

# AEMS: a tool to scale up the environmental considerations and sensitiveness towards this theme at the airport level

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**Your safety is our mission.**

# Introduction

- Current context to justify AEMS
- What, why AEMS? Risks and how to mitigate
- What was done under SEA APP
- What can be done under ARISE+



# Current context to justify AEMS

Flights & passengers to double by 2030



# Current context to justify AEMS

This implies an increase in the quantity of emissions generated by the aviation sector globally



# Current context to justify the need of environmental considerations in the airport

As a consequence of this environmental issue, there will be a strong impact on the operational capacity of the airport



This will affect the potential for the sustainable growth of airports

# What is AEMS?

“An Environmental Management System (EMS) provides a methodology and framework to systemically identify and cost-effectively manage significant environmental aspects of aviation organizations’ operations and have proven effective across a wide range of organizations, including airports, air carriers, manufacturers and government agencies.”

An Environmental Management System (EMS) is a set of management principles intended to identify, evaluate, monitor, and reduce the negative environmental impacts of an organization’s activities.

# A definition in bullet points

1. **What is it?** A system
2. **What is it used for?** To identify and estimate the costs of using and managing environmental aspects
3. **Where is it used?** In aviation organisations



# Why is AEMS important?

It benefits an organization by offering a systematic approach for assessing and controlling ongoing activities, increasing environmental awareness, and complying with relevant regulations. An EMS provides many different and useful tools for detecting, understanding and managing those elements involved in its activities, products and services which have the potential to impact the environment.





# Why is AEMS important?

It helps to effectively **reduce the impacts** of an organization's activities on the environment through a systematic management practice.



# How to deal with AEMS?

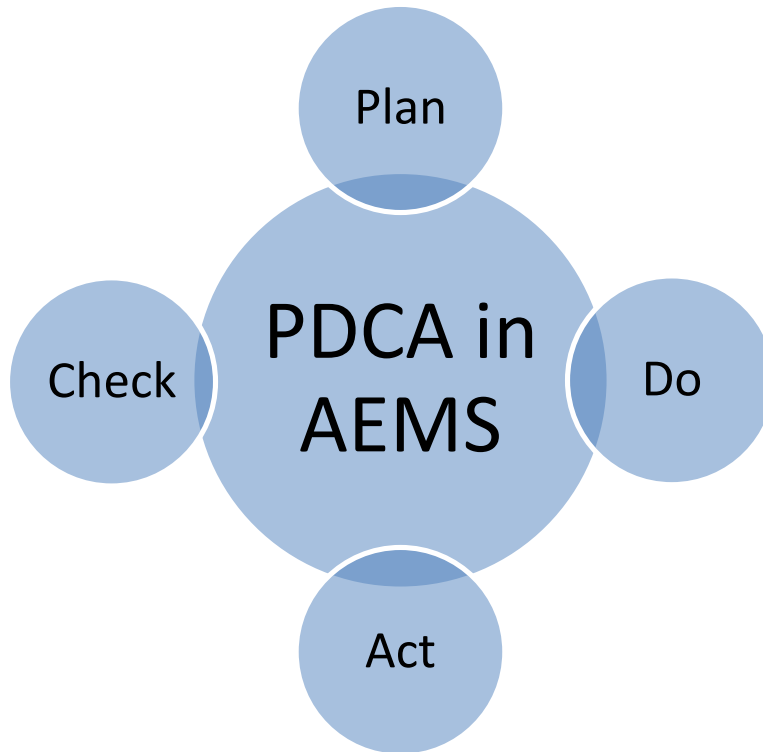
First assess your context in terms of: current environmental context, problems, challenges, how to cope with considering regulatory/legal framework in place at sectoral and/or national level, how to guarantee sustainability to the activity, how to monitor the results of the activities.

This implies a **coordinated work inside of each institution/entity working with it where roles and responsibilities are clearly shared and manuals and procedures on how to deal with are available for all**

# How to deal with AEMS?

- **Planning:** Identify the required processes and practices to address environmental aspects and compliance obligations.
- **Doing:** Develop and design operation and implementation criteria: The criteria for required operational processes should be established, and required controls should be planned.
- **Checking and Monitoring:** A continuous work to evaluate environmental performance through monitoring and analysis and audit procedures to be first decided and then used.
- **Acting:** Take actions to continuously improve.

# Continuos work on AEMS:



# Why should you invest in AEMS?

- Clear framework to monitor and control the environmental performance
- Clear definition of management responsibility, ensure business continuity and consistency
- Guidance that encourage organization to improve the efficiency in terms of management and operational staff, as well as it's stakeholders (i.e. supply chain, service providers, contractors, etc.
- Improve working environment and productivity
- Reduce or minimize the environmental impacts throughout the operation without compromising the efficiency
- Identify any potential environmental issue, reduce risk of non-compliance with national and international regulation or hazardous incidents
- A standardized system that is globally recognized, can enhance reputation and trust from stakeholders (i.e. community, investor, regulators, etc.)

