

**International Training Course on
“Human Responses to Climate Change: Mitigation and Adaptation”
Faculty of Environment and Resource Studies
Mahidol University, Thailand
3 - 21 December, 2025**

1. Course Title:

Human Responses to Climate Change: Mitigation and Adaptation

2. Duration

3 - 21 December, 2025 – (19 days)

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 CO₂. According to the Sixth Assessment Report (AR6) 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 and the Thailand's 2nd Updated Nationally Determined Contribution, 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 on-site 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 “Global Warming of 1.5°C”, “IPCC Guidelines for National Greenhouse Gas Inventories” and “AR6” issued in 2013, 2019 and 2023, 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: Findings in IPCC AR6 reports
- 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: Bio-Circular-Green Economy
- 5) Climate change mitigation: Historical, current and future global strategies for reduction of greenhouse gas emissions under a framework of UNFCCC (Paris Agreement). The actions of Thailand on climate change (NAMA, T-VER and NDC)
- 6) Climate change mitigation: Measurement, Reporting and Verification (MRV) system for NAMA, T-VER 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 1.5°C and 2°C degree scenarios. A pathway for Thailand's Carbon Neutrality and Net Zero Emission.
- 12) Climate change mitigation and adaptation: 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 change mitigation and adaptation: Application of Big Earth data for climate change actions
- 19) Climate Finance: A way to obtain financial supports from international organizations to achieve climate change actions of the country

5.2 Study Trips/Field Trips

- 1) Samut Prakan Province
- 2) Rayong Province

5.3 Advance Assignments

- 1) Country 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 on November 15, 2025**

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

7. Venue

- Faculty of Environment and Resource Studies, Mahidol University
- Accommodation: 1. Hotel at Salaya
- 2. Hotel at the field site for 1 night

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

10. Institution

10.1 Executing/Implementation Agency

- Implementation organization:

Faculty of Environment and Resource Studies, Mahidol University

- Staff availability:

18 Lecturers will involve in this training.

30 Supporting staff/general assistants will be in charge in this training.

- Training material:

Handouts, and other pdf related to course topics will be given/ available to trainees.

- Equipment:

Computers, printers, LCD, media equipment are available

- Other facilities:

Phone, fax and internet access are available

- Address:

Faculty of Environment and Resource Studies, Mahidol University

999 Phuttamonthon 4 Rd., Salaya, Phuttamonthon,

Nakhon Pathom 73170, Thailand

- Course Leader:

Dean of Faculty of Environment and Resource Studies

- Course Director:

Asst.Prof.Dr. Allan Sriratana Tabucanon

- Contact Person:

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11. Expenditure and Funding

11.1 Sponsored by:

Thailand International Cooperation Agency (TICA)

11.2 Estimated Cost: Operational cost only

Number of trainees: 20 persons

Course duration excluding arrival and departure days: 19 days

No.	Item	Rate	Calculation	Total (Baht)
1	In-class lecturers (57 hours)	2,000 Baht/hour	2,000 x 57	114,000
2	Field lecturers (28 hours)	1,000 Baht/hour	1,000 x 28	28,000
3	Facilitators and Overtime			
	Weekdays (5 persons, 11 days)	Baht/hour/person/day	50 x 4 x 5 x 11	11,000
	Weekends (5 persons, 8 days)	Baht/hour/person/day	60 x 7 x 5 x 8	16,800
4	Field trips			
	4.1 Pre-survey			
	4.1.1 Daily subsistence (4 persons, 2 days)	240 Baht/person/day	240 x 4 x 2	1,920
	4.1.2 Accommodation (4 persons, 1 night)	800 Baht/person/night	800 x 4 x 1	3,200
	4.2 Field trips			
	4.2.1 Daily subsistence (6 persons, 2 days)			
	- Lecturer 3 persons	270 Baht/person/day	270 x 3 x 2	1,620
	- Staff 3 persons	240 Baht/person/day	240 x 3 x 2	1,440
	4.2.2 Accommodation (6 persons, 1 night)			
	- Lecturer 3 persons	Baht/person/night	1,200 x 3 x 1	3,600
	- Staff 3 persons	800 Baht/person/night	800 x 3 x 1	2,400
5	Refreshment Breaks			
	2 times/day, 30 persons	Baht/person/time	60 x 30 x 27	48,600
6	Reception			
	Welcoming Dinner (40 persons)	800 Baht/person	800 x 40	32,000
7	Opening/Closing ceremony			
	Site preparation/arrangement	1,000 Baht/time	1,000 x 2	2,000
8	Transportation			
	8.1 Pre-survey			
	Van rent (1 van, 2 day)	3,500 Baht/day	3,500 x 2	7,000
	Taxi	Baht/person/time	250 x 4 x 2	2,000
	8.2 In-class lecturers			
	Van rent (1 van, 10 days)	2,500 Baht/day	2,500 x 10	25,000
	8.3 Field trips			
	Bus rent (1 bus, 2 days)	15,000 Baht/day	15,000 x 2	30,000
	Taxi	Baht/person/time	250 x 6 x 2	3,000
	8.4 Excursion & Social Event			
	Van rent (3 vans, 5 days)	3,500 Baht/day/Van	3,500 x 5 x 3	52,500
9	Training materials and equipment			
	Course notes (19 Topics)	2,000 Baht/topic	2,000 x 19	38,000
	Books and manuals	2,000 Baht/person	1,000 x 20	20,000
	Course equipment, tool	2,000 Baht/person	1,000 x 20	20,000
10	Course bag	300 Baht/piece	300 x 20	6,000
11	Pen and Notebook	10+30 Baht/piece	40 x 20	800
12	Miscellaneous			55,120
	Entry fees during social cultural			

