

# **International Online Training Course on “Human Responses to Climate Change: Mitigation and Adaptation”**

**Faculty of Environment and Resource Studies**

**Mahidol University, Thailand**

**22 November - 2 December 2021**

## **1. Course Title:**

Human Responses to Climate Change: Mitigation and Adaptation

## **2. Duration**

22 November - 2 December 2021

## **3. Background and Rational**

Climate change is an unavoidable phenomenon that requires urgent attention in order for appropriate and timely responses. It refers to a change of meteorological characteristics such as solar radiation, rainfall and temperatures of atmosphere and ocean, over a period longer than 30 years. Such changes consequently perturb natural and human systems resulting in both negative and positive impacts, dependent upon locations. The former includes increase in premature deaths due to heat stress, frequent heavy rainfalls, sea level rise and northward migration of living organisms. In the latter case, higher agricultural productivity of some products can be experienced in short-term due to increased atmospheric CO<sub>2</sub>. According to the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), it is extremely likely that the dominant cause of the ongoing climate change is anthropogenic activity, which has largely released Greenhouse Gas (GHG) into the atmosphere since the pre-industrial era. Furthermore, due to such past emissions, climate change is developing, at least, over several decades although the GHG emissions have completely ceased today. This is so-called “climate change commitment”. Therefore, current human generation, as well as future ones, needs to work with national governments in reducing GHG emissions (mitigation), and do systematic adjustment of daily life activities to adapt to the changing climate and its consequences (adaptation).

In consistence with the long-term plan of the Thailand’s Climate Change Master Plan 2015-2050, the Faculty of Environment and Resources Studies, Mahidol University, recognizes the need for enhancing stakeholders’ capacity and awareness on climate change mitigation and adaptation. The benefit can be gained from both Thailand, by disseminating the country’s good practices to other countries, and trainees to be able to transfer knowledge to relevant agencies in their countries. By this, the Faculty eagerly proposes to organize an online training program on “Human Responses to Climate Change: Mitigation and Adaptation”. The program consists of three main topics namely, (1) Basic science of climate change, (2) Linkage between climate change and sustainable development (3) climate change mitigation and (4) adaptation. Topic (1) is firstly conducted to learn current scientific belief on climate change. The materials used refer to most recent IPCC documents such as AR5 and “Global Warming of 1.5°C” issued in 2013 and 2018, respectively. Then, sustainable development concept is introduced and demonstrated how to balance among climate change actions and other targets. After that, Topic (3) is for the trainees to understand the trend of global efforts on reducing GHG emissions from past through present to future. During this program, successful implementation on development of the Thailand Climate Change Master Plan 2015-2050, Thailand’s Nationally Determined Contribution (NDC) and Bangkok Master Plan on Climate Change 2013-2023, Achievement of GHG emission reduction in response to the Nationally Appropriate Mitigation Action (NAMA), and establishment of Thailand Voluntary Emission Reduction Program (T-VER). In addition, a concept of “Sufficiency Economy” and “Circular Economy” are introduced which are internationally recognized as a tool for

effective climate change mitigation. As aforementioned, climate change is unavoidable; adaptation to its consequence is required. Topic (4) is to create understanding on how climate change is predicted in line with various future scenarios. Such information is essential for adaptation to climate change. A wide range of climate change scenario outputs for local impact studies are discussed. Several predicted climate change impacts are explained together with their promising adaptation measures emphasizing on Thailand's experiences. At the end, a method for assessing climate change vulnerability is introduced as an important information for a systematic adaptation process.

#### **4. Objectives**

- 4.1 To understand linkage and trade-off among sustainable development goals and climate change actions
- 4.2 To equip working professional with knowledge on climate change mitigation and adaptation
- 4.3 To demonstrate Thailand's successful development and implementation of activities relevant to climate change mitigation and adaptation, in which they can be effectively adopted in the home countries of trainees

#### **5. Course Contents**

##### **5.1 Course Outline**

- 1) Basic science of climate change: Basic climate change science, greenhouse gases and consequences
- 2) Basic science of climate change: The world under 1.5oC and 2.0oC global warming scenarios
- 3) Interlinkages between sustainable development goals and climate change actions: Sustainable development goals, its linkage and trade-off with climate change actions
- 4) Interlinkages between sustainable development goals and climate change actions: Sufficiency Economy: A fundamental concept for Thailand development towards a resilient country
- 5) Climate change mitigation: Historical, current and future global strategies for reduction of greenhouse gas emissions (Kyoto protocol and PA target). The actions of Thailand on climate change (NAMA and NDC)
- 6) Climate change mitigation: Measurement, Reporting and Verification (MRV) system for NAMA and NDC of Thailand aiming for GHG reduction
- 7) Climate change mitigation: Thailand's case study: Policy and implementations of Energy sector
- 8) Climate change mitigation: Thailand's case study: Policy and implementations of industrial sector
- 9) Climate change mitigation: Policy and implementations of waste management sector
- 10) Climate change mitigation: "Circular Economy" as a promising concept for climate change mitigation
- 11) Climate change mitigation: Long-term climate actions strategy for 1.5oC and 2oC degree scenarios
- 12) Climate change mitigation: Lessons learnt - Development and implementation of Bangkok Master Plan on Climate Change 2013-2023
- 13) Climate change adaptation: Basic knowledge of climate change prediction, its current results and limitations, future greenhouse gas emission scenarios for climate change projection
- 14) Climate change adaptation: Impact of climate change on freshwater resources, terrestrial and inland water systems, coastal and ocean systems, and examples of the adaptation measures

