Certificate Course on Climate Change and Public Health

June-August 2024 (2nd Cohort)

Jointly Organized By:

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

and

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

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Course Introduction and Summary of Modules

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 **14 weeks**. The completion time for this course is estimated at **132 hours in 39 days**. And the course will be divided in **3 parts**:

A. **Blended Learning Sessions:** **42 hours** didactic lecture sessions with expert resource persons and moderated Q and A sessions. These sessions will be covered through **14 days' class lectures in 7 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	7 weeks	14 days (2 days/wk)	42 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	**14 weeks**	**39 days**	**132 Hours**

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 and course evaluators.

Summary of the Modules:

Eight modules will be covered by **42 hours** didactic lecture sessions. And each module will focus on the following areas:

Modules	Lectures	Summary of Lectures
Module 1: Introduction to Climate Change and Public Health (2 Didactic Lecture Sessions)	**Lecture 1.1: Introduction to Climate science and Core Concepts and Components of Climate Change**	This topic 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. This lecture offers 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 1.2: Association between Climate Change and Human Health	An overview will be given in this topic 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 (3 Didactic Lecture Sessions)	**Lecture 2.1: Public Health and Its Role in Disaster Management: An Integrated Approach**	This topic 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 2.2: Disaster Management in Bangladesh: Responsibility of the Department of Disaster Management (DDM)	This lecture will discuss the Responsibility of the Department of Disaster Management (DDM) during extreme weather events and public health emergencies.
	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: Impacts of Climate Change on Human Health and Climate sensitive diseases burdens.**	This topic will provide an overview of the existing scenario of climate change impacts on human health. This lecture will also discuss the diseases caused by climate extremes, extreme weather events and rapid unplanned urbanization. This topic will talk about water-borne diseases; vector-borne diseases; food-borne diseases, air-borne diseases and non-communicable diseases with their increase/intensity due to climate change.

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	Lecture 3.2: Impact of Climate Change on Adolescents' Sexual, Reproductive (SRHR) and Mental Health with gender focus.	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 change-induced disasters and migration in different gender perspective.
	Lecture 3.3 Gender responsive climate resilience and intersectionality	This lecture offers an overview the Gender perspective of climate change issues. It will emphasis on gender responsive climate resilience and intersectionality including disaster risk reduction.
Module 4: Climate Change Prediction and Health Risk Management (3 Didactic Lecture Sessions)	**Lecture 4.1: Climatology, hydro-meteorological extreme events and impact of climate change in health sector of Bangladesh.**	This topic will focus on analyzing weather pattern and understanding the atmosphere condition that cause them, different hydro-meteorological extreme events and impact of climate change in health sector of Bangladesh.
	Lecture 4.2: Climate Change Prediction: Models, Predictors and their Characteristics with mechanism.	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 keeping a special focus on the public health sector. .
	Lecture 4.3: Climate Change Prediction and Modelling the Future Health Impacts of Climate Change.	This topic will discuss different processes of the assessment and prediction of health impacts of climate change (time series regression, episode analysis etc.) 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 Assessment of Health Vulnerability and Health adaptation process**	Through this lecture the best practices in assessment of health vulnerability will be discussed including community health assessment, and Health Impact Assessment (HIA) approaches. THIS WILL COVER the Health adaption process.
	Lecture 5.2: Human Health and Climate Change Adaptation: Development of Climate-Resilient Health System in Bangladesh	The lecture will highlight on the main adaptation strategies to reduce health impacts, IPCC adaptation in health sector as well as strategies at the national level: National Adaptation Plan for Health Sector (NAP), Bangladesh Climate Change Strategy and Action Plan (BCCSAP), etc. This lecture will also focus on different aspects of developing a climate resilient health system for building women and child centered health adaptation.

