climate change response efficient?
  - ✓ Will the government meet its emissions targets or commitments?
  - ✓ Have the responsible ministries identified the climate change-related threats?

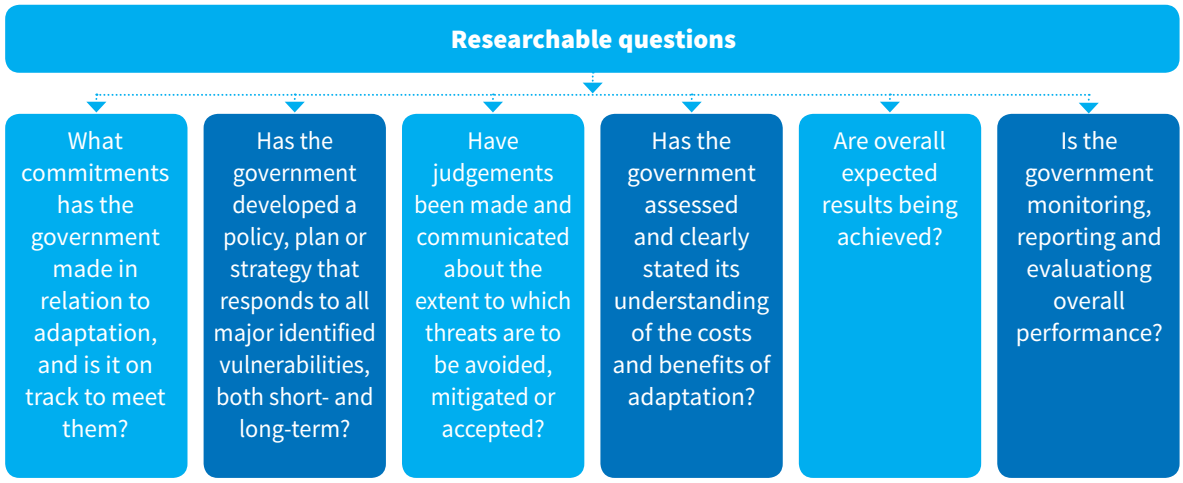
Explain: This is an illustration of the relationship between the elements necessary to design a matrix for an audit.

Tell: In this session we will discuss some audit questions and possible researchable questions against them. But detailed and specific audit questions and researchable questions will be determined depending on the specific audit topic or issue based on the identified risk and constraints.

Slide 9

Key elements of an ADM [contd..]

Audit question: Does the government have in place an overarching policy, plan or strategy?



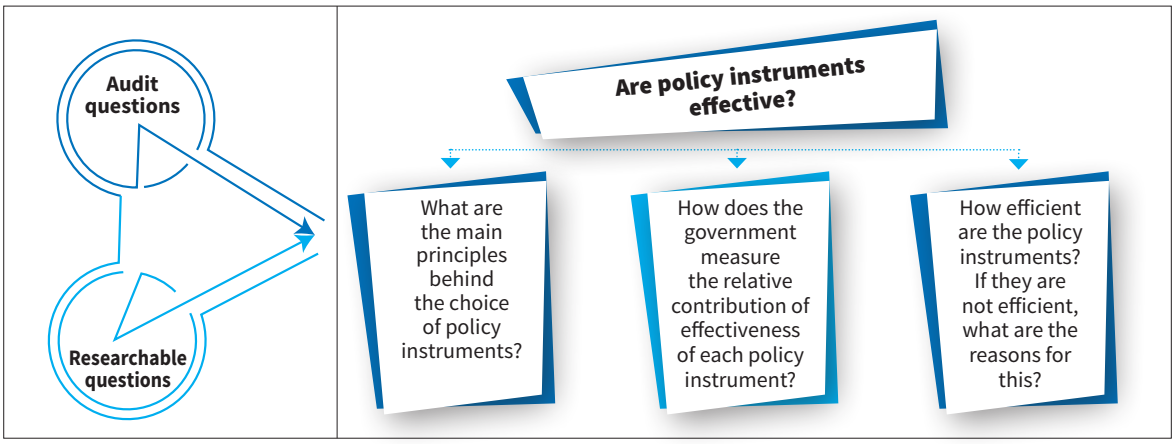
Read the slide

Tell: Here are some more examples-

- Does the government have procedures in place for identifying, evaluating and implementing technology development programmes?
- Has the government followed these procedures?
- Has the government identified internal and external barriers to mitigation technology deployment and transfer?
- Do the programmes comply with national rules and procedures about governance, accountability, oversight requirements, and management?
- How have activities and programmes been coordinated internationally?
- Does the government monitor and report on the effectiveness of these programmes?

Slide 10

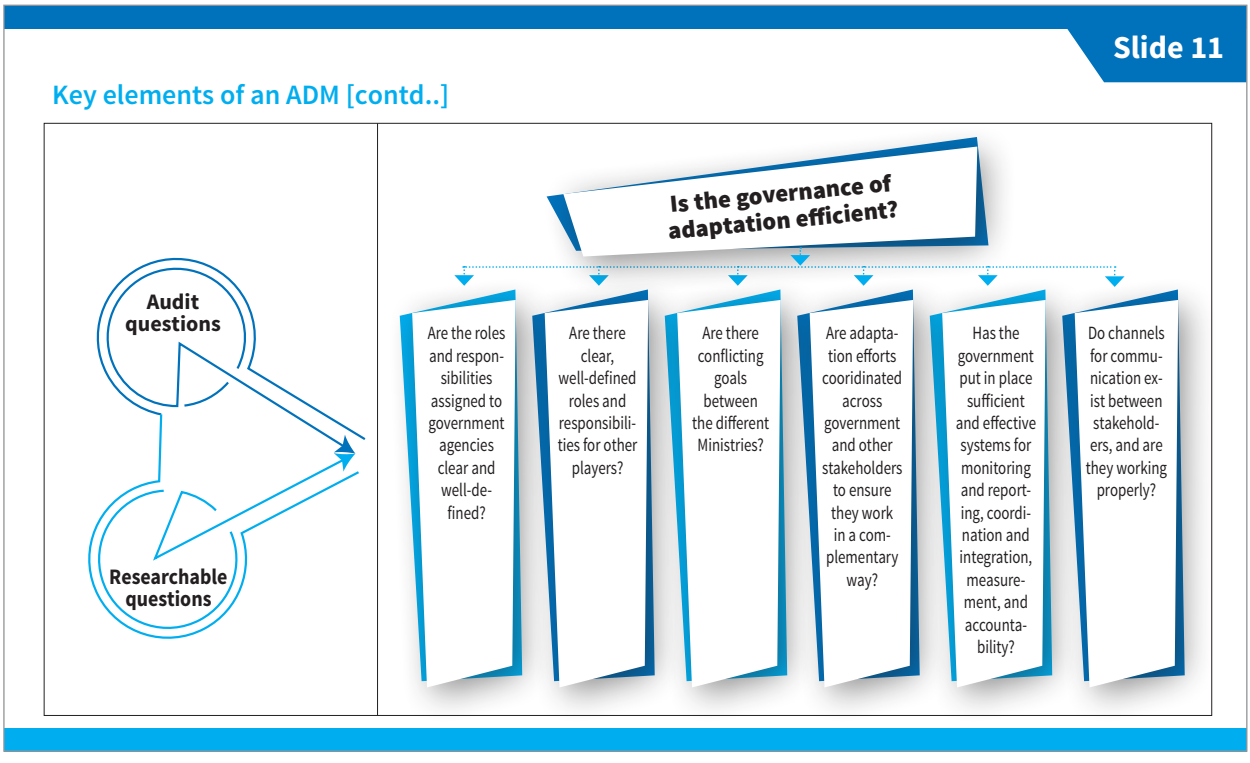
Key elements of an ADM [contd..]