- 15) Climate change adaptation: Impact of climate change on food security and food production systems, and examples of the adaptation measures
- 16) Climate change adaptation: Assessment of climate change vulnerability and risks driven by climate change
- 17) Climate change adaptation: Participatory approach and communicating adaptation to climate change with stakeholders
- 18) Climate Finance: A way to obtain financial supports from international organizations to achieve climate change actions of the country
- 19) Climate change mitigation: Marginal abatement cost of GHG mitigation measures on energy policies

## 5.2 Study Trips/Field Trips

- 1) Doi Tung, Mae Fah Luang Foundation under Royal Patronage
- 2) EGAT Learning Center

## 5.3 Workshop/Practices

- 1) Workshop on development of climate change mitigation
- 2) Workshops on development of climate change adaptation

## 5.4 Advance Assignments

- 1) Report:

1.1 General information of participant (1 page of A4 size paper) including; Name of participant, Educational background, Country, Name of Organization, Participant's position, Duties and responsibilities (Briefly)

1.2 General information of the Country (1-2 page of A4 size paper) including; Geographical status of the country, Climate, Population, Official language, Social, Educational and Economic conditions, Gross National Products (GNP), Per- capita Income, Major import and export goods, Natural resources and environmental situation, etc.

1.3 Content (up to 4-5 pages of A4 size paper): The detail in your country report should cover with the following topics.

- The current situation on climate change mitigation and adaptation issues in your country.
- Country policy related to climate change mitigation and adaptation.
- Country target on greenhouse gas emission reduction possibly based on Nationally Determined Contribution (NDC) proposed to UNFCCC
- Best practices related to climate change mitigation and adaptation in your country.
- Interested technology to be learnt from Thailand.
- Expected knowledge and outcome from this course.

1.4 References and further information (If any) (1 page of A4 size paper)

1.5 Submission date: **No later than 1 November 2021**

## 6. Participant Criteria

- Age: Less than 40 years old
- Work experience in related fields: More than 2 years
- Knowledge Worker Positions in Practitioner Level or Junior
- Education: Equivalent to Bachelor Degree or Higher Degree
- Language: Good Communication in English

- Computer literacy
- Able to participate in the online training course for the entire duration

## 7. Venue

- This eleven-day online course will be conducted 22 November - 2 December, 2021 via Zoom cloud meetings from Faculty of Environment and Resource Studies, Mahidol University, Thailand

## 8. Expected Results

Expected key results or knowledge is available for participants after completing training:

- Increased knowledge on climate change mitigation and adaptation
- Meaningful information about Thailand's successful cases for climate change mitigation and adaptation for potential replication in the home countries of trainees
- Better understanding in further application by practical session and excursions

## 9. Evaluation

- No paper examination after completing this training
- Participant must attend the class no less than 80% of total training period with participation in all workshop events

## 10. Institution

### 10.1 Executing/Implementation Agency

#### - Implementation organization:

Faculty of Environment and Resource Studies, Mahidol University

#### - Staff availability:

18 Lecturers will be involved in this training.

30 Supporting staff will be in charge in this training.

#### - Training materials:

Hand-outs, documents and manual are available.

#### - Equipment:

Computers, printers, LCD, media equipment, laboratory equipment, licensed Zoom online meeting software are available.

#### - Address:

999 Phuttamonthon 4 Rd., Salaya, Phuttamonthon, Nakhon Pathom 73170, Thailand

#### - Course Leader:

Dean of Faculty of Environment and Resource Studies

#### - Course Director:

**Dr. Allan Sriratana Tabucanon**

#### - Contact Person:

Ms. Vilinthorn Xuto

Office of Academic Services in Environment and Science (OASES)

Tel: 0-2441-5000 ext. 2225

Fax: 0-2441-9509-10

E-mail: vilinthorn.xut@mahidol.ac.th

## 11. Expenditure and Funding

### 11.1 Sponsored by:

Thailand International Cooperation Agency (TICA)