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	Lecture 5.3: Green Hospitals Initiatives.	This lecture of Green Hospitals Initiatives will cover climate resilient healthcare assessment and the "health without harm" initiative. It will likely discuss strategies and best practices for making healthcare facilities more environmentally sustainable and resilient to the impacts of climate change.
Module 6: Resilience Building to the Health Impacts of Climate Change (Policy, programs) (3 Didactic Lecture Sessions)	**Lecture 6.1: Climate Change Negotiation Policies Focusing Public Health**	This topic aims cover the linkages between international climate change negotiations and human health impacts. It will discuss key processes like the UNFCCC, Paris Agreement, COP meetings, and Nationally Determined Contributions (NDCs). The role of health organizations like WHO in advocating for health priorities in negotiations will be highlighted. The lecture aims to provide insights on strengthening the health dimensions during future climate negotiations.
	Lecture 6.2: Mainstreaming Climate Change and Public Health: National and International Practices	This lecture will demonstrate adaptation and mitigation practices at both national and international levels to help the participants understanding the mutual benefits of mainstreaming Climate Change and Health adaptation policies. This lecture will also discuss broadly about NAP and H-NAP activities in Bangladesh.
	Lecture 6.3: Interventions for Climate Change Impacts on Public Health – Future Challenges and way forward	The advanced concepts of Preparedness and Responses (short, medium and long-term) relevant for climate change impacts and a working knowledge of existing different interventions and measures in Bangladesh. This lecture will also discuss about the existing and possible upcoming challenges and way forward for adaptation and resilience building.
Module 7: Climate Financing and health (3 Didactic Lecture Sessions)	**Lecture 7.1: Introduction to Climate Finance, Climate Finance Needs and Gaps for health sector.**	This lecture will cover the governance structure and institutional arrangements for climate finance at the international, national, and sub-national levels including governments, multilateral organizations, bilateral agencies, and private sector entities focusing the scope and allocation for health sector.
	Lecture 7.2: Domestic Climate Finance in Bangladesh – BCCT funding, scope of project proposal development and concept of loss and damage.	This topic will examine the domestic climate finance landscape in Bangladesh, including the national budget allocations, climate fiscal frameworks, and climate-relevant public expenditure tracking systems. It will also discuss the role of the Bangladesh Climate Change Trust Fund (BCCTF)

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	Lecture 7.3: Accessing and Mobilizing Climate Finance for health and International Climate Finance Mechanisms.	This topic will provide guidance on how to access and mobilize climate finance from various sources, including international and domestic channels. such as the Green Climate Fund (GCF), Global Environment Facility (GEF), Adaptation Fund, and bilateral climate finance initiatives. Additionally, it will discuss strategies for leveraging private sector investment and exploring innovative financing solutions.
Module 8: Research Methodology (8 Didactic Lecture Sessions)	**Lecture 8.1: Research methods and techniques for literature review on Climate Change and Public Health**	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.
	Lecture 8.2: Research Design and Methodology Development	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.
	Lecture 8.3: Data Collection Methods and Knowledge Management	In this lecture, the participants will be taught about different data collection methods (qualitative and quantitative), data analysis, and 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.
	Lecture 8.4: Systematic Review and Meta Analysis	In this topic, the participants will be taught about how to perform and manage Systematic Review and Meta Analysis with example.
	Lecture 8.5: Participatory Rural Appraisal (PRA) and Impact Chain Analysis (ICA) for Climate Change and Public Health Research	This lecture will introduce two important methodological approaches - Participatory Rural Appraisal (PRA) and Impact Chain Analysis (ICA) - for conducting research and assessments related to climate change impacts on rural communities and public health with practical examples and exercises.
	Lecture 8.6: Introduction to SPSS/STATA	In this lecture, the participants will be taught about statistical tools for data input, data cleaning, data analysis, data visualizations etc using either SPSS/STATA.

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	Lecture 8.7: Developing Concept Note, Case Studies, Policy Briefs and Project Proposal.	This topic aims to equip participants with skills to develop concise concept notes and policy brief articulating research problems, objectives, methodologies and expected outcomes for funding purposes. Guidance will also be provided on crafting comprehensive project proposals. By the end, participants will possess practical abilities to produce high-quality concept notes, informative case studies, policy briefs and competitive proposals aligned with priorities of funding agencies in this field.
	Lecture 8.8: Report Writing and Research Ethics	The participants will be taught how to write research findings 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.