



Transboundary Haze Pollution in Southeast Asia: ASEAN Haze-Free Roadmap 2023-2030 and Its Monitoring and Evaluation

**Environment Division
ASEAN Secretariat**

EANET Seminar on Particulate Matter, including Haze in Southeast Asia

20 December 2024, via video conference



Outline

Background

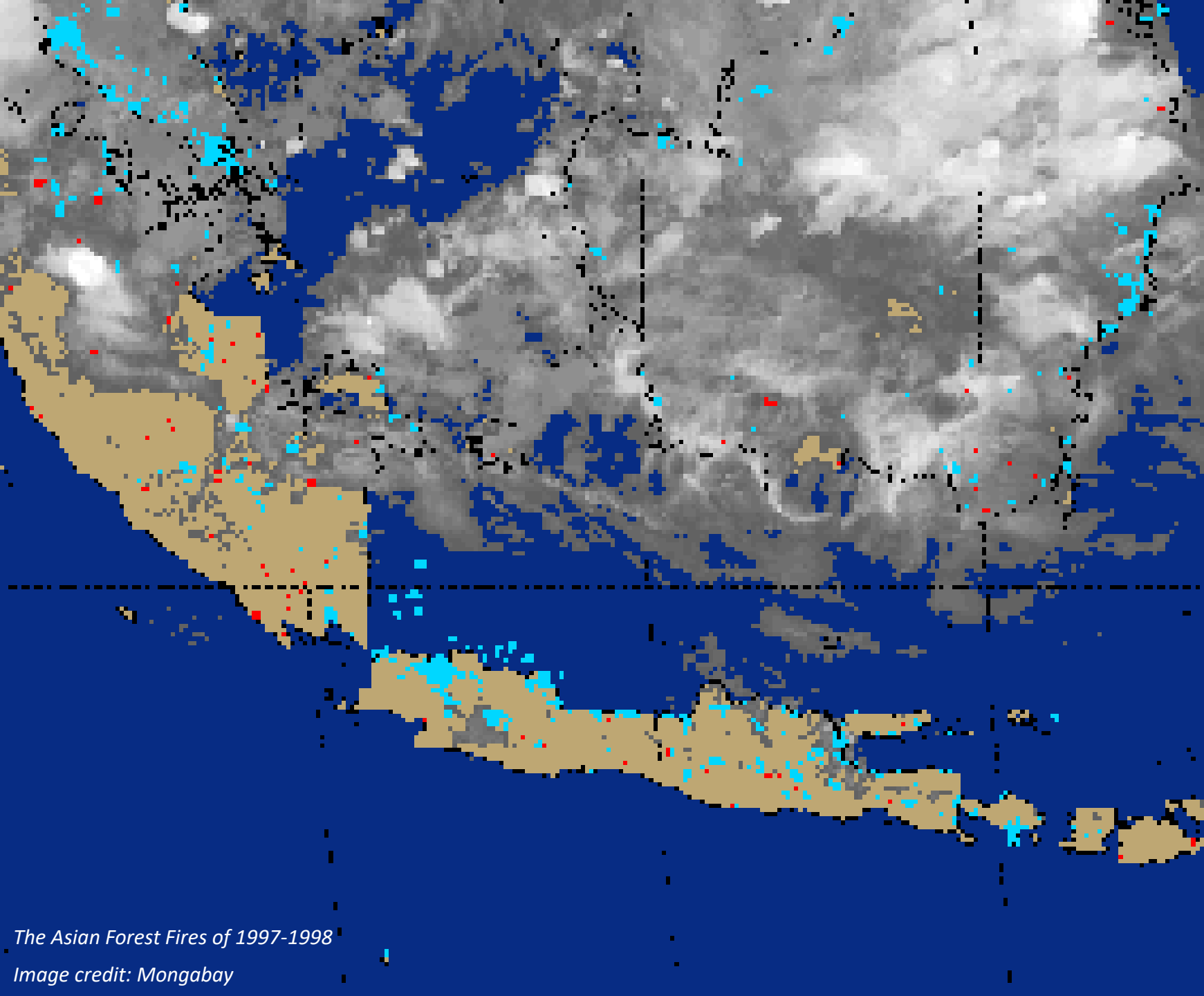
ASEAN Agreement on Transboundary Haze Pollution

Second ASEAN Haze-Free Roadmap (2023-2030)

Regional Activities and Initiatives to Implement the Second Roadmap

Way Forward

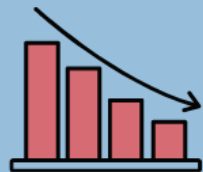




- **Severe land and forest fires** in 1997-1998
- UNEP labeled the blaze among **the most damaging in recorded history.**
- **Profound impacts** on environmental, economic and social dimensions: agriculture production, health, transportation, tourism, and other economic activities
- **Countries Affected:** Indonesia, Malaysia, Singapore, Thailand, Brunei Darussalam, Philippines



1997-1998 Haze Incidents



Total economic losses:
USD 9.3 billion



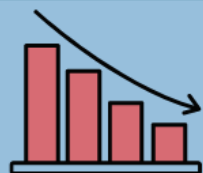
Air Pollution Index (Record):
Sarawak: 849
East Kalimantan: 1,000
*hazardous index: > 300 (WHO)



1-2 billion tonnes of
carbon were released to
the atmosphere

Sources: ADB (2001); UNEP (2003); ASEAN (2013)

2015 Haze Incidents



- 7/10 AMS experienced
economic contractions
(av: -0.5% from 2014 GDP)
- Total economic losses (ID): USD
16.1 billion