Explain the slide.

Tell: Here are some more example of researchable questions-

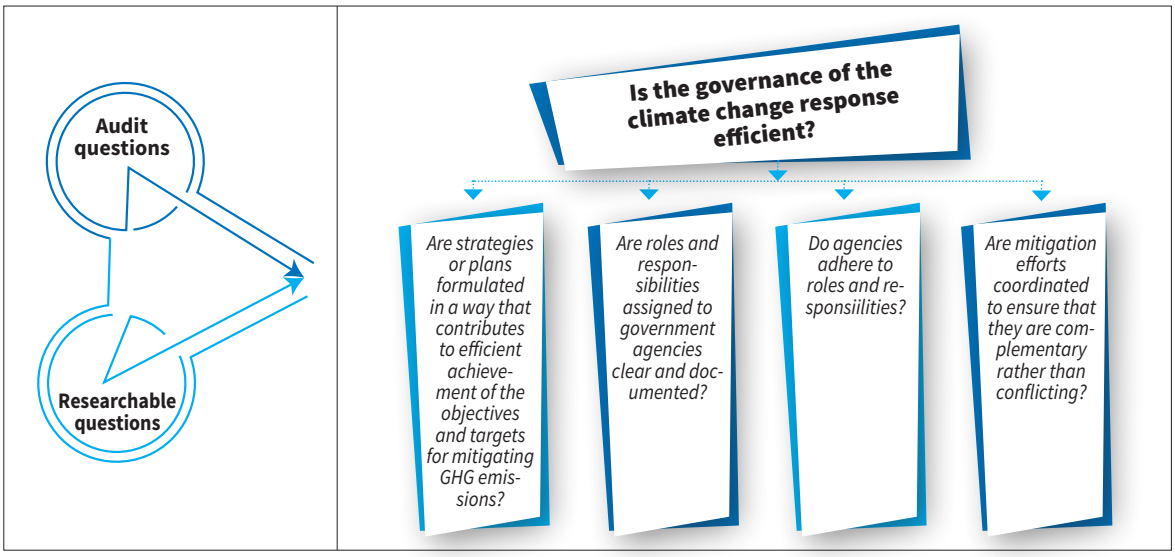
- Are the roles and responsibilities assigned to government agencies clear, well-defined and documented?
- Are there clear, well-defined and documented roles and responsibilities for other players, including sector interests, local and regional levels of government, civil society and the private sector?
- Are there conflicting goals between the different Ministries?
- Are adaptation efforts coordinated across government and other stakeholders, to ensure they are complementary rather than conflicting?
- Has the government put in place sufficient and effective systems for monitoring, coordination, integration, assigning clear responsibility, measurement, reporting, and accountability?
- Do channels for communication exist between stakeholders from the different levels of government, the private sector and the various sectors involved, and are they working properly?
- Are strategies or plans formulated in a way that contributes to efficient achievement of the objectives and targets for mitigating GHG emissions – at regional, national and sector levels and for all relevant sources (or sinks)?
- Are the targets SMART: specific, measurable, attainable, relevant and time-bound?
- Do agencies adhere to roles and responsibilities? If not, why not? Do agencies have the necessary capacity and resources? Does the main responsible ministry provide effective oversight of responsible agencies and players?



Read the slide and **Explain.**

Slide 12

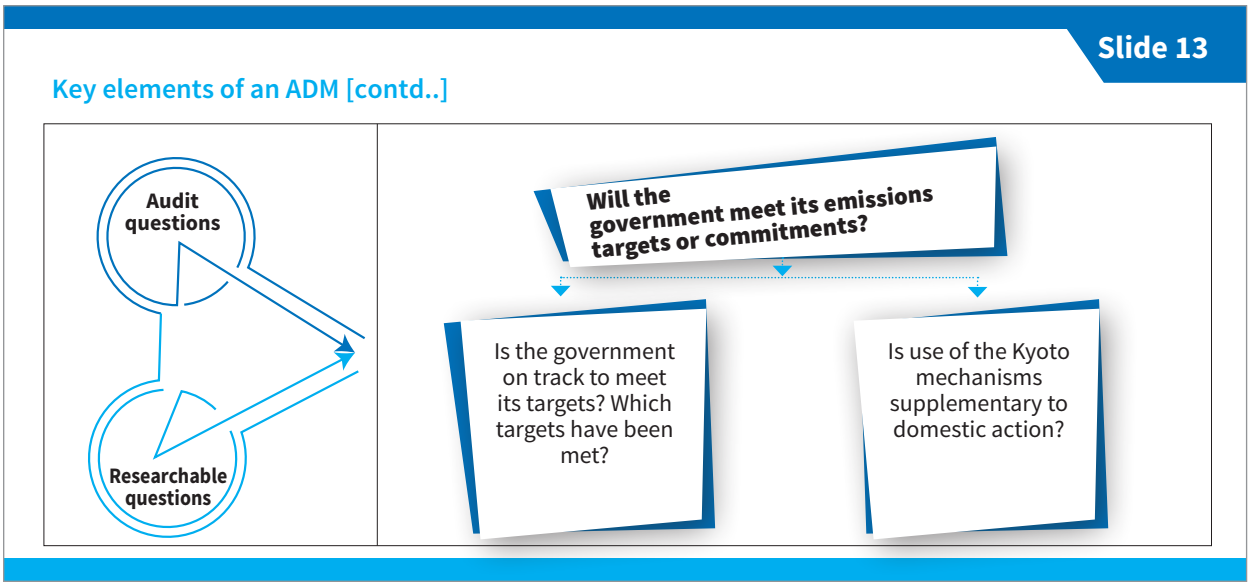
Key elements of an ADM [contd..]