# Risks in investing in AEMS and mitigation options

## → **Limited data accessibility or data accuracy. How to mitigate?**

Database work will help. Coordinated approach with all the affected parties. Regional guidelines will guide you.

## → **Lack of transparency to ensure correct information is shared between management and employees. How to mitigate?**

Rules, procedures, checklists pointing out clearly roles and responsibilities of each involved and affected party. Regional procedures on how to draft guidelines will help you.

# AEMS in Europe

The screenshot displays the 'CEM ONLINE' web application interface. At the top, a dark navigation bar contains the EUROCONTROL logo, the text 'CEM ONLINE', and links for 'Home' and 'Consult WA's'. On the right side of the bar, it shows 'Connected as jmgathon' and a 'Logout' button. The main content area features a large background image of an airport terminal with people sitting at a long table. The title 'Collaborative Environmental Management' is prominently displayed in the center. Below the title, the text 'Facilitating: ✓Environmental Solutions ✓Operational Improvements ✓Compliance' is shown. To the left, under the heading 'Useful Resources', there are five icons representing different documents: 'CEM Specification', 'CEM Protocol Check List', 'Airport Corner', 'ESSIP Dashboard', and 'A-CDM'. On the right, a blue button labeled 'Consult Working Arrangements' is visible, with the text 'Status of other existing Working Arrangements' below it. At the bottom of the main area, there is a row of six circular icons: a globe, a chemical structure for PM (CO<sub>2</sub> and NO<sub>x</sub>), a person with a leaf, a city skyline, a head with a gear, and a handshake. The footer is a dark bar with links for 'Help', 'About', 'Disclaimer', and 'Contact'. It also includes the copyright notice '© 2016 EUROCONTROL — European Organisation for the Safety of Air Navigation' and the version number 'Version 0.0.3.26.285'.

CEM ONLINE Home Consult WA's Connected as jmgathon Logout

## Collaborative Environmental Management

Facilitating: ✓Environmental Solutions ✓Operational Improvements ✓Compliance

**Useful Resources**

- CEM Specification
- CEM Protocol Check List
- Airport Corner
- ESSIP Dashboard
- A-CDM

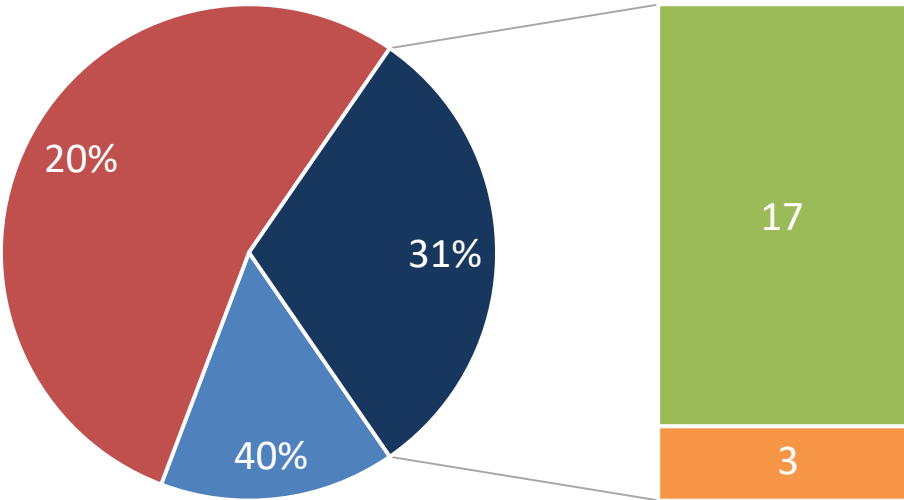
**Consult Working Arrangements**  
Status of other existing Working Arrangements

