



Certificate Course on Climate Change and Public Health

Jointly Organized By:

Dept. of Disaster Science and Climate Resilience (DSCR), University of Dhaka.

and

Climate Change and Health Promotion Unit (CCHPU), HSD, MoHFW



Technical and Financial Support By:

Foreign, Commonwealth and Development Office (FCDO) and United Nation Population Fund (UNFPA)

Objective of the program

Broad Objective

The overall objective of this course is to enhance resilience and adaptive capacity to the effects of climate change on human health by providing a foundational understanding of the science of climate change, health vulnerabilities of population due to climate change, and practical skills of climate change modelling, surveillance, health impact assessment, and programmatic and policy interventions at various levels.

Specific Objectives

The proposed course curriculum will focus on the following specific objectives:

- To develop a solid foundation of the current evidence on climate change and public health from both national and international perspectives.
- To be equipped for leading climate and health related professionals at own institution or within own community (creation of skilled professional on Climate Change and Health).
- To strengthen institutional capacity and knowledge management on climate change and public health.
- To improve project planning, proposal writing, project development and implementation capacities.
- To revitalize analytical skills for data and interpretation.
- To gain better communication and advocacy skills.
- To contribute in building climate resilient health system.
- To gain a new professional network that will help to lead the way in addressing the adverse impacts of climate change on health and improve governance on climate change and health adaptation in Bangladesh.

Structure of the Curriculum

This certificate course on “Climate Change and Public Health” will provide foundational, theoretical, and practical knowledge and skills in the field of climate change and public health. The course duration will be **3 months** or **13 weeks**. The completion time for this course is estimated at **126 hours in 37 days**. And the course will be divided in **3 parts**:

- A. **Blended Learning Sessions: 36 hours** didactic lecture sessions with expert resource persons and moderated Q and A sessions. These sessions will be covered through **12 days’ class lectures in 6 weeks (weekly 6 hours in 2 off-days (Friday and Saturday); per day 3 hours)**. Two class lectures will be taken in each day. The duration of each class will be **1.5 hours**.
- B. **Fieldwork for Project Development: 2 weeks** fieldwork which will be covered in **10 days (5 days per week)**. There will be 6 groups for participating in the activities with 6 expert team leaders (each group having 5 to 6 team members). The whole process will consist of **3 segments** and the completion time is estimated at **60 hours**:
- Project Appraisal and Project Development--- **18 hours** in 3 consecutive days (6 hrs/day)
 - Data Collection and Data Analysis--- **24 hours** in 4 consecutive days (6 hrs/day)
 - Preparation of Field Report and Project Proposal--- **18 hours** in 3 consecutive days (6 hrs/day)
- C. **Project Presentation and Assessment**: After completion of the fieldwork, the program will be further expanded through group presentation and assessment based on quizzes, assignment, presentation and viva-voce. The participants will get **5 weeks, 15 days (3 days per week)**, and **30 hours (2 hours per day)** to complete this phase. The part will also consist of **3 segments**:
- **Groupwork**: Extensive group work/discussion will be performed by each group for developing combined, innovative proposal and project presentation. They will get **2 weeks, 6 days (3 days per week)**, and **12 hours (2 hours per day)** for performing this task.
 - **Group Presentation**: Each of the 6 groups will present their innovative proposals on “Climate Change and Public Health” in front of the experts/judgement panel. The completion time is estimated at **2 weeks, 6 days (3 days per week)**, and **12 hours (2 hours per day)** for this segment. One specific day will be allotted for one specific group.
 - **Group/Individual Assessment**: Finally, the participants will go through a process of viva-voce in the last week. During the last 3 days of this week, two groups will be assessed in each day based on their group/individual performance.

Besides, the assessment process will focus on the following criteria:

- Assessment practices must give fair and equitable chance to each participant and also give them the opportunity to demonstrate what they have learned.
- Assessment must enable robust and fair judgements about each participant's performance.
- Assessment must maintain academic standards.

Segments	Weeks	Days	Hours
1.Blended Learning Sessions	6 weeks	12 days (2 days/wk)	36 hours (3 hrs/day)
2.Fieldwork for Project Development	2 weeks	10 days (5 days/wk)	60 hours (6 hrs/day)
3.Project Presentation and Assessment	5 weeks	15 days (3 days/wk)	30 hours (2 hrs/day)
Total	13 weeks	37 days	126urs

D. Assessment

The participants' progress will be evaluated through class performance, presentations, assignment, pre and post assessment and other appropriate techniques determined by the resource persons.