Tell: This is an example of how an audit question focusing on governance can be operationalised by posing several researchable questions. The four on the slide are just some of the questions we can ask.

Is the governance of the climate change response efficient?

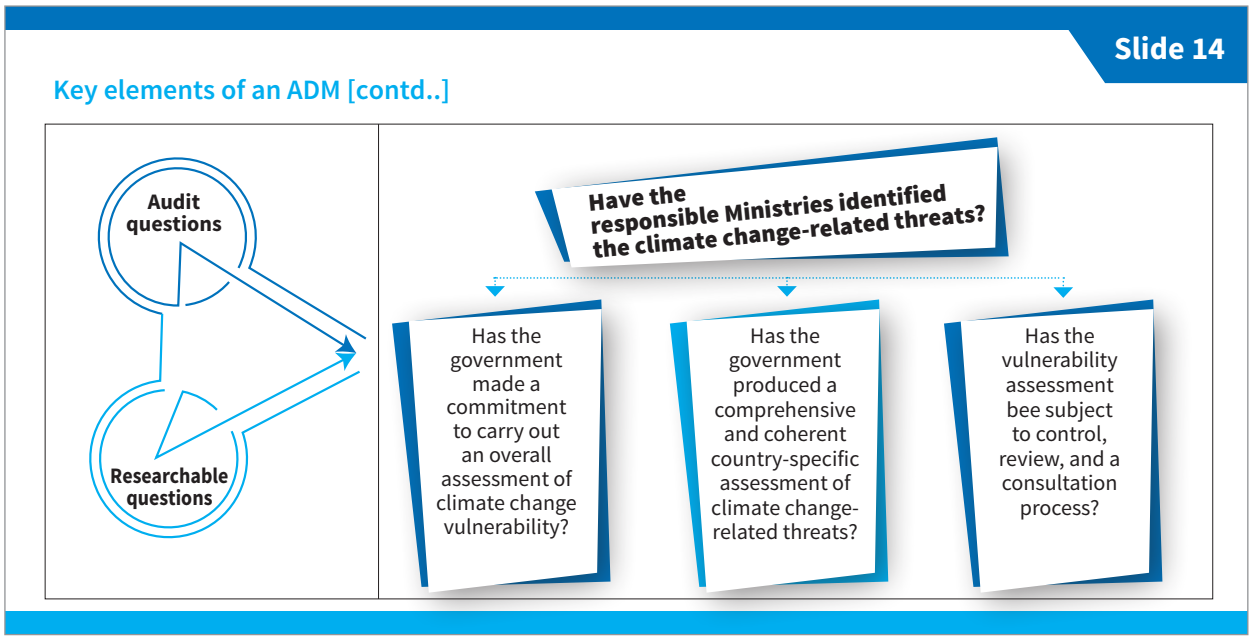
- Are strategies or plans formulated in a way that contributes to efficient achievement of the objectives and targets for mitigating GHG emissions – at regional, national and sector levels and for all relevant sources (or sinks)?
- Are the targets SMART: specific, measurable, attainable, relevant and time-bound?
- Are the roles and responsibilities assigned to government agencies clear and documented?
- Do agencies adhere to roles and responsibilities? If not, why not? Do agencies have the necessary capacity and resources? Does the main responsible ministry provide effective oversight of responsible agencies and players?
- Are mitigation efforts coordinated to ensure that they are complementary rather than conflicting?
- Are plans, policy choices and targets based on adequate environmental, social and economic data?
- Are data, including results, for decision-making transparent and reliable (for instance, subject to a peer review / quality assurance process)?
- Are policies and programmes subjected to regular evaluation?
- Have key risks influencing goal achievement been assessed?



Read the slide

Tell: The first audit question deals with compliance and effectiveness and can be operationalised into these researchable questions.

Tell: This slide shows the link between the overall audit question or objective and researchable questions that function as sub-questions to the overall objective. In other words, in order to be able to answer the audit question, we can break it down into two researchable questions.



Read the slide

Tell: This slide shows the link between the overall audit question or objective and researchable questions that function as sub-questions to the overall objective. In other words, in order to be able to answer the audit question, we can break it down into three researchable questions.

Slide 15

Key elements of an ADM [contd..]

- Methodology
  - ✓ Review of literature.
  - ✓ Interviews.
  - ✓ Spot visits.
  - ✓ Questionnaires (e.g., department self-assessments).
  - ✓ Statistical analysis.

Tell: These are just some examples of methodologies used in adaptation audits. Maybe someone has experience with other methods, techniques or approaches that could be useful?

Briefly mention the different methodologies.

Depending on the participants' degree of knowledge (as assessed before the course), explain how to use these methodologies in a climate change audit.

Also an option: Introduce examples of use of special methodologies based on instructor's or specialist's own experience.

Slide 16

Design matrix scheme

What				How	Feasibility	
Audit Objective	Audit Question	Audit Criteria	Audit Evidence	Methodology	Risk Areas	Implementation risk
What do we wish to achieve through the audit?	What do we wish to find out?	What yardstick will be used?	What information do we need?	What are the data and how will they be collected and analysed?	What conclusion can we draw?	Profession uncertainty in the design and project plan?

Discuss the slide.

Slide 17

Example of ADM: Adaptation

Audit objective: What do we wish to achieve through the audit?

Researchable question	Audit criteria	Audit evidence	Methodology	Risk areas
Are there areas that have not been mapped?	Planning and building legislation; reports to the Parliament.	Information about the mapping of the different threats, including climate change.	Analysis of data from registries (GIS); interviews; questionnaire.	Risk that flooding and landslide threats have not been sufficiently mapped.
Is the mapping of satisfactory quality?	Legislation related to insurance against natural disasters .	Information from the municipalities.	Interviews, questionnaire.	Information from the municipalities is not passed on.

Read the slide

Tell: This example of a design matrix can be used as inspiration for the group assignment.

Slide 18

Exercise 6

Objective: The purpose of this exercise is to enable the participants to sharpen their understanding on preparation of Design Matrix.

Time required: Total time for the exercise is 45 minutes.

- ✓ 30 minutes for group discussion and solution.
- ✓ 15 minutes for presentation and discussion.

Instructions: The participants are required to prepare a Design Matrix based on the information given in Exercise 6 based on their knowledge and discussion in this session.

Instruct the participants about the exercise.