- 26 deaths
- More than 500,000 acute
respiratory infections
- Costs for health care:
USD 253,571 million



More than 2.4 million
hectares of forest and land
areas were burned

Sources: World Development Indicators (2015); Kopplitz et al. (2016);
Final Report of ASEAN Haze-Free Roadmap (2021)

Post-2020 threats

Swiss Re Institute (2021) constructed the Climate Economics Index in 2021 and projected GDP loss from climate change in 2048. The results show that **several AMS out of 48 countries are projected to face huge negative impacts of climate change.**



Rank 39/48
Projected GDP loss:
6.1-46.4%



Rank 44/48
Projected GDP loss:
6-43.6%



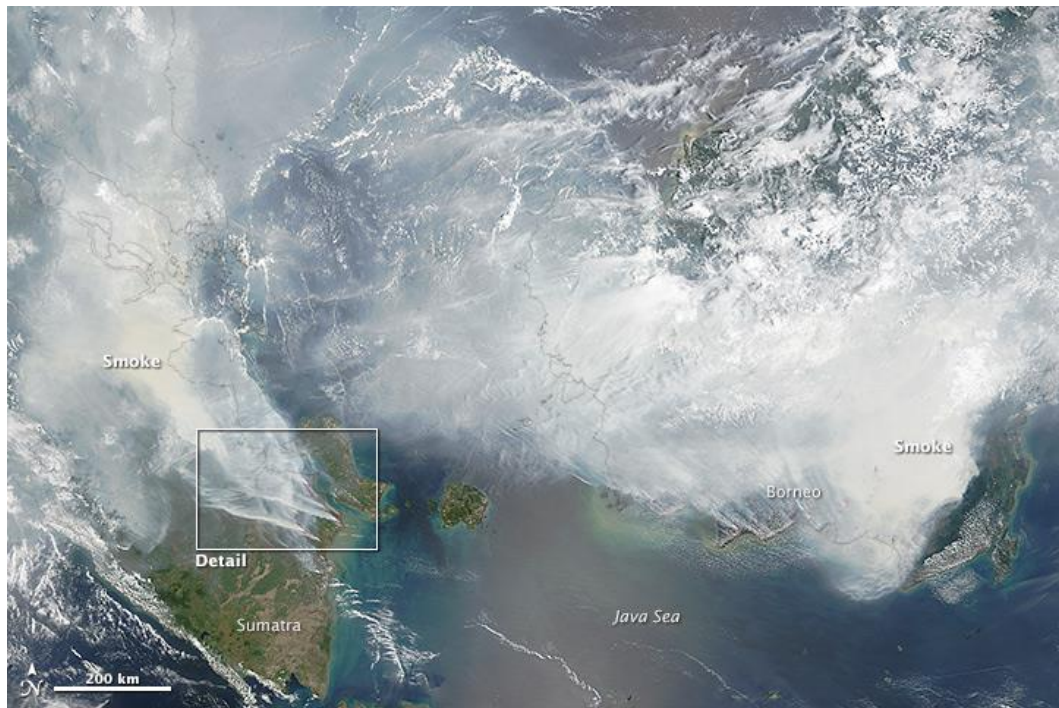
Rank 46/48
Projected GDP loss:
6.9-43.9%



Rank 47/48
Projected GDP loss:
7.8-42.6%



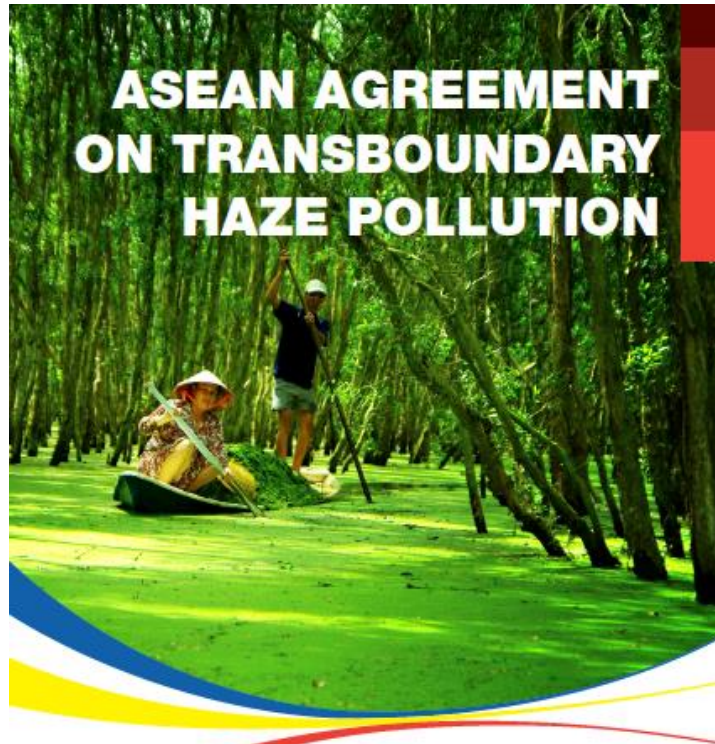
Rank 48/48
Projected GDP loss:
4.4-39.5%



Smoke Blankets in Sumatra and Borneo

Image credit: NASA Earth Observatory (2015)

ASEAN Agreement on Transboundary Haze Pollution



- **Agreement** signed in June 2002
- **Entered into force** on 25 November 2003
- **Ratified** by all AMS by 2015

Objective:

prevent, monitor, and mitigate **land and forest fires** to control transboundary haze pollution through concerted national efforts, regional and international cooperation



one vision
one identity
one community

ASEAN Agreement on Transboundary Haze Pollution



General Obligations:

- Cooperate in developing and implementing measures to prevent, monitor, and mitigate transboundary haze pollution
- Respond promptly to a request for relevant information sought by a State or States that are or may be affected by the haze pollution
- Take legal, administrative and/or other measures to implement their obligations under the Agreement

Areas of cooperation:

- Monitoring and assessment
- Prevention and preparedness
- Mitigation, emergency response, and assistance
- Technical cooperation and scientific research

Key Milestones: ASEAN Cooperation on Transboundary Haze Pollution

2002

- ASEAN Agreement on Transboundary Haze Pollution (AATHP)

2004

- 1st Meeting of the Conference of the Parties to the ASEAN Agreement on Transboundary Haze Pollution (COP-1)

2006

- Sub-Regional Ministerial Steering Committee on Transboundary Haze Pollution (MSC)
- ASEAN Peatland Management Strategy (APMS) (2006-2020)

2010

- *Sub-regional Ministerial Steering Committee on Transboundary Haze Pollution in the Mekong Sub-region (MSC Mekong)*

2013

- ASEAN Task Force on Peatlands (ATFP)
- ASEAN Programme on Sustainable Management of Peatland Ecosystems (APSMPE) 2014-2020

2016

- ASEAN Haze-Free Roadmap (2016-2020)

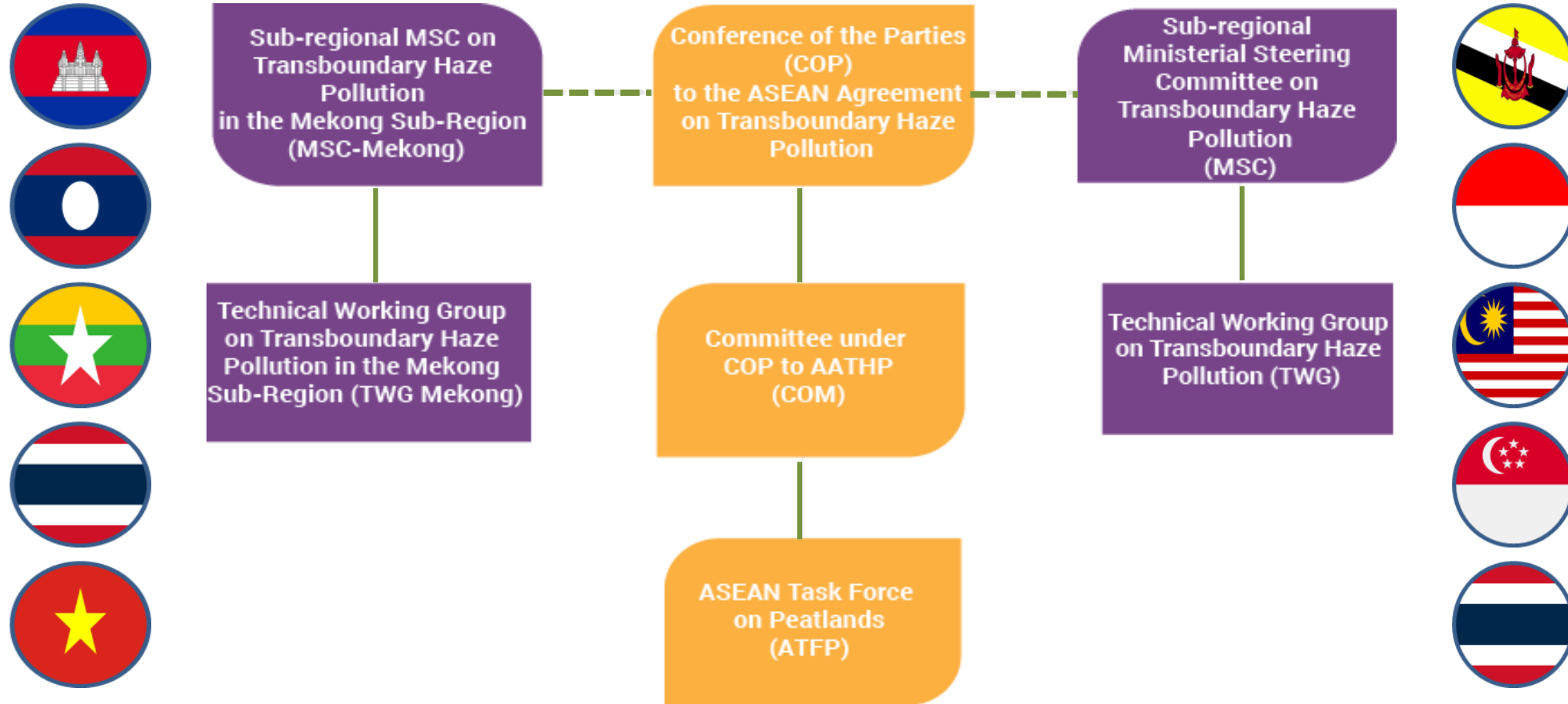
2021/
2022

- Final Review of the APMS 2006-2020
- Final Review of the Haze-free Roadmap 2016-2020

2023

- Adoption of the Second Roadmap 2023-2030
- Adoption of the Second APMS 2023-2030
- Endorsement of the ASEAN Investment Framework for Haze-Free Sustainable Land Management