Summary of the Modules

Seven modules will be covered by 36 hours didactic lecture sessions. And each module will focus on the following particular areas:

Modules	Lectures	Summary of Lectures
Module 1: Introduction to Climate Change and Public Health (3 didactic lecture sessions)	Lecture 1.1: Introduction to Climate and Climate Change	This lecture will provide an overview of climate, weather, climate variability, and climate change. It will cover the basic concepts of global warming, greenhouse effects, major greenhouse gases, and heat island effects. This lecture will also cover the basics of future projections of climate change, trend analysis of climate over the year, and its effect on human lifespan.
	Lecture 1.2: Core Concepts and Components of Climate Change	This lecture will provide an overview of the core concepts and components of climate and climate change. It will cover the causes of rapid climate change, the consequences of climate change, and the evidence of abnormal climate change. This lecture will then discuss about the introduction of global and national climate change induced hazards and disasters and its impact on the public health including different case studies.
	Lecture 1.3: Association between Climate Change and Human Health	This lecture will provide an overview of the impact of climate change and climate variability on human health. It will cover the ways and mechanisms of affecting human health by climate change. This lecture will also briefly discuss on climate sensitive disease burdens in Bangladesh.
Module 2: Basics of Public Health	Lecture 2.1: Concept and Areas of Public Health	This lecture will give an overview of the public health system and different areas of public health. It will discuss the principles of health education and areas of public health including community and family health, global health, environmental and occupational health, epidemics, and public

Modules	Lectures	Summary of Lectures
(3 didactic lecture sessions)		health surveillance. This lecture will also focus on the core functions and services of public health.
	Lecture 2.2: Public Health and Its Role in Disaster Management: An Integrated Approach	This lecture will focus on public health and its role in disaster management. It will discuss public health emergencies and the role of primary health care in climate change related health issues.
	Lecture 2.3: Epidemiological Approach on Public Health and Climate Resilience	This lecture will discuss extreme weather events and public health management; phases of epidemiological approach, calculating rates of diseases. It will also discuss disease outbreak investigation in emergencies (major ten steps).
Module 3: The Impact of a Warming World- Climate Change and Human Health (3 didactic lecture sessions)	Lecture 3.1: Climate Change Impacts and Human Health	This lecture will provide an overview of the existing scenario of climate change impacts on human health from Bangladesh and world perspective. It will also discuss the vulnerable groups (regarding the health sector) for climate change. A brief idea will be given on the impact of climate change on food security and agriculture in Bangladesh as well through this session. This lecture will also discuss the diseases caused by climate extremes, extreme weather events and rapid unplanned urbanization.
	Lecture 3.2: Climate Sensitive Disease Burdens in Bangladesh	This lecture will talk about water-borne diseases; vector-borne diseases; food-borne diseases, air-borne diseases and their increase/intensity due to climate change.
	Lecture 3.3: Impact of Climate Change on Adolescent, Reproductive and	This lecture will mainly talk about the impacts on adolescent and reproductive health and fertility (SRHR) of climate change. It will also cover the trauma and mental health issues associated with climate

Modules	Lectures	Summary of Lectures
	Mental Health with Gender Issues	change-induced disasters and migration in different gender perspective.
Module 4: Climate Change Prediction and Health Risk Management (4 didactic lecture sessions)	Lecture 4.1: Climate Change Prediction: Prediction Models, Predictors and their Characteristics	This lecture will contain the basics of climate change prediction modeling, most prevalent prediction models, the inputs and outputs of these models and their characteristics (how ground, earth and space observations are used to predict and model climate change) to provide a brief idea of the whole process.
	Lecture 4.2: Most Prevalent Prediction Models and their Mechanism	This lecture will highlight the discussion on the hierarchy of theoretical climate models; the underlying assumptions; importance, significance, and limitations of these climate change prediction models keeping a special focus on the public health sector.
	Lecture 4.3: Climate Change Prediction and Public Health	This lecture will discuss different processes of the assessment and prediction of health impacts of climate change (time series regression, episode analysis etc.)
	Lecture 4.4: Modelling the Future Health Impacts of Climate Change	This lecture will mainly discuss about 'risk assessment of future health burdens' by estimating/modelling the future health impacts of climate change. Besides, it will also talk about uncertainty in analysis and modelling.
Module 5: Climate Change Adaptation for Human Health (3 didactic lecture sessions)	Lecture 5.1: Human Health and Climate Change Adaptation	The lecture will highlight on the main adaptation strategies to reduce health impacts at global level: UNFCCC, the Paris Agreement, the Sendai Framework, Sustainable Development Goal (SDG), IPCC adaptation in health sector as well as strategies at the national level: National Adaptation Plan for Health Sector (NAP),