After the end of the exercise Tell that the solutions of the exercise may not be prepared following exactly the same format discussed in the session although the basic contents are the same.

Distribute the solution of the exercise.

Slide 19

Example of ADM: Mitigation

Audit objective: Is the Government achieving its target to reduce GHG emission?

What			How	Feasibility	
Audit question	**Audit criteria**	**Audit evidence**	**Method**	**Risk areas**	**Implementation risk**
1. To what extent does the responsible Ministry fulfil its overriding management responsibility to ensure goal achievement?	The Ministry's overriding responsibility for coordinating climate efforts. The sector Ministries' general responsibility in the environment field. Good governance and management criteria.	The main emission targets and how they have been operationalised. The Ministry's decision basis and plan for achieving the target. The sector Ministries' contributions to interdepartmental processes.	Document analysis and interviews. The documents to be examined will be identified in consultation with the Ministry. The interviews will be with the responsible Ministries and other sector Ministries.		The systems may be changed during the period (for example, through reorganisation of the work).

Discuss the slide.

Slide 20

Example of ADM: Mitigation [contd..]

What			How	Feasibility	
Audit question	**Audit criteria**	**Audit evidence**	**Method**	**Risk areas**	**Implementation risk**
1.1 Has the responsible Ministry ensured that the overriding goals are sufficiently clearly defined and operationalised?	Good governance and management criteria.	That the goals can be documented, that they have been operationalised in the form of sub-goals and time schedule.	A review of public documents, and interviews.	Overriding goals exist, but the extent to which sector goals are defined and sufficiently operationalised varies.	

Discuss the points mentioned in the slide.

Slide 21

Example of ADM: Mitigation [contd..]

What			How	Feasibility	
Audit question	**Audit criteria**	**Audit evidence**	**Method**	**Risk areas**	**Implementation risk**
1.2 Has the responsible Ministry ensured that the sector goals are sufficiently clearly defined and operationalised?	Good management criteria. In an area where goal achievement is dependent on inter sector cooperation, sector goals must be defined, known and used in the sector Ministries. Instructions for official studies and reports.	That the sector goals can be documented in public documents or in internal documents, such as minutes of meeting or similar, and used as measures for the Ministries in question.	Request relevant documentation and use interviews to check whether the goals are used in actual work.	That the goasl are not sufficiently defined and operationalised in all sectors, for instance in relation to the Kyoto period. The sector ministries do not feel enough ownership, there are conflicting objectives, and the goals are not used in day-to-day administration.	

Discuss the slide.

Slide 20

Example of ADM: Mitigation [contd..]

What			How	Feasibility	
Audit question	**Audit criteria**	**Audit evidence**	**Method**	**Risk areas**	**Implementation risk**
1.3 Are role and responsibilities sufficiently defined and clarified between the responsible Ministry and other Ministries?	Goal achievement in the area is dependent on inter-sector cooperation. Clear roles and responsibilities are a precondition for setting clear goals and defining responsibility for implementation.	An overview of how the different Ministries responsibilities are described in official reports. proposals, and governing documents. and how they are perceived by the Ministries themselves.	Public documents, minutes, remits and similar. Interviews may help to reveal whether what is documented is also out into practice.	Various alliances, coalitions and differences in Ministries powers might be an obstacle to the defined roles and responsibilities being respected.	
	Good management criteria UNFCCC and Kyoto protocol. The Ministry's overriding responsibility for implementing the country's climate policy	Documentation from Ministries and agencies that provide good management information. Statistics and projections.	Officials reports to UNFCCC. misc. white papers to the parliament.	Inadequate system to measure the effect of policy instruments. Too seldom reporting to ensure good control. Uncertainty whether the measurements actually reflect actual developments.	

Read the slide.

Slide 23

Example of ADM: Adaptation

Audit objective: Has the risk of floods and land slides been adequately mapped and is there enough knowledge out the risk?

What			How	Feasibility	
Audit question	**Audit criteria**	**Audit evidence**	**Method**	**Risk areas**	**Implementation risk**
1. Has the risk of floods and landslides been adequately mapped and is there enough knowledge about the risks?					
1.1 Are there areas that have not been mapped?	▪ Recommendations to the parliament. ▪ Reports to the parliament.	▪ Information about the extent of the mapping of the different risk types. ▪ Information about climate changes has been taken into account in the mapping.	▪ Data from the relevant directorate and geological registers. ▪ Interviews with municipalities and focus groups with municipalities. ▪ Questionnaire survey.	Risk that floods and landslide risks have not been sufficiently mapped in several municipalities.	▪ Different levels of baselines make comparison difficult. ▪ Lack of common terminology may make it difficult to compare map data.

Discuss the slide.

Slide 24

Example of ADM: Adaptation [contd..]

What			How	Feasibility	
Audit question	**Audit criteria**	**Audit evidence**	**Method**	**Risk areas**	**Implementation risk**
1.2 Is the mapping of satisfactory quality?	• Legislation relating to insurance against and compensation for natural disasters. • Recommendations to the parliament.	Information that the municipalities pass on knowledge.	• Interviews with municipalities and focus groups with municipalities. • Questionnaire survey.	That knowledge is not passed on to those who need it .	Difficult to get enough documentation.

Discuss the slide.

Slide 25

Example of ADM: Adaptation [contd..]

What			How	Feasibility	
Audit question	**Audit criteria**	**Audit evidence**	**Method**	**Risk areas**	**Implementation risk**
1.3 Is the knowledge gained from the mapping passed on to relevant users?	Reports to the parliament about regional planning responsibility and about the relationship between central and local government.	Information that the municipalities pass on knowledge.	• Interviews, focus groups, questionnaire survey.	That knowledge is not passed on to those who need it.	Difficult to get enough documentation.

Discuss the slide.

Slide 26

Example of ADM: Adaptation [contd..]

What			How	Feasibility	
Audit question	**Audit criteria**	**Audit evidence**	**Method**	**Risk areas**	**Implementation risk**
2. Is there enough government control to prevent flood and landslide risks?					
2.1 Are the Ministries sufficiently coordinated as regards floods and landslides?	Legislation relating to water resources.	Information about the different Ministries' areas of responsibility, how the Ministries cooperate, and whether there are conflicting goals.	• Interview with the relevant Ministry and directorate of environmental affairs. • Map the number of objections and dispensation cases.	Fragmentation of responsibility- too many parties involved.	Legislation relating to water resources.

Discuss the slide.

Slide 27

Example of ADM: Adaptation [contd..]

