Short Term Training Course on

"Forest Fire Management Information System"

COURSE GUIDELINES

1 – 5 November 2021

Virtual Training

AFoCO Regional Education and Training Center

1. BACKGROUND

Forest fires are a hazard with physical, biological, ecological, and environmental consequences. Both natural processes and anthropogenic activities cause forest fires, but over 90 percent are human-caused. In spite of having beneficial effects on some ecosystems, such as forest rejuvenation for some species, they can bring about a serious threat to the natural environment and humankind. Demographic pressure, the expansion of agricultural land, and the conversion of forest land into other land use increase the risk of human-induced fire.

To improve forest fire management, information management and technology must be capitalized and incorporated into practical operations. In 2020, Australian bushfires, the term used for a forest fire or wildfire, burnt an estimated 18.6 million hectares and burnt buildings, and some people died. In the northern summer of 2021, damaging fires occurred in the USA and Canada, Turkey, Greece, southern Italy, the arctic circle, and South America. In most areas, fire plays one of the most destructive roles in the forest ecosystem, resulting in drastic deterioration of the environment. Forest fires usually occur in the areas where the forests are remote and not accessible to manage and filled with trees, dry, and parching wood leaves that act as a fuel source. The faster the fire is detected, the less the damages and impact to the ecosystem. However, forest fire management faces unprecedented challenges such as increasing frequency of fire events, the cost of suppression, and so on. Nowadays, early warning systems, real-time fire detection, and reporting are becoming important components in effective forest fire management to reduce damage and loss. There are already a number of forest fire detection and monitoring systems in operational use, and we need to learn and explore what would be the most optic for the region.

This training course provides an understanding of the application of technology for fire information and fire management. The intention is that all the accumulated knowledge and experiences provided by the training can be applied and transferred to improve forest fire management in AFoCO Member Countries. Furthermore, the interventions from the training course will be part of the baselining information for the development of a regional initiative to be discussed at the "High-Level Workshop on Forest-related Disaster Management and Impacts of Climate Change" in 2022.

2. OBJECTIVES

The objectives of the training course are to 1) describe and enhance the understanding of integrated forest fire management, 2) explore the available forest fire detection and monitoring systems and relevant forest technology, and 3) share the knowledge and experience of the best practices of forest fire management in AFoCO Member Countries.

Eight sessions will be provided by the trainers and various experts from international organizations, universities, research institutes, and government agencies. The overview of the lectures is in **Attachment-1**.

3.   EXPECTED OUTPUTS AND DELIVERABLES

OUTPUTS: At the end of the training, the participants will be able to:

■   understand the current international trend on forest fire management (FFM);

■   identify the open-access information systems and tools for FFM;

■   explore interactions of forest fire regime in the context of climate change;

■   develop an action plan to be acknowledged in future AFoCO projects and strategies.

DELIVERABLES: At the end of the workshop, there will be three main deliverables:

■   AFoCO Policy Brief on Forest Fire Management Information System;

■   Training Report; and,

■   The concept note with a draft regional program/initiative proposal to be circulated at the *ad-hoc* Preparatory Meeting(s) for "High-Level Workshop on Forest-related Disaster Management and Impacts of Climate Change" in 2022.

4.   TARGET PARTICIPANTS

This course will welcome gender-balanced technical-level government officials and forestry experts involved in national forest fire management and related work, especially those who have been involved in forest fire management for a minimum of one year and **under the age of 35** will be invited from the respective Member Countries.

5.   REGISTRATION

Following the nomination of the National Focal Point, participants are requested to submit their information provided by the AFoCO RETC, referring to **Attachment-2**.

6.   ZOOM INSTRUCTION

The instruction is in **Attachment-3**.

7.   FINANCIAL SUPPORT

A nominal training allowance of US$35 per day will be provided for the respective nominee.

8.   GENERAL ENQUIRIES / EMERGENCY CONTACT

For more information or in the case of emergencies, please request you to contact the following officers:

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Ms. Su Yi Hnin
Staff Officer, AFoCO RETC
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9. TRAINING SCHEDULE