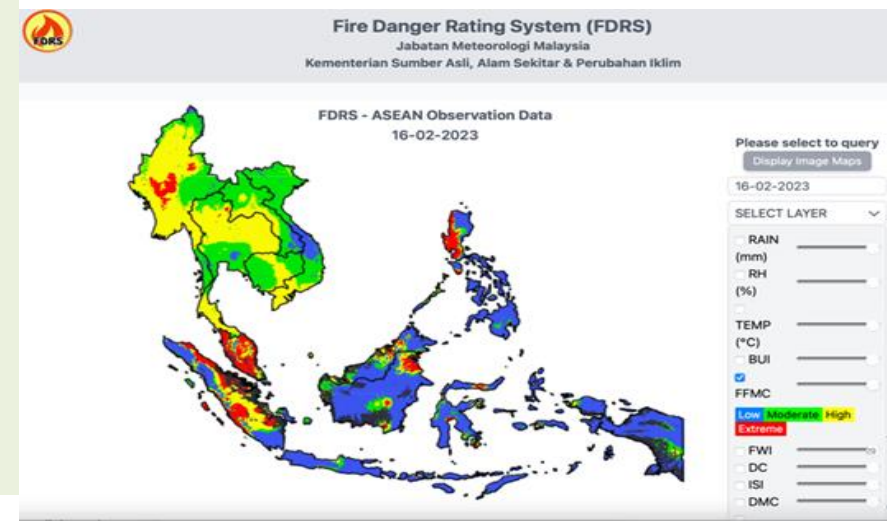
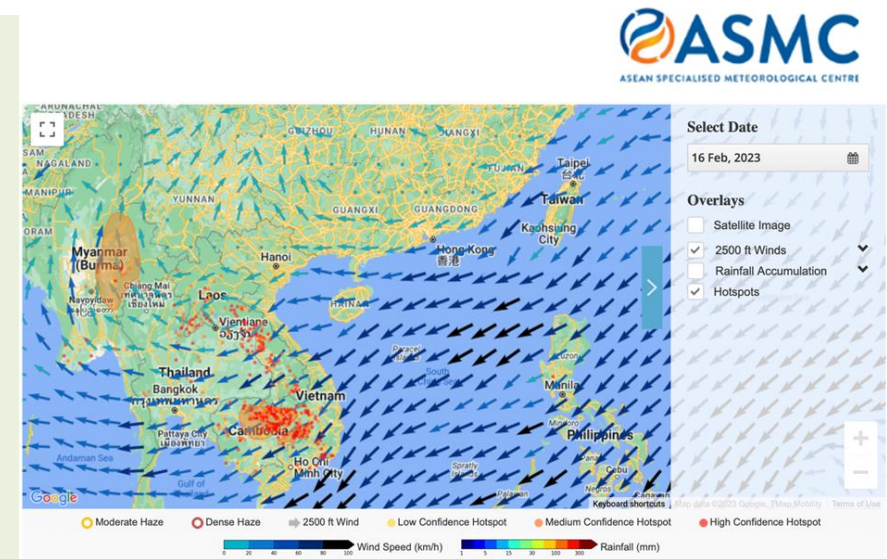
Institutional Framework of the ASEAN Agreement on Transboundary Haze Pollution



COP: Conference of the Parties
TWG: Technical Working Group on Transboundary Haze Pollution (Bru, Ind, Mal, Sin, Tha)
TWG Mekong: TWG in the Mekong Sub-region (Cam, Lao, Mya, Tha, Vnm)
MSC: Sub-Regional Ministerial Steering Committee on Transboundary Haze Pollution
MSC Mekong: MSC for Mekong Sub-Region

Interim ACC THPC

- **ASEAN Coordinating Centre for Transboundary Haze Pollution Control:** During the interim period (since 2006 – now/until the ACC THPC is fully operationalized), ASEAN Secretariat, with support from ASMC, coordinates joint emergency response, donor funding and assistance, development of the SOP, and development and maintenance of database.
- **ASEAN Specialised Meteorological Centre (ASMC)** based in Singapore - provision of hotspot and smoke haze maps, satellite imageries, monthly weather & haze outlook, haze modelling.
- **Fire Danger Rating System** ASEAN-wide FDRS currently hosted by Malaysian Meteorological Department (METMalaysia).
- In coordination with **National Monitoring Centres (NMCs)**, regular situation report, which contains specific data such as fire occurrence and impact, air quality and visibility, rainfall, actions taken, as well as resources are shared.



Reporting Mechanism: Standard Operating Procedure for Monitoring, Assessment and Joint Emergency Response

Mechanisms for Monitoring, Assessment and Joint Emergency Response



Form 1: Situation Report – Report from NMCs to ACC THPC

Form 2: Situation Report – Report from ACC THPC to NFPs

Form 3: Request for Assistance

Form 4: Offer for Assistance

Form 5: Contractual Arrangements for Assistance

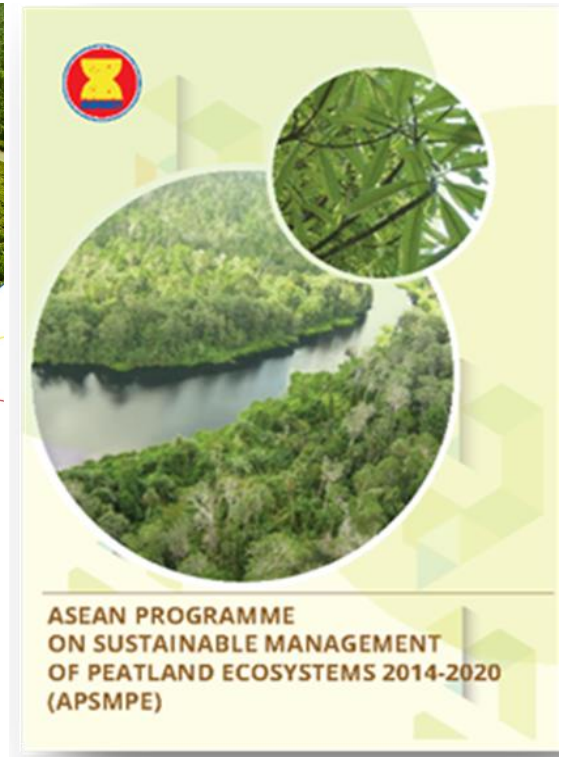
Form 6: Report of Requesting/Assisting Party