Modules	Lectures	Summary of Lectures
		National Adaptation Program of Action (NAPA), Bangladesh Climate Change Strategy and Action Plan (BCCSAP), Seventh Five-year Plan etc.
	Lecture 5.2: Assessment of Health Vulnerability	Through this lecture the best practices in assessment of health vulnerability will be discussed including community health assessment, H-NAP and Health Impact Assessment (HIA) approaches.
	Lecture 5.3: Development of Climate-Resilient Health System in Bangladesh	This lecture will focus on different aspects of developing a climate resilient health system in Bangladesh. It will discuss 10 key components for building climate resilience, women and child centered health adaptation for climate resilience etc.
Module 6: Resilience Building to the Health Impacts of Climate Change (Policy, programs) (4 didactic lecture sessions)	Lecture 6.1: Climate Change Policies and Laws regarding Public Health	In this lecture, the participants will know about the existing Climate Justice, Climate Policy, Law, related to Public Health. They will get to know about the policy considerations for mitigating and adapting to climate change related public health impacts. They will also evaluate the existing Climate Change Mitigation and Health policies.
	Lecture 6.2: Mainstreaming Climate Change and Public Health: National and International Practices	This lecture will demonstrate mitigation and adaptation practices at both national and international levels to help the participants understand the mutual benefits of mainstreaming Climate Change Mitigation and Health policies. This will be done by presenting the best and common practices in relevance for public health. The lecture contents will also include Climate Change and Health Promotion Programs as well as their Planning, Implementation and Evaluation. Besides, this lecture will also

Modules	Lectures	Summary of Lectures
	<p>Lecture 6.3: Interventions for Mitigating Climate Change Impacts on Public Health</p>	<p>discuss broadly about NAP and H-NAP activities in Bangladesh.</p> <p>The advanced concepts of Preparedness and Mitigation (short, medium and long-term) relevant for climate change impacts will be discussed in this lecture. The participants will achieve a working knowledge of existing different interventions and measures in Bangladesh after the completion of this lecture.</p>
	<p>Lecture 6.4: Climate Change and Public Health – Future Challenges and Interventions</p>	<p>This lecture will discuss about the existing and possible upcoming challenges for public health sector. The challenges resultant from the increased health hazards due to climate change will be covered in this lecture.</p>
<p>Module 7: Research Methodology (4 didactic lecture sessions)</p>	<p>Lecture 7.1: Research methods and techniques for Climate Change and Public Health</p>	<p>This lecture will demonstrate a working understanding of strategies and methods of conducting research in Climate Change and Public Health Sector as well as knowledge of general research tools and practices. The contents will include types of available data collection methods including library use, literature search and compilation of data from various sources (primary/secondary), their description and application, observation and monitoring techniques, relevant analysis and synthesis techniques, surveying and sampling techniques, mapping etc.</p>

Modules	Lectures	Summary of Lectures
	<p>Lecture 7.2: Research Design and Methodology Development</p>	<p>Through this lecture, the participants will learn to identify research problems, design studies by developing objectives and methodology. Besides, this lecture will discuss about different research frameworks, survey design, questionnaire development, sampling methods etc.</p>
	<p>Lecture 7.3: Data Collection Methods and Knowledge Management</p>	<p>In this lecture, the participants will be taught about different data collection methods (qualitative and quantitative), data analysis, Interpretation and result validation methods. This lecture will also discuss about data quality control and management; data presentation (table, maps, figures, graphs etc.); data screening and data processing etc.</p>
	<p>Lecture 7.4: Report Writing and Research Ethics</p>	<p>The participants will be taught how to write proposals and different types of reports (writing abstract; preparing contents; arranging the body of text; summarizing and conclusion; giving references and bibliography; adding appendices etc.). The ethics associated with their scientific discipline and how it relates to publishing scientific research papers will be discussed in this lecture. The relationship between the researcher and the scientific community will also be reflected here.</p>