No.	Item	Rate	Calculation	Total (Baht)
	Internet hours			
	Infrastructure & Maintenance			
	Communications (computer, phone, fax, courier)			
	Souvenir for the field trips			
	Photocopies			
	ID Neck strap			
	Name tags			
	Certificates			
	Others (Fresh drive + ink + scan cover + paper)			
	Sub Total			<u>526,000</u>
13	Overheads (14% of total operation cost)			73,640
	Total			<u>599,640</u>

Remark: Miscellaneous details:

Entry fees during social cultural	5,820 Baht 1) Grand Palace and Rattanakosin Exhibition Hall - Thai 70 baht x 4 person (including staff) = 280 baht - Foreigner 100 baht x 18 person = 1,800 baht - Local guide = 1,000 baht 2) Wat Pho - Foreigner 100 baht x 18 person = 1,800 baht 3) Wat Mahathat, Phra Nakhon Si Ayutthaya province - Thai 10 baht x 4 person (including staff) = 40 baht - Foreigner 50 baht x 18 person = 900 baht
Internet hours	19,800 baht (300 baht x 11 days x 6 account)
Infrastructure & Maintenance	10,000 baht
Communications (computer, phone, fax, courier)	5,000 baht
Souvenir for the field trips	3,000 baht (1,500 baht x 2 pieces)
Photocopies	2,400 baht (120 baht x 20 photocopies)
ID Neck strap 20 pieces	2,000 baht (100 baht x 20 pieces)
Name tags	100 baht (5 baht x 20 pieces)
Certificates	2,000 baht (100 baht x 20 pieces)
Fresh drive + ink + scan cover + paper	5,000 baht

Remark:

In-Class total 19 topics = **57 hrs.**

Field lecturers total **28 hrs.** consist of:

Workshop = **8 hrs.** (Campus tour, Country report presentation and Course discussion and overall conclusion)

Field trip = **20 hrs.**

- 1) Field Trip 1: Two-day field trip = 10 hrs. x 2 days = 20 hrs.
 - Ban Khun Samut Chin, Samut Prakan Province
 - SCG Chemicals, RIL Industrial Estate, Rayong Province

Hotel for Participants: Hotel at Salaya

12. (Draft) Schedule

Time	Topic	Instructor
Wednesday 3 December, 2025		
09:00 – 10:00	Registration	All lecturers and staff
10:00 - 11:00	Opening ceremony <ul style="list-style-type: none"> ☒ Audio visual presentation: Thailand International Cooperation Agency (TICA) and Mahidol University ☒ Welcoming speech by Dean of the Faculty of Environment and Resource Studies ☒ Opening speech by Thailand International Cooperation Agency (TICA) ☒ Introduction of Participants ☒ Course Introduction by Asst.Prof.Dr. Allan Sriratana Tabucanon 	
11:00 – 12:00	Salaya campus tour and open house	
12:00 – 13:00	Lunch	
13:00 – 16:00	Topic 1: Basic science of climate change: Basic climate change science, greenhouse gases and consequences	Faculty of Environment and Resource Studies, Mahidol University
16:30 – 18:30	Welcoming Dinner	
Thursday 4 December, 2025		
09:00 – 12:00	Topic 2: Basic science of climate change: Findings in IPCC AR6 reports	Director of Climate Change Group, Environmental Research and Training Center (ERTC)
12:00 – 13:00	Lunch	
13:00 – 16:00	Topic 3: Interlinkages between sustainable development goals and climate change actions: Sustainable development goals, its linkage and trade-off with climate change actions	Faculty of Environment and Resource Studies, Mahidol University
Friday 5 December, 2025		
Social and cultural activities: <i>Pattaya Beach, Chonburi Province</i>		
Saturday 6 December, 2025		
Social and cultural activities: <i>Rattanakosin Island - Bangkok</i>		