Form 7: Report from ACC THPC on Lesson Learned

Form 8: Recommendations from ACC THPC on Utilising Regional Resources

Form 9: Report of ACC THPC on Lesson Learned (When recommending the use of regional resources)

Key Documents: ASEAN Cooperation on Transboundary Haze Pollution



Objective:

Prevent, monitor, and mitigate land and forest fires to control transboundary haze pollution through concerted national efforts, regional and international cooperation

Second ASEAN Haze-Free Roadmap (2023-2030)



THE SECOND ROADMAP FOR ASEAN
COOPERATION ON TRANSBOUNDARY
HAZE POLLUTION CONTROL WITH
MEANS OF IMPLEMENTATION



Vision

- **Transboundary Haze-Free ASEAN by 2030**

Goal

- Regional transboundary haze pollution is eliminated **through the effective implementation of collective actions at the regional, sub-regional, national, and local levels** to prevent and control **open burning from agriculture, land and/or forest fires, including peatland fires.**

Targets/ Indicators

- (a) A significant and sustained reduction in the number of haze pollution episodes in ASEAN; and (b) **Achieving national PM2.5 1 air quality targets** with a view toward achieving the **World Health Organisation's annual and 24-hour Interim Targets 3 for PM2.5**

Focus

- The Second ASEAN Haze-Free Roadmap **emphasises on fire prevention and suppression measures** to address the root cause of fire and haze

Strategies of the Second Haze-Free Roadmap (2023-2030)

- Strategy 1 • Enhance the implementation of the ASEAN Agreement on Transboundary Haze Pollution (AATHP), including the capabilities of the ASEAN Coordinating Centre for Transboundary Haze Pollution Control (ACC THPC)
- Strategy 2 • **Developing and implementing subregional strategies**
- Strategy 3 • Sustainable management of agricultural land and forests to prevent large scale land and/or forest fires
- Strategy 4 • Sustainable management of peatlands for peatlands fire prevention, in accordance with the new ASEAN Peatland Management Strategy (2023-2030)
- Strategy 5 • Securing adequate resources from multi-stakeholders for transboundary haze prevention
- Strategy 6 • Strengthening relevant national policies, laws, regulations, and their implementation (including follow-up and review/enforcement)
- Strategy 7 • Enhancing cross-sectoral and multi-level cooperation to protect the global environment
- Strategy 8 • Enhancing public awareness and stakeholder participation
- Strategy 9 • Evaluate and mitigate the impacts of haze on health, economy, society, and the environment



Regional Activities and Initiatives to Implement the Second Roadmap

Launch of the Second ASEAN Haze-Free Roadmap (2023-2030) and Policy Dialogue on Strategies and Actions for Achieving a Haze-Free Southeast Asia

The Launch of the Second ASEAN Haze-Free Roadmap (2023-2030) and Policy Dialogue on Strategies and Actions for Achieving a Haze-Free Southeast Asia were held on 21 February 2024 in Jakarta, Indonesia via hybrid format, supported by MAHFSA Programme.

Aimed to highlight the key elements of the Roadmap, identify key stakeholders to be engaged for its implementation, and to identify opportunities for collaboration and alignment.



Regional Activities and Initiatives to Implement the Second Roadmap: Strategy 1

Establishment of the ACC THPC

Following the signing process of the Establishment Agreement (EA) of the ACC THPC at the sideline of the COP-18 held on 23 August 2023 in Vientiane, Lao PDR, currently **Indonesia is preparing the development of physical infrastructure of the ACC THPC.**

The Soft Launching of the ACC THPC was held at the Opening Ceremony of the 43rd ASEAN Summit held on 5 September 2023 in Jakarta, Indonesia.

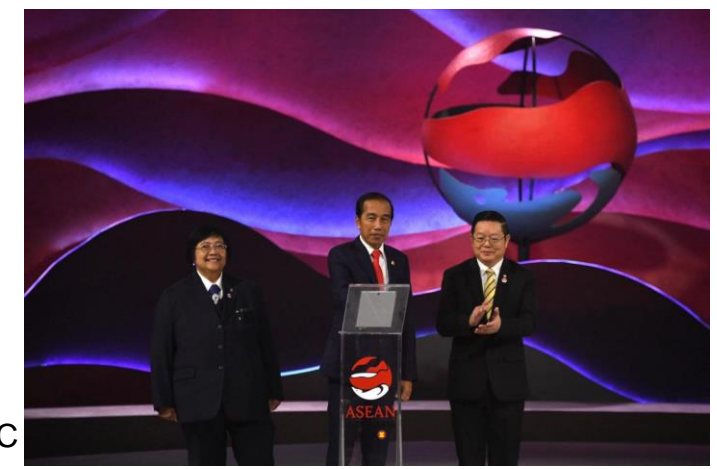
Implementation of Strategy 1 of the Second ASEAN Haze-Free Roadmap (2023-2030)