What			How	Feasibility	
Audit question	**Audit criteria**	**Audit evidence**	**Method**	**Risk areas**	**Implementation risk**
2.2 How does the Ministry carry out its responsibility for preventing floods and landslides?	• Legislation relating to water resources • Recommendations and reports to parliament.	Information about how the directorate and the Ministry: - work in relation to floods and landslides. - process objections. - handle dispensation cases. - make use of their opportunities to change the requirements for reservoir levels.	• Mapping of the different Ministries' areas of responsibility. • Interviews. • Questionnaire to the municipalities.	Various weaknesses in the Ministries' control and the directorate's management Possible areas the directorate has registered as risk areas that have not been made safe.	Data that provide an overview of objections and dispensations may be difficult to access.

Discuss the slide.

Slide 28

Summary

- Audit design matrix plays a very important role. It helps the development of audit plan and thereby facilitates the conduct of audit.
- It encompasses audit objectives, audit question, audit criteria, audit evidence, method, risk areas, and implementation risk.
- A well-designed ADM results in effective audit planning and helps the production of quality audit report.
- Auditors are required to update the ADM as and when they acquire sufficient knowledge relating to the subject matter of audit.

Ask the participants to recap what are the elements of an ADM.

Ask someone to volunteer.

Take some responses.

Then **Summarise**.

Slide 29

7.5. EXERCISE

Exercise 6

Objective: The purpose of this exercise is to enable the participants to sharpen their understanding on preparation of Design Matrix.

Time required: Total time for the exercise is 45 minutes

- 30 minutes for group discussion and solution
- 15 minutes for presentation and discussion

Instructions: The participants are required to prepare a Design Matrix based on the information given below:

Project Summary:

Project Title	:	Climate Resilient Participatory Afforestation and Reforestation Project (CRPARP)	
Development Partner	:	World Bank, BCCRF Grant	
Funding Agencies	:	DFID, EU, Sweden (SIDA), USAID, Swiss, AusAid Denmark	
Implementing Agency	:	Bangladesh Forest Department (BFD) and Arannayk Foundation	
Executing Ministry	:	Ministry of Environment , Forest and Climate Change.	
Commencement of the Project	:	03 July 2013	
Date of project completion	:	31 December 2016	
Total Project Cost	:	GoB (In Kind)	Taka 810.00 lakh
		RPA	Taka 25,563.39 lakh
		AF	Taka 161.88 lakh
		Total	**Taka 26,535.27 lakh**
		Equivalent to US$ 35.00 million (approx.)	
Project Office	:	Office of the Project Director, CRPARP Ban Bhaban (Old), Dhaka	

Geographic Location of the Project:

Division	District	Upazila/ Location
Dhaka	**Dhaka**	Project Office, CRPARP, Ban Bhaban (Old), Dhaka.
		RIMS, Bana Bhaban, Agargaon, Dhaka.
Chattogram	**Chattogram**	Anwara, Banshkhali, Boalkhali, Chandanish, Fatikchari, Hathazari, Lohagora, Mirsharai, Pekuya, Patia, Sandip, Rangunia, Satkania, Sitakundu.
	Cox's Bazar	Chokoria, Cox's Bazar Sadar, Kutubdia, Moheshkhali, Ramu, Teknaf, Ukhiya.
	Noakhali	Companygonj, Hatiya, Noakhali Sadar, Subarna Char, Kabirhat, Senbag, Begumgonj, Sonamuri.
	Laxmipur	Laxmipur Sadar, Kamalnagar, Ramgoti.
	Feni	Fulgazi, Sonagazi, Porshuram, Chagolnaiya, FeniSadar, Dagonbhuiyan.
Barishal	**Barishal**	Agailjhara, Babugonj, Bakergonj, Banaripara, Barishal Sadar, Gournadi, Hijla, Mehandigonj, Muladi, Ujirpur.
	Bhola	Bhola Sadar, Borhanuddin, Char Fashion, Lalmohon, Monpura, Tajumuddin.
	Patuakhali	Golachipa, Kolapara, Mirjagonj, Patuakhali Sadar, Rangabali, Dashmina.
	Bargguna	Amtoli, Patharghata, Barguna Sadar, Bamna.

Project Objectives:

The overall objective of the project is to reduce forest degradation and increase forest coverage through participatory planning and monitoring and to contribute in building the long-term resilience of the communities in coastal and hilly areas to climate change.

The specific objectives of the project are:

i. To establish newly afforested and reforested areas using climate resilient species to work as windbreak along the coastal and hilly areas.

ii. To support alternative livelihoods of forest dependent communities.

iii. To strengthen the institutional capacity of the Forest Department to manage forest in a participatory and sustainable manner.

Project Activities:

Summary of project activities are given below:

- Plantation to increase forest areas through afforestation and reforestation.
- Creation of Core Zone, Mangrove and Jhaw forests.
- Plantation through participatory afforestation and reforestation under Social Forestry Rules.
- Employment creation for the poor people living near forests in the project areas.
- To expand alternative livelihood support of the forest-dependent communities.
- To enhance institutional capacity of the Forest Department.
- Acquisition of motor vehicles, engine boats, motorcycles, computers, photocopiers and other office equipment for the BFD.
- Procurement of furniture for different offices under BFD.
- Procurement of DSLR and Digital Cameras.
- Strengthening RIMS supplying computer hardware, software, printers, plotter, smart board, GPS etc and providing training for RIMS personnel.
- Procurement of very high-resolution satellite images.
- Construction of 76 camp offices.
- Technical study for land use mapping and for strengthening RIMS.
- Updating Forestry Master Plan for Bangladesh and Forest Management Policy.

Estimated cost of the Project:

The total estimated cost of the project as per RDPP is shown in the Table:

(Figure in Lac Taka)

Financing Pattern		Original	1st Revised	2nd Revised
GoB (In kind)		810.00	810.00	784.64
PA	RPA	27,378.00 (BCCRF)	27,378.00 (US$ 33.80 million)	26,678.84 (US$ 33.80 million)
	DPA	162.00 (AF)	162.00 (AF)	160.52 (AF)
	Total	27,540.00	27,540.00	26,839.36
Total		**28,350.00**	**28,350.00**	**27,624.00**

Actual cost of the Project:

Project resources and expenditure as of 31stDecember, 2016

(Figure in Lac Taka)

Resources	As of 31/12/2016
Government of Bangladesh	-
Grant/Loan from development partner (WB)-PIU	21,809.09
Grant from development partner (WB)-AF	3,754.30
Other resources (AF Contribution)	161.88
Opening balance	746.23
Total Resources	**26,471.50**
A. Expenditure incurred by AF	
Alternative livelihood	3,916.18
Sub Total:	**3,916.18**
B. Expenditure incurred by BFD	
Travel expenses	166.22
Contingent staff and consultancy	4,522.06
Petrol, oil and lubricant	434.20
Printing, stationeries, workshop, meeting etc.	83.72
Repair and maintenance	68.27
Motor vehicles	160.96
Computer and accessories	115.21
Other office equipment	595.13
Afforestation	12,218.36
Training	447.92
Civil works	2,729.44
Others/	216.78
Sub Total:	**21,798.27**
Total Expenditure (A+B)	**25,714.45**