Sunday 7 December, 2025		
<i>Social and cultural activities: 1) Chatuchak Weekend Market and 2) Samyan Mitrtown - Bangkok</i>		
Monday 8 December, 2025		
09:00 – 12:00	Topic 4: Interlinkages between sustainable development goals and climate change actions: Sustainability, Sufficiency Economy, Bio-Circular-Green Economy	Faculty of Environment and Resource Studies, Mahidol University
12:00 – 13:00	Lunch	
13:00 – 16:00	Topic 5: Climate change mitigation: Historical, current and future global strategies for reduction of greenhouse gas emissions under a framework of UNFCCC (Paris Agreement). The actions of Thailand on climate change (NAMA, T-VER and NDC)	Office of Natural Resources and Environmental Policy and Planning (ONEP)
Tuesday 9 December, 2025		
09:00 – 12:00	Topic 6: Climate change mitigation: Measurement, Reporting and Verification (MRV) system for NAMA, T-VER and NDC of Thailand aiming for GHG reduction	Thailand Greenhouse Gas Management Organization (TGO)
12:00 – 13:00	Lunch	
13:00 – 16:00	Topic 7: Climate change mitigation: Thailand's case study: Policy and implementations of energy sector	Representative of the Energy Policy and Planning Office, Ministry of Energy
Wednesday 10 December, 2025		
09:00 – 12:00	Topic 8: Climate change mitigation: Thailand's case study: Policy and implementations of industrial sector	Representative of the Federation of Thai Industries
12:00 – 13:00	Lunch	
13:00 – 16:00	Topic 9: Climate change mitigation: Thailand's case study: Policy and implementations of waste management sector	Representative of the Pollution Control Department
11-12 December, 2025		
07:00 – 17:00	Field trip: Two-day field trip at Samut Prakan and Rayong Provinces	
Saturday 13 December, 2025		
<i>Social and Cultural Activities: MBK/ Pratunam/ Platinum Fashion Mall - Bangkok</i>		

Sunday 14 December, 2025		
<i>Social and Cultural Activities: 1) Ayutthaya Elephant Palace & Royal Kraal 2) Wat Mahathat - Phra Nakhon Si Ayutthaya province</i>		
Monday 15 December, 2025		
09:00 – 16:00	Topic 10: Climate change mitigation: “Circular Economy” as a promising concept for climate change mitigation	Faculty of Environment and Resource Studies, Mahidol University
12:00 – 13:00	Lunch	
13:00 – 16:00	Topic 11: Climate change mitigation: Long-term climate actions strategy for 1.5°C and 2°C degree scenarios. A pathway for Thailand’s Carbon Neutrality and Net Zero Emission.	Department of Climate Change and Environment
Tuesday 16 December, 2025		
09:00 – 12:00	Topic 12: Climate change mitigation and adaptation: Lessons learnt – Development and implementation of Bangkok Master Plan on Climate Change 2013-2023	Bangkok Metropolitan Administration (BMA)
12:00 – 13:00	Lunch	
13:00 – 16:00	Topic 13: Climate change adaptation: Basic knowledge of climate change prediction, its current results and limitations, future greenhouse gas emission scenarios for climate change projection	Climate Change and Disaster Center, Rangsit University
Wednesday 17 December, 2025		
09:00 - 12:00	Topic 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	Faculty of Environment and Resource Studies, Mahidol University
12:00 – 13:00	Lunch	
13:00 – 16:00	Topic 15: Climate change adaptation: Impact of climate change on food security and food production systems, and examples of the adaptation measures	Faculty of Environment and Resource Studies, Mahidol University
Thursday 18 December, 2025		
09:00 – 12:00	Topic 16: Climate change adaptation: Assessment of climate change vulnerability and risks driven by climate change	Faculty of Environment and Resource Studies, Mahidol University
12:00 – 13:00	Lunch	
13:00 – 16:00	Topic 17: Climate change adaptation: Participatory approach and communicating adaptation to climate change with stakeholders	Faculty of Environment and Resource Studies, Mahidol University

Friday 19 December, 2025		
09:00 – 12:00	Topic 18: Climate change mitigation and adaptation: Application of Big Earth data for climate change actions	Asian Institute of Technology (Thailand)
12:00 – 13:00	Lunch	
13.00 – 16:00	Topic 19: Climate Finance: A way to obtain financial supports from international organizations to achieve climate change actions of the country	Climate Change Center, National Research Council of Thailand (NRCT)
Saturday 20 December, 2025		
09:00 – 12:00	Country Report Presentation 1	All Lecturers
12:00 – 13:00	Lunch	
13:00 – 16:00	Country Report Presentation 2	All Lecturers
Sunday 21 November, 2023		
09:00 – 10:00	Course discussion and overall conclusion	All lecturers and staff
10:00 - 11:00	Closing Ceremony <ul style="list-style-type: none"> ☒ Report by Asst.Prof.Dr. Allan Sriratana Tabucanon, Course Director, Faculty of Environment and Resource Studies ☒ Speech by Director of Thailand International Cooperation Agency (TICA) ☒ Certificate presentation and closing speech by the President of Mahidol University ☒ Group photo 	All lecturers and staff

* Please note that the schedule is subject to change.