Proposed office design



Handover Ceremony of the Signed EA of the ACC THPC, Vientiane, Lao PDR, 23 August 2023



Soft Launching of ACC THPC at the 43rd ASEAN Summit

Regional Activities and Initiatives to Implement the Second Roadmap: Strategy 2

- **Actions:**

- Develop mitigation and response measures taking into account the differences and variations in the incidence and impacts of haze in the ASEAN subregions.
- Strengthen institutional mechanisms, including ASEAN centres, to support subregional capacity building, including for meteorological and air quality monitoring.
- Strengthen the network of stakeholders for subregional actions
- Draw upon Strategic Review of **Subregional Ministerial Steering Committee Programmes and Activities and Chiang Rai 2017 Plan of Action** to guide subregional efforts.
- Align indicators at the subregional level with the APMS to improve monitoring at the subregional level.
- **Extend and improve the Chiang Rai 2017 Plan of Action for the northern ASEAN sub-region to 2030 to ensure alignment with the Second Roadmap.**
- Enhance cooperation between the sub-regions, including through contributions to implement and expand sub-regional initiatives such as the **Clear Sky Strategy in the Mekong sub-region** as appropriate.

Southern ASEAN Sub-region: MSC Programmes and Activities

Enhancing Haze Control Management – Early Warning /Monitoring, Fire Prevention and Fire Suppression

Enhancing Bilateral Collaborations in line with AATHP

Regional Haze Training Network

MSC Forum

Resource Mobilisation

↳ **Includes:**

- Fire Danger Rating System (FDRS)
- Early Warning / Monitoring
- Building Up Capabilities for Fire Suppression
- Sustainable Peatland Management

Northern ASEAN Sub-region: Chiang Rai 2017 Plan of Action

Adopted at the 6th MSC Mekong held on 24 February 2017 in Chiang Rai, Thailand, with the aim to support the implementation of the Roadmap (2016-2020) and the vision of Transboundary Haze-Free ASEAN by 2020 through the following proposed priority areas of cooperation:

Priority strategies of the Haze-Free Roadmap (2016-2020):

- Strategy 3: Agricultural and Forest Fire Management
- Strategy 5: Information and Technology
- Strategy 6: Public Awareness and Engagement
- Strategy 8: Reduction of Health and Environmental Risks

The 9th MSC Mekong (Plan of Action, 14 August 2020 via videoconference) **agreed in-principle to extend the Plan of Action to 2025 with renewed hotspot reduction target**. The 17th TWG Mekong held on 29 November 2022 **agreed to consider Thailand's proposed hotspot targets for 2023 to 2025**, as follows:

Year	2020	2021	2022	2023	2024	2025
Hotspot number targets	167,500	-	134,000	117,250	108,875	100,500
Percentage reduction	Baseline	-	20%	30%	35%	40%

Northern ASEAN Sub-region: CLEAR Sky Strategy



The 19th TWG Mekong held on 3 December 2024 in Siem Reap, Cambodia was updated on the trilateral cooperation entitled “CLEAR Sky Strategy” between Lao PDR, Myanmar and Thailand.

Short-term: Database and Fire risk map

Medum-term: Traceability and accreditation

Long-term: Sustainable land management

Regional Activities and Initiatives to Implement the Second Roadmap: Strategy 4

Second ASEAN Peatland Management Strategy (APMS) 2023-2030 *(Adopted by COP-18 on 23 August 2023)*

Overall Goal

All peatland landscapes are sustainably managed in an integrated manner based on peatland hydrological units and with multi-stakeholder engagement.

Increased urgency: climate change, biodiversity loss, shortage of fresh and clean water and food insecurity

Integrated Peatland Management (IPM) approach

Sub-Regional Focus: Northern and Southern ASEAN



**ASEAN PEATLAND
MANAGEMENT STRATEGY
2023-2030**



Focal Areas and Goals of the APMS 2023-2030

No.	Focal Area	Goal
1	Inventory, Mapping and Assessment	All peatlands are mapped according to their characteristics and hydrological regimen.
2	Restoration and Rehabilitation	30% of degraded peatlands in ASEAN have been or are under rehabilitation by 2030 as agreed under the Global Biodiversity Framework.
3	Community Livelihoods	Sustainable management of peatlands has significantly progressed across sectors, improving livelihoods for and empowerment of local communities.
4	Peatland Biodiversity and Ecosystem Conservation	Peatland biodiversity is preserved in-situ and ex-situ with 30% of peatlands in ASEAN included in protected areas and OECMs by 2030 in agreement with the Global Biodiversity Framework.
5	Fire Prevention, Control and Monitoring	Transboundary Haze from peatland fires is eliminated.
6	Peatland and Climate Change	Peatlands protected and rehabilitated to enhance resilience to climate change and reduce emissions towards a target of net-zero emissions by 2050.
7	Integrated Peatland Management	To ensure integrated multi-stakeholder management of peatlands at a PHU level with the involvement of private sector, agriculture, plantation, forestry and environment sectors.
8	National Policies and Legislation	AMS have adequate regulations, policies and plans to ensure peatlands are managed sustainably at the national level.
9	Research	Research in ASEAN is enhanced to support peatland biodiversity conservation, rehabilitation, and sustainable management.
10	Information Sharing, Awareness & Capacity building	Awareness/Capacity on par with management needs and requirements
11	Regional Cooperation	AMS working together to share best practices and collaborate to enhance sustainable peatland management throughout
12	Sustainable Financing	Sustainable financing of peatland protection and management is ensured