Day	Time (Seoul time, GMT+09)	Activity	Remark
	Self-paced	***PRE-ASSIGNMENTS*** *Three (3) E-learning Modules at* *https://olc.worldbank.org/* *(See the instruction in **Attachment-4**)*	*Trainees*
Oct 30	15:00-17:00	Check and confirm Zoom Application connection	RETC
Nov 1	12:00-12:30	Zoom check-in	RETC
	12:30-13:00	Opening Ceremony & Introduction of participants	RETC
	13:00-15:00 (120')	Presentation 1. Country report	Trainees
	15:00-16:00	Break	
	16:00-17:00 (60')	Lecture 1.1: Forest Fire Ecology	Dr. Veerachai Tanpipat
	17:00-18:00 (60')	Lecture 1.2: International Trends of Forest Fire Management	Dr. Peter Moore
	18:00-18:15 (15')	Daily feedback and housekeeping announcement	RETC
Nov 2	12:30-13:00 (30')	Recap on the previous day	Dr. Veerachai Tanpipat/ Trainees
	13:00-15:00 (120')	Lecture 2: Introduction to Global and ASEAN Wildfire, Smoke, and Haze Tracking System	Dr. Veerachai Tanpipat
	15:00-16:00 (60')	Break	
	16:00-18:00 (120')	Lecture 3: ROK's Forest Fire Information System	Prof. Dr. Park Joowon
	18:00-18:15 (15')	Daily feedback	RETC
Nov 3	12:30-13:00 (30')	Recap on the previous day	Dr. Veerachai Tanpipat/ Trainees
	13:00-15:00 (120')	Lecture 4: Information Management Platform for Community-based Forest Fire Management and water management	Dr. Veerachai Tanpipat
	15:00-16:00 (60')	Break	
	16:00-17:00 (60')	Lecture 5: Fire Danger Rating System and Fire Early Warning System	Mr. Hartanto Sanjaya
	17:00-18:00 (60')	Lecture 6: Challenges in Regulating Transboundary Haze in Southeast Asia	Dr. Israr Albar
	18:00-18:15 (15')	Daily feedback	RETC
Nov 4	12:30-13:00 (30')	Recap on the previous day	Dr. Veerachai Tanpipat/ Trainees

	13:00-14:00 (60')	Lecture 7.1: Forest Fire Regime in the Context of Climate Change (Asian View)	Dr. Veerachai Tanpipat
	14:00-15:00 (60')	Lecture 7.2: Forest Fire Regime in the Context of Climate Change (Australian View)	Dr. Peter Moore
	15:00-16:00 (60')	Break	
	16:00-18:00 (120')	Lecture 8: Overview of Wildland Fire Emission Inventory	Dr. Mark Parrington/ Dr. Veerachai Tanpipat
	18:00-18:15 (15')	Daily feedback	RETC
Nov 5	12:30-13:00 (30')	Recap on the previous day	Dr. Veerachai Tanpipat/ Trainees
	13:00-16:00 (180')	Presentation 2. Action plan	Dr. Veerachai Tanpipat/ Trainees
	16:00-17:00 (60')	Break	
	17:00-17:30 (30')	Recap & highlights of the training (inc. evaluation of training)	RETC
	17:30-17:45 (15')	Closing Ceremony	RETC

Attachment-1. Overview on Sessions

Session 1. Forest Fire Ecology and International Trends of Forest Fire Management		
A.	Session Overview	This session introduces the concept of forest fire in the ecosystem. It covers the root causes of a disastrous fire, fire dependence, and adaptation of plants and animals, fire history, and effects on ecosystems.
B.	Learning Outcomes	At the end of this session, trainees will be able to understand: • concept and principles of forest fire ecology; • direct and indirect effects of fire disturbances; • trends of forest fire management for the decision-making process.
C.	Content	(1) Introduction of forest fire's behavior (2) Fire threat to forest ecosystem (3) History of forest fire management and practices

Session 2. Introduction to Global and ASEAN Wildfire, Smoke, and Haze Tracking System		
D.	Session Overview	This session introduces a series of information systems globally used in tracking the real-time information of wildfire, smoke, and haze. It also provides how to build up the wildfire database to analyze fire regimes, behavior, and their impact.
E.	Learning Outcomes	At the end of this session, trainees will be able to: • Identify the open-access information system and tools for forest fire management; and • Explore factors and requirements for the analysis.
F.	Content	(1) The steps of fire and smoke haze information system; and (2) Forest fire and smoke haze decision supporting and management system.

Session 3. ROK's Forest Fire Information System		
G.	Session Overview	This session provides how to design a forest fire surveillance system and its implementation. It introduces forest fire management and information system in the Republic of Korea.
H.	Learning Outcomes	At the end of this session, trainees will be able to understand: • designing and implementation of a fire information system; and, • a network approach to predict forest fire.
I.	Content	(1) Forest Disaster Management Platform (2) Conceptual Model (3) Disaster Response System

Session 4. Information management platform for community-based Forest Fire Management and Water Management		
J.	Session Overview	This session introduces a community-based forest fire information system and cooperation and engagements among different stakeholders. It covers the models and tools used for community-based forest fire management examples from Thailand.
K.	Learning Outcomes	At the end of this session, trainees will be able to: • Identify potential resources and online tools for their country-specific fire management information system; • explore the real-time information through open-access techniques.
L.	Content	(1) Case study of community-based forest fire management

Session 5. Fire Danger Rating System or Fire Early Warning System		
M.	Session Overview	This session introduces the essential tool of warning extreme fire danger conditions to mitigate the disaster fire problems.
N.	Learning Outcomes	At the end of this session, trainees will be able to: • Explore long-term fire danger predictions based on advanced numerical weather conditions. • Understand the application of fire danger and early warming information systems; and their advantages
O.	Content	(1) History of global fire danger rating system or fire early warning system (2) Operational stages of the fire danger rating system