Component wise project resource and expenditure

(Figure in Lac Taka)

Component	Budget				Expenditures			
	GoB (In kind)	PA		Total	GoB (In kind)	PA		Total
		RPA (BCCRF)	PA (AF)			RPA (BCCRF)	PA (AF)	
Component 1: Afforestation and Reforestation Programme	-	16,760.34	-	16,760.34	-	16,030.85	0	16,030.85
Component 2: Alternative Livelihood Support to FDCs	-	3,788.88	160.52	3,949.50	-	3,754.30	161.88	3,916.18
Component 3: Capacity Development for Forest Resources Planning and Management	-	4,588.97	-	4,588.97	-	4,522.06	-	4,522.06
Component 4: Project Management	784.64	1,540.65	-	2,325.29	784.64	1,245.36	0.00	2,030.00
Total	**784.64**	**6678.84**		**27,624.10**	**784.64**	**25,552.55**	**161.88**	**26,499.09**

Financial operation and control:

i) GoB Fund: Funding from GoB is 'In Kind' only.

ii) RPA: The CRPARP project is basically implemented by the Bangladesh Forest Department but the component 2 of the project, Alternative Livelihood Support programmes, is implemented by the Arannyak Foundation. Consequently, the project fund was administered by the Bangladesh Forest Department and the Arannyak Foundation.

Two special (CONTASA) accounts, one with the Sonali Bank Ltd. was managed by PD and another special account was managed by Arannayk Foundation. RPA Fund had been transferred to the special accounts directly by the donor agency on the basis of withdrawal applications (SOE Procedures). The RPA fund from the special account managed by the PD was transferred to 11 (eleven) operating accounts (one managed by PD and remaining ten accounts managed by 10 DFOs) from time to time. Expenditures were incurred from the 11 operating accounts as and when required. The RPA fund from the special account managed by the Arannayk Foundation was exclusively used by the Foundation itself.

iii) Others (AF): Arannayk Foundation used its own fund directly and sent statement to the PD.

Project Components:

Component 1: Afforestation and Reforestation

CRPARP aimed to establish new afforested and reforested areas of total 17,500 ha block plantation and 2,000 km strip plantation through participatory approaches in sixty-four Upazilas of nine Districts under Chattogram and Barishal Divisions.

According to the project documents, under block plantation, seven types of plantations such as Mangrove, Mound, Enrichment, Buffer Zone, Buffer Zone-Non-Mangove, Jhaw and Core Zone plantations have been established. The project has completed block plantation in 17,500 hectares of land of which 10,015 hectares

are in the hilly areas of Chattogram and Cox's Bazar and 7,485 hectares are in the coastal forest area. Forest Division and Plantation Type wise statement is shown in the following table:

Component 2: Alternative Livelihood Support to the Forest Dependent Communities

This component was implemented by Arannayk Foundation (AF) with two Partner NGOs (PNGOs)- Uttaran and YPSA. The objective of this component was to improve and diversify non-forest-based livelihood opportunities of the poor and forest dependent households; and to reduce dependence on forest and ensure the sustainable use, conservation and protection of the forest resources. As per relevant reports of the implementing agency,

- AF and PNGOs have selected 6,000 extreme poor and vulnerable households from 200 villages in the project areas and the households have been organised into 200 hundred Forest Dependent Groups (FDGs).
- More than 80 percent of the Alternative Income Generating (AIG) members are female.
- AF and the PNGOs have formed 21 Community Patrolling Groups (CPGs). Each CPG is composed of 21 members selected from the FDGs.
- 55 union level federations have been established with the members of the FDGs.
- 55 Mutual Rotating Savings and Loan Funds (MRSLF) have been established at the 55 union level Federations to provide loan support for AIG Activities (AIGAs).
- AF has contributed 3.5 tonnes of different types of vegetable seeds and 36,000 fruit seedlings among the members of the FDGs.
- It was also reported that Taka 1,392.11 lakh has been disbursed to MRSLF Accounts of union-based Federations to match their Taka 1,614.11 lakh (approx) savings fund.
- It was also reported that AF distributed 6,000 improved cooking stoves to the 6,000 households with a view to reducing the fuel wood consumption by 50 percent

Component 3: Capacity Development for Forest Resource Planning and Management

Institutional Capacity Development - As part of institutional capacity development, a technical study for Land Use Mapping, Assessment and Monitoring of Afforestation and Reforestation sites have been done by IUCN. Technical studies to strengthen Forest Resource Monitoring and Assessment System and Forest Resource Management Information System have been completed. The project has updated the Forestry Sector Master Plan and National Forest Policy which have been submitted to the higher authorities for approval.

Organisational Capacity Development - To develop organisational capacity, a total of 76 forest camp offices were constructed in 10 forest divisions. The camp offices were built in such a so that they can be used as cyclone centre during natural calamities.

Professional Capacity Development - According to the project documents, a number of officers have completed overseas short courses, exposure visits and study tours. 5 officers have completed Masters in Climate Change and Forestry from U.K. About 17000 local level beneficiaries have also been trained. Local skill development trainings for 73 BFD officials have been completed from the project. Another Training Program for 380 officials have also been completed.

The Project has purchased high configured desktop PCs, printers, digital SLR camera, software- e-Cognition, ENVI, ARCGIS, ERDAS, hardware accessories etc to strengthen RIMS unit. Plotter, Large Format Scanner, Network attached storage etc have also been procured for RIMS during the project period.

Component 4: Project Management

This component supports Project Implementation Unit (PIU) for effective implementation of component 1 and 3. The PIU provides necessary support for financial management, social and environmental safeguards, communication and procurement to AF and field offices.