Key Focal Areas
 Supportive Focal Areas

Regional Activities and Initiatives to Implement the Second Roadmap: Strategy 5

ASEAN Investment Framework for Haze-Free Sustainable Land Management

Background

Large-scale land and forest fires regularly impact up to 30-50 million hectares (ha) of land in Southeast Asia. These fires can generate smoke clouds covering hundreds of millions of ha for months at a time. This transboundary smoke haze has impacted parts of all 10 ASEAN Member States (AMS) with severe impacts. Over the last 25 years, hundreds of billions of dollars of economic damage have been done at immense social cost and environmental impacts. The fires and the associated ecosystem degradation are one of the largest sources of GHG emissions from the land-use sector globally. In response, the 10 AMS have developed a number of plans and mechanisms including the:

- ASEAN Agreement on Transboundary Haze Pollution (AATHP)
- ASEAN Peatland Management Strategy (2023-2030)
- ASEAN Haze-Free Roadmap (2023-2030)

While significant progress has been made in some countries, the situation in others is worsening. While technically many solutions are known, the challenge has been to take action at sufficient scale in an integrated manner, across a wide range of locations with the involvement of different sectors and stakeholders.

Investment Framework

To address the challenge, ASEAN has developed and endorsed the Investment Framework for Haze-Free Sustainable Land Management (AIF-HFSLM).

The investment framework will help build multi-stakeholder partnerships in the period 2023-2030 and enhance the availability of resources to stop large scale burning of forests, peatland and agricultural residue by establishing socially and economically viable alternatives. The initial target is to leverage USD 1.5 billion in funding up till 2030.

The development of the Investment Framework is supported by International Fund for Agricultural Development (IFAD) through the Measurable Action for Haze-Free Sustainable Land Management in Southeast Asia (MAHFSA) programme.

Why Invest for A Haze-Free ASEAN?

Fires and associated smoke haze cause billions of dollars of damage in ASEAN each year. Investing in a haze-free ASEAN can stop losses and generate significant environment and social benefits. To become a haze-free ASEAN, we must secure the buy-in from farmers and the landowners, with offers of scalable and sustainable alternative solutions. The global community too, must contribute to a shared future that is inclusive and dignified for all life if we are to combat haze in ASEAN.

Aligning with Global Agendas

• UNFCCC and Paris Climate Agreement

Land and forest degradation and fires in Southeast Asia are major global sources of GHG. Preventing fires and transforming land-use is fully in line with the targets for both mitigation and adaptation under UNFCCC. The investment framework will fully support implementation of the emissions reduction targets of all national NDCs.

• UN Sustainable Development Goals / Global Goals

Ensuring haze-free sustainable land management in ASEAN will help implement at least 10 of the Sustainable Development Goals (SDGs)/Global Goals.

• Convention on Biological Diversity (CBD)

The investment framework is fully aligned with the Global Biodiversity Framework under CBD to achieve the 2050 Vision of "Living in Harmony with Nature".

• Convention to Combat Desertification (UNCCD)

The investment framework is fully in line with the Land Degradation Neutrality Targets.

Transboundary haze challenges in ASEAN can be better addressed by a **higher level of commitments and investment from all stakeholders.**

H.E. Ekaphab Phanthavong
ASEAN Secretariat
January 2022



The ASEAN Investment Framework for Haze-Free Sustainable Land Management (AIF) was developed to support the implementation of Second Roadmap on ASEAN Cooperation towards Transboundary Haze Pollution Control with Means of Implementation (ASEAN Haze-free Roadmap) 2023-2030 and the Second ASEAN Peatland Management Strategy (APMS) **2023-2030 to further strengthening, intensifying, and comprehensively addressing the root causes of transboundary haze pollution.** Its development was supported by the Measurable Action for Haze-Free Sustainable Land Management in Southeast Asia (MAHFSA) Programme.



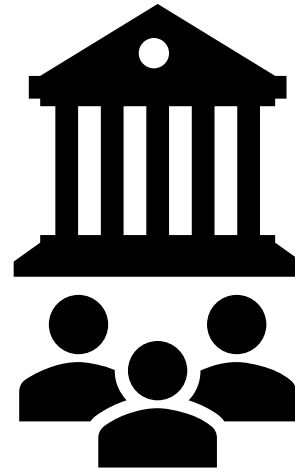


**ASEAN INVESTMENT
FRAMEWORK FOR
HAZE-FREE SUSTAINABLE
LAND MANAGEMENT**



one vision
one identity
one community

The initial target
is to leverage
USD 1.5 billion
in funding up till
2030



Corresponds
with the ASCC
Blueprint 2025

Enhance multi-
stakeholder
partnerships
2023-2030

Aims to address
several gaps on
resource
allocation and
mobilisation

Regional Activities and Initiatives to Implement the Second Roadmap: Strategy 7 & 8