Session 6. Challenges in Regulating Trans-boundary Haze in Southeast Asia		
P.	Session Overview	This session explores some of the constraints and barriers in the process of transboundary haze regulation. Likewise, the laws and regulations currently in use of the Southeast Asian countries can also be considered for collaborative action of transboundary haze problems.
Q.	Learning Outcomes	At the end of this session, trainees will be able to: • Identify the main constraints and barriers of transboundary haze solutions. • Identify constraints and opportunities of existing laws, rules, and regulations of SEA countries;
R.	Content	(1) Identification of constraints and opportunities in regulating transboundary haze (2) Identification of existing laws, rules, and regulations of regional countries

Session 7. Forest Fire Regime in the Context of Climate Change		
S.	Session Overview	This session explores the frequency and intensity of fire occurrence, how each country implements climate change mitigation activities in Nationally Determined Contributions (NDCs), and risk and enabling conditions that link to climate change.
T.	Learning Outcomes	At the end of this session, trainees will be able to: • Understand the influences of forest fire regime; and • Analyze the factors and interactions linking to climate change
U.	Content	(1) Concept of forest fire regime and changes over time (2) Measures to fire and climate change mitigation

Session 8. Overview of Wildland Fire Emission Inventory		
V.	Session Overview	This session introduces the emissions inventory methods for wildland fire and particulate matter concentrations of fire emission.
W.	Learning Outcomes	At the end of this session, trainees will be able to: • access emission estimation tools • identify the strengths and weaknesses of the emission inventory methods
X.	Content	(1) Available methodologies for estimating fire emissions (2) Fire emission factors (3) Free forest fire information and system

Attachment-2. Overview on Country Report and Action Plan

Purpose

Both country reports and action plans are primary materials developed and submitted by the participants. The reports help the participants take active attention and participation in the training topics, which will lead the participants to utilize the training outputs as their baseline information to develop project concept notes.

Country Report

Subject to the training subject, the Country Report (CR) will summarize the current status of the country and list down the main challenges and issues to wit: (1) organizational structure of the government of the forestry sector; (2) backgrounds of the country and the national policies related to the training subject; (3) list of the previous/on-going projects representing the training subject in the country; (4) main challenges and issues in your country; and (5) each participant's training questions related to the subject. A presentation template will be provided to the trainees.

Action Plan

Subject to the training subject, the Action Plan (AP) will provide the summary actions how to tackle down the issues based on their country report, including: (1) SWOT analysis, based on the improved problem tree; (2) problem statements and suggested strategies; (3) specific action plan (i.e., project objectives, budget, duration, and timelines, implementing organization, beneficiaries, and potential environmental and social risk); and, (4) expected outputs and outcomes including economic, technical, social, and environmental impacts. A presentation template will be provided to the trainees.

References

Please refer to the link for references below: http://afocosec.org/project-manuals-guidelines/
- Project Manual
- Guidelines for Project Monitoring and Evaluation
- Procurement Guidelines for Projects Goods and Services
- General Guidelines on COVID-19 Coping-up Measures for AFoCO Projects

Attachment-3. Instruction on Zoom Setting

1.　　Link to the Course

After compiling information on the nominees by the AFoCO Focal Points, the RETC will inform them of the zoom link and other information through an e-mail.

2.　　Local Time

Korea Standard Time will be applied during the training course. Please, note that Korea Standard Time (GMT+9) is 9:00 hours ahead of Greenwich Mean Time.

3.　　Link Set-up and Testing

- Two (2) days before the event.
    a. Share event schedule with all participants.
    b. Convene the participants and do a quick run-thru of the basic event structure: test screen shares and presentation materials.
    c. Have the participants update the Zoom app on the computer or device they will use in the meeting.
    d. Examine registration responses for interesting question responses.
- 15-30 minutes before the event - have all participants sign in to the event and verify:
    a. The person controlling the zoom session is listed as a host in the participant window. This is generally the training organizer.
    b. The participants are listed as such in the participant window. If they are not, request the host to correct them.
    c. All necessary presentation materials are present and ready, including PowerPoint, docs, websites, and video clips.

4.　　General Information during the Course

The participants shall observe the following:
- Participants are requested to display the virtual training backdrop provided by the RETC during the course.
- Participants are requested to display the name with the country code (e.g., MM_Su Yi Hnin)
- During the training session, the only authorized speaker allows to turn on the microphone. The rest of the participants must turn off their audio.
- When participants wish to intervene, kindly notify the host through chat of the ZOOM application or raise hands or nameplate.
- The facilitator/trainer will authorize an intervention only after the presentation is concluded to avoid distraction.
- If more than one participant requests to speak, the host will invite them to speak in the request's order. Participants will speak after the call of the host only.
- If participants encounter a technical problem, kindly notify the host through chat of the virtual application.

Attachment-4. Instruction for Pre-assignments

The participants are requested to visit https://olc.worldbank.org/ and watch three (3) e-learning modules (videos) under the course "**Integrated Forest Fire Management and Advanced Technologies**" (*please see the screen capture below*).

In the e-learning series on forest fire management, you will learn about the basic concepts and fundamentals of forest fire management, the different approaches for fire prevention and reduction, and the applications of disruptive technologies for forest fire management.

After watching the video, the participants need to accomplish **the quiz session with 21 questions.** The trainees can see the button [TAKE THE QUIZ] at the right corner below the video. As self-paced, all trainees have to finish this pre-assignment before the training.

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