7.6. SOLUTION TO EXERCISE

Solution_Exercise 6

Audit Design Matrix for Performance Audit on Climate Resilient Participatory Afforestation and Reforestation Project

Overall Audit Objective: To determine whether the objectives of CRPARP Project have been achieved in a sustainable manner to cope with climate change.				
Sub-Objective: To determine forest coverage through afforestation and reforestation with the climate resilient species in the target areas.				
Line of Inquiry (LOI)	Audit Criteria	Required Evidence and Sources of Evidence	Audit Methodology	Limitations
Whether plantation has been made with the climate resilient species specified in the project documents (DPP, PIM) to increase forest coverage	Plantations made with the climate resilient species.	**Evidence:** Records preserved in the concerned FD offices, Pre and post plantation survey reports, Monitoring reports of IUCN and Management Plan Division, Minutes of the meetings arranged with the beneficiaries, Plantation Journals, Physical Inspection/ Verification/Survey reports of Audit Team. **Source:** PD office, Concerned DFO/ Range/ Beat offices and the plantation area.	Document collection, review and analysis. Interviews with the key persons of BFD. Questionnaire. Field visit. Physical inspection/ verification. Data analysis.	Possibility of inadequate data, time constraints, baseline data may not be available.
	Diversity of species enhanced as per Project Implementation Manual.			
	Survival percentage enhanced.			
	Monitoring reports prepared in the prescribed forms by the concerned Management Plan Division after individual survey of every plantation site.			
	Plantation raising techniques described in the PIM followed.			
	The project adopted planting models and tree species combinations that would cumulatively enhance the resilience of forest and local communities in the project areas.	**Evidence:** Monitoring reports of IUCN and Management Plan Division, Satellite imagery reports. **Source:** PD office and RIMS.	Document collection, review and analysis.	
	'Biophysical features' taken into consideration while making choice of plantation type.			
	Species with climate resilience attributes for plantation selected by a transparent consultation process with Project Area Communities.			

SESSION 7

COURSE EVALUATION AND CLOSURE

8. SESSION 7: COURSE EVALUATION AND CLOSURE

Duration: 120 minutes

8.1. SESSION-AT-A-GLANCE

Session Objective	Materials Required	Session Structure	Teaching Method	Time Required
▪ Evaluation of learning of the participants. ▪ Evaluation of the Course.	1. Evaluation Quiz 2. Course Evaluation Questionnaire 3. Audio Visual Aid 4. Flip Charts 5. Stationary	**Session Overview**	1. Lecture	5 minutes
		Key Teaching Points (KTP) **KTP-1:** Evaluation of Overall Learning of the Participants. **KTP-2:** Evaluation of the Course.	1. Discussion 2. Evaluation Quiz 1. Evaluation Questionnaire	35 minutes 15 minutes
		Summary	1. Lecture	5 minutes
Closure				60 minutes
Total Time				**120 minutes**

8.2. SLIDES

Slide 1

Session 7

COURSE EVALUATION

Slide 2

Session overview

- In this session the understanding of the participants will be assessed using an exercise in the form of simple quiz.
- At the same time the participants will evaluate the training course as whole using an evaluation template.

Explain the objectives and activities of the session.

Slide 3

Quiz 7

Objective: The purpose of this exercise is to assess the understanding of the participants about climate change and climate performance audit.

Time required: Total time for the exercise is 30 minutes.

- ✓ 20 minutes for solution.
- ✓ 10 minutes for discussion.

Instruction:

- For part 'A' the participants are required to Tick (√) out the right answer among the multiple answers.
- For part 'B' the participants are required to match correct answer from the right side with the questions at the left side.

Give instructions to the participants about the **Quiz 7.**

Distribute the Quiz 7**.**

Conduct the exercise.

Distribute the solution to the Quiz 7.

Slide 4

Course Summery

Summarise the course by highlighting main points discussed in the training sessions.

Slide 5

Course Evaluation

- The Evaluation Form.
- Total time: 15 minutes.

Give instructions to the participants about the purpose of course evaluation. Instruct them how to fill the form.

Distribute the evaluation form.

Collect the filled in evaluation form.

Emphasise: That more tailored matrices are needed when conducting specific climate performance audits to address and adapt the identified risk and constraints.

Slide 6

Thanks to All

Thank the participants for their active participation and making the training course effective.

Tell them to disseminate the learning in the respective offices.

8.3. QUIZ

Quiz 7

Objective: The purpose of this exercise is to assess the understanding of the participants about climate change and climate performance audit.

Time required: Total time for the exercise is 30 minutes.

- 20 minutes for solution.
- 10 minutes for discussion.

Instruction: For part 'A' the participants are required to Tick (√) out the right answer among the multiple answers. For part 'B' the participants are required to match correct answer from the right side with the questions at left side.

Part – A:

1. How many Parties have ratified the UNFCCC?
    a. 174
    b. 184
    c. 194
2. What are some of the main climate change impacts? (Several answers possible)
    a. Loss of habitat and species
    b. Reduced crop yields
    c. Increased spread of diseases
    d. Inundation of coastal lands
3. Even if we manage to reduce GHG emissions by 80 percent by 2050, will it be necessary to adapt to climate change?
    a. Yes
    b. No
4. What commitments are there on science and technology in the UNFCCC?
    a. None
    b. Cooperate on technology transfer
    c. Promote scientific research and cooperate on technology transfer
5. What does adaptive capacity mean?
    a. A system's capacity to realise adaptation
    b. The capacity to avoid climate change
    c. People's willingness to adapt
6. What is a good way to reduce vulnerability to climate change? (Several answers possible)
    a. Increase adaptive capacity
    b. Reduce potential impacts
    c. Mitigate emissions of GHGs

7. What commitments do developing countries have in adapting to climate change?
    a. Develop and implement programs of adaptation
    b. None
    c. Develop and implement programmes of adaptation, and cooperate on research, technology transfer and adaptation in coastal zones, water resources, agriculture, drought and desertification

8. Which of these could be an adaptation measure? (Several answers possible)
    a. Early-warning system for flooding
    b. Funding for monitoring of climate systems
    c. Clean Development Mechanism

9. Rank these sectors from biggest to smallest based on the size of their GHG emissions:
    a. Energy (1: 25.9 percent)
    b. Agriculture (4: 13.5 percent)
    c. Industry (2: 19.4 percent)
    d. Forestry (3: 17.4 percent)

10. How would you recognise an emissions sector for which there is a cause for concern?
    a. Increasing emissions
    b. Decreasing emissions
    c. Increasing emissions and no action taken to reduce emissions

11. Which of the two statements regarding auditing climate change mitigation in developing countries would say is more correct?
    a. Auditing climate change mitigation in developing countries is important because emissions are growing faster in developing than developed countries, and because reaching the 2-degrees target must involve a stabilisation of emissions in developing countries
    b. It is not relevant, because developing countries have no commitments under the Kyoto Protocol

12. Which countries have quantified emissions reduction targets under Kyoto Protocol?
    a. Annex I Parties
    b. Annex II Parties
    c. Non-Annex Parties

Part - B:

1. What is climate change?		**A. Long-term planning based on vulnerability assessments**
2. What is the cause of climate change?		B. Article 4
3. As an audit criterion for adaptation, which of the articles of the UNFCCC is the most important?		C. Rising sea temperatures and ocean acidification
4. What is almost always a necessary precondition for successful adaptation?		D. Human activity creating increased GHG emissions (and natural changes)
5. What is adaptation?		E. Implementation of policies to reduce GHG emissions or enhance sinks
6. What are the main climate change-related threats to coral reefs?		F. Take action to moderate harm or exploit benefits caused by effects of global warming
7. What is the main objective of the UNFCCC?		G. Emission trading scheme.
8. What is mitigation?		H. The Ministry of Environment, Forest and Climate Change.
9. Who is the most likely to have the overall responsibility for climate change policy in a given country?		I. When the climate deviates from the average climate during a long period of time.
10. What is an important policy instrument for mitigating emissions?		J. To achieve stabilisation of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

8.4. SOLUTION TO QUIZ

Solution_Quiz7

Part - A:

1. How many Parties have ratified the UNFCCC?
    a. 174
    b. 184
    c. 194 √
2. What are some of the main climate change impacts? (Several answers possible)
    a. Loss of habitat and species √
    b. Reduced crop yields √
    c. Increased spread of diseases √
    d. Inundation of coastal lands √
3. Even if we manage to reduce GHG emissions by 80 percent by 2050, will it be necessary to adapt to climate change?
    a. Yes √
    b. No
4. What commitments are there on science and technology in the UNFCCC?
    a. None
    b. Cooperate on technology transfer
    c. Promote scientific research and cooperate on technology transfer √
5. What does adaptive capacity mean?
    a. A system's capacity to realise adaptation √
    b. The capacity to avoid climate change
    c. People's willingness to adapt
6. What is a good way to reduce vulnerability to climate change? (Several answers possible)
    a. Increase adaptive capacity √
    b. Reduce potential impacts
    c. Mitigate emissions of GHGs
7. What commitments do developing countries have in adapting to climate change?
    a. Develop and implement programs of adaptation
    b. None
    c. Develop and implement programmes of adaptation, and cooperate on research, technology transfer and adaptation in coastal zones, water resources, agriculture, drought and desertification √

8. Which of these could be an adaptation measure? (Several answers possible)
    a. Early-warning system for flooding √
    b. Funding for monitoring of climate systems √
    c. Clean Development Mechanism

9. Rank these sectors from biggest to smallest based on the size of their GHG emissions:
    a. Energy (1: 25.9 percent)……....1
    b. Agriculture (4: 13.5 percent)……..…....4
    c. Industry (2: 19.4 percent)……..2
    d. Forestry (3: 17.4 percent)……..3

10. How would you recognise an emissions sector for which there is a cause for concern?
    a. Increasing emissions √
    b. Decreasing emissions
    c. Increasing emissions and no action taken to reduce emissions

11. Which of the two statements regarding auditing climate change mitigation in developing countries would say is more correct?
    a. Auditing climate change mitigation in developing countries is important because emissions are growing faster in developing than developed countries, and because reaching the 2-degrees target must involve a stabilisation of emissions in developing countries √
    b. It is not relevant, because developing countries have no commitments under the Kyoto Protocol

12. Which countries have quantified emissions reduction targets under Kyoto Protocol?
    a. Annex I Parties√
    b. Annex II Parties
    c. Non-Annex Parties

Part – B:

1. What is climate change?	I	A. Long-term planning based on vulnerability assessments
2. What is the cause of climate change?	D	B. Article 4
3. As an audit criterion for adaptation, which of the articles of the UNFCCC is the most important?	B	C. Rising sea temperatures and ocean acidification
4. What is almost always a necessary precondition for successful adaptation?	A	D. Human activity creating increased GHG emissions (and natural changes)
5. What is adaptation?	F	E. Implementation of policies to reduce GHG emissions or enhance sinks
6. What are the main climate change-related threats to coral reefs?	C	F. Take action to moderate harm or exploit benefits caused by effects of global warming
7. What is the main objective of the UNFCCC?	J	G. Emission trading scheme.
8. What is mitigation?	E	H. The Ministry of Environment, Forest and Climate Change.
9. Who is the most likely to have the overall responsibility for climate change policy in a given country?	H	I. When the climate deviates from the average climate during a long period of time
10. What is an important policy instrument for mitigating emissions?	G	J. To achieve stabilisation of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system

8.5. COURSE EVALUATION FORM

Climate Performance Audit Planning
Course Evaluation

Please take the time to complete this questionnaire and feel free to give your comments.

Part One - Course Content and Materials

1.1 The course objectives as you understand them were:

Unclear	1	2	3	4	5	Very well defined
Insignificant	1	2	3	4	5	Important to my work needs
Not achieved	1	2	3	4	5	Fully achieved

1.2 Review the list of sessions below and mark with an X the option that best reflects your opinion about the amount of information and exercises.

	Amount of information			Exercises		
Sessions	**Too much information**	**Appropriate amount of information**	**Important information missing**	**Good number of exercises**	**Too many exercises**	**Insufficient number of exercises**

1.3 What was the most valuable part of the course? Why?

1.4 Should any parts of the course be dropped or drastically changed? Why?

1.5 I would like to suggest the following improvements to the course content:

1.6 I found the course materials to be

☐ Less than Adequate ☐ Adequate ☐ Superior

Suggestions for improving the course material:

1.7 In training methods, I would have preferred:

No changes	More chance to participate	More team exercises	More group discussions
More written exercises	More lecture	Other	More individual exercises

1.8 The length of this course was:

Not enough for achieving its objectives	Appropriate to its objectives	Too long

Add any comments:

1.9 What is your overall rating of this course?

Excellent – difficult to improve	Very good – minor improvements possible	Good – some important improvements possible	Adequate – major improvements needed
Poor – radical changes necessary			

Part Two - Facilities

2.1 The training facility was:

Excellent	Good	Poor

Comments:

Part Three – Performance of the Instructional Team

Please provide feedback concerning the performance of the instructional team

3.1 Overall, I found the performance of the instructional team to be:

Not knowledgeable	1	2	3	4	5	Very knowledgeable
Poor presenter(s)	1	2	3	4	5	Excellent presenter(s)

3.2 Comments relating to the instructors:

Conclusion
Any other comments about the course:

Thank you! Your comments and suggestions are greatly appreciated.

Name (optional): _____

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UNDP Office
IDB Bhaban (8th floor)
Sher-e-Bangla Nagar, Agargaon
Dhaka-1207

Phone: +88-02-55667788
Fax: +88-02-9183099