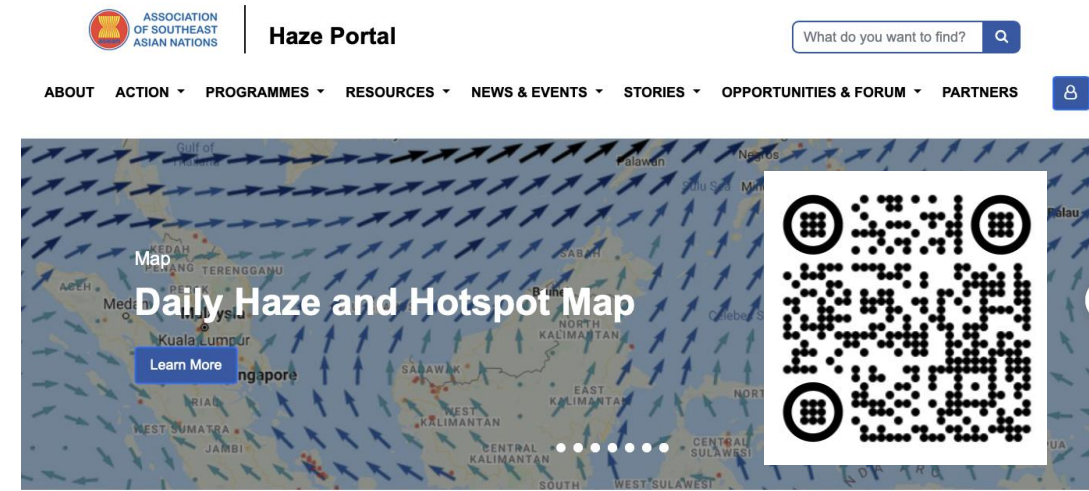
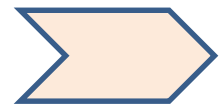
ASEAN Haze Portal

<https://hazeportal.asean.org>

The ASEAN Haze Portal aims to connect relevant knowledge and information platform on Haze and Peatland together for users' ease of experience. The current version of website allows its users to access ASMC's website.

Opportunity: Enhancement of the ASEAN Haze Portal to provide a user-friendly tools for generating customised knowledge products and reports related to the ACC THPC as well as to relay the relevant information e.g. Daily Haze and Hotspot Map and FDRS ASEAN in its page

Support implementation of Strategies 7 and 8 of the Second ASEAN Haze-Free Roadmap (2023-2030)



About ASEAN Haze Portal



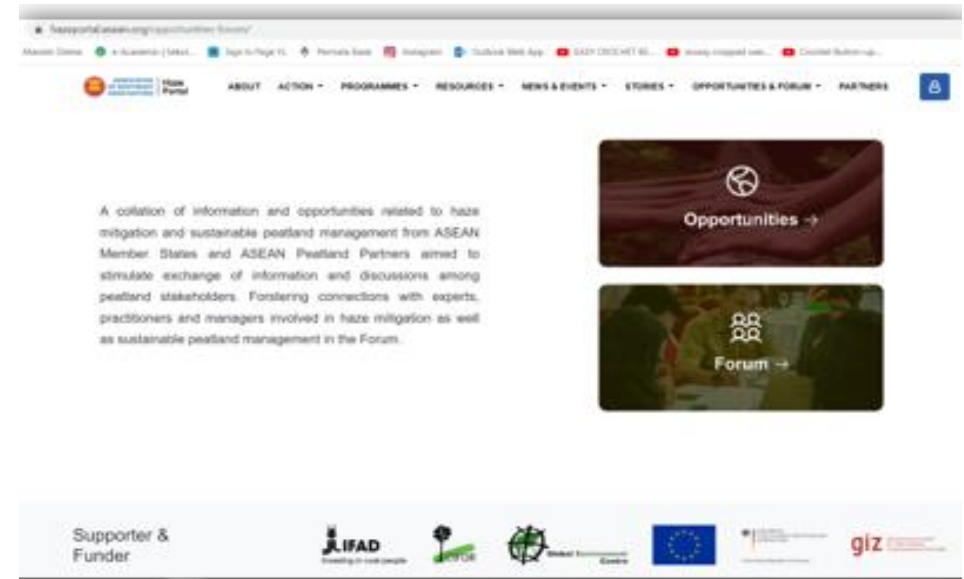
ASEAN Haze Portal is established to be the ASEAN knowledge management platform on sustainable peatland and haze management and facilitate networking and knowledge-sharing among policy makers and other relevant practitioners in Southeast Asia. This website also serves as a place for all ASEAN Peatland Partners to share their updates, stories, best practices, reports, and knowledge products that may be beneficial for relevant stakeholders. This website is developed in collaboration with Measurable Action for Haze-Free Southeast Asia (MAHFSA) Programme and The Sustainable Use of Peatland and Haze Mitigation in ASEAN (SUPA) Programme, Component 1.

ASEAN Haze Portal

<https://hazeportal.asean.org>

Knowledge repository

Collaborative tool



Publication page provides knowledge products of peatland, fire and haze in Southeast Asia by ASEAN Secretariat, ASEAN Peatland Partners, and others. The knowledge products are available in multiple languages

Promote dialogue and partnership between policymakers, private sectors and civil society in ASEAN. Build a diverse community of practice on sustainable peatland and haze management.

Summary & Way Forward

- The Roadmap recognises haze pollution contributes importantly to air pollution and GHG emissions, especially for the public health in the region, with the main causes of land and forest fires [primary sector],
- Enhanced cross-sectoral coordination and successful implementation of the Second ASEAN Haze-Free Roadmap (2023-2030), Second ASEAN Peatland Management Strategy (2023-2030), and specifically the ASEAN Investment Framework for Haze-Free Sustainable Land Management, which highlights the needs of supports and partnership development to achieve the vision of **Transboundary Haze-Free ASEAN by 2030**.
- ASEAN welcomes support from Partners, businesses/institutions, organisations, and relevant stakeholders to support the implementation of the Second ASEAN Haze-Free Roadmap Strategies and APMS, which contribute significantly to air quality improvement and GHG emission reductions as well as resilient communities in the region.
- ASEAN also welcomes support from Partners and other relevant stakeholders to support the implementation of the M&E of the Second ASEAN Haze-Free Roadmap.

Thank you