Help About Disclaimer Contact

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# AEMS in ASIA

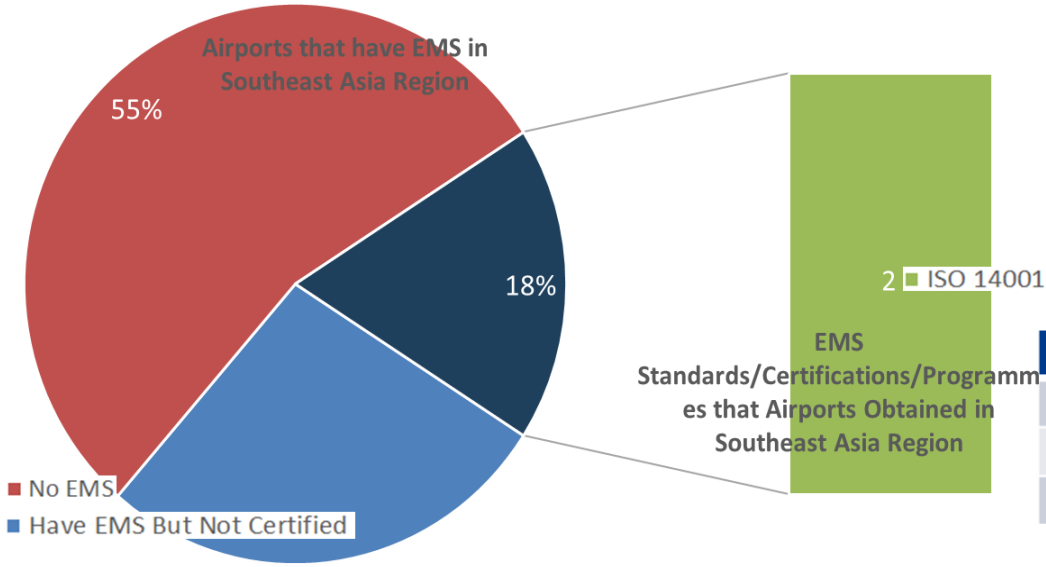
No. of Airports that have EMS in Asia-Pacific Region



Total No. of Responded Airports	50
No. of Airports that have certified EMS	20
No. of Airports that have EMS, but not Certified	20
No. of Airports that do not have EMS	10



# AEMS in ASIA



Total No. of Responded Airports in SEA Region	11
No. of Airports that have certified EMS	2
No. of Airports that have EMS, but not Certified	3
No. of Airports that do not have EMS	6

# ACI Asia-Pacific Environmental Survey → Database

20



Please provide information for the air performance indicators

SO <sub>2</sub>	Concentration (µg/m <sup>3</sup> ) in 2013 (in 2014)
	Weighted average in 2013
NO <sub>x</sub>	Concentration (µg/m <sup>3</sup> ) in 2013 (in 2014)
	Weighted average in 2013
VOC	Concentration (µg/m <sup>3</sup> ) in 2013 (in 2014)
	Weighted average in 2013
HCl	Concentration (µg/m <sup>3</sup> ) in 2013 (in 2014)
	Weighted average in 2013
CO <sub>2</sub>	Concentration (µg/m <sup>3</sup> ) in 2013 (in 2014)
	Weighted average in 2013
CO	Concentration (µg/m <sup>3</sup> ) in 2013 (in 2014)
	Weighted average in 2013
Others	Concentration (µg/m <sup>3</sup> ) in 2013 (in 2014)
	Weighted average in 2013
	* Specify "Others"

## Water

Please provide information for the water performance indicators

(a) Municipal water consumed	Volume (m <sup>3</sup> ) in 2013 (in 2014)
	* Key purpose of usage
(b) Sewerage consumed	Volume (m <sup>3</sup> ) in 2013 (in 2014)
	* Key purpose of usage
(c) Total water consumed = (a) + (b)	Volume (m <sup>3</sup> ) in 2013 (in 2014)
(d) Water consumed per passenger = (c) / no. of passenger	Volume (m <sup>3</sup> /pass) in 2013 (in 2014)
(e) Total water recycled	Volume (m <sup>3</sup> ) in 2013 (in 2014)
(f) Water recycled per passenger = (e) / no. of passenger	Volume (m <sup>3</sup> /pass) in 2013 (in 2014)
(g) Wastewater discharge	Volume (m <sup>3</sup> ) in 2013 (in 2014)

## Waste

Please provide information for the waste performance indicators

(a) Waste incinerated	Quantity (kg) in 2013 (in 2014)
(b) Waste for recycling (See waste management / classification)	Quantity (kg) in 2013 (in 2014)
(c) Recycled waste collected	Quantity (kg) in 2013 (in 2014)
Total waste generated = (a) + (b) + (c)	Quantity (kg) in 2013 (in 2014)
(d) Waste sent to landfill	Quantity (kg) in 2013 (in 2014)
(e) Landfill waste per passenger = (d) / no. of passengers	Quantity (kg/pass) in 2013 (in 2014)
(f) Recycled waste per passenger = (c) / no. of passengers	Quantity (kg/pass) in 2013 (in 2014)
(g) Recycled waste per passenger = (c) / no. of passengers	Quantity (kg/pass) in 2013 (in 2014)
(h) Recycled waste per passenger = (c) / no. of passengers	Quantity (kg/pass) in 2013 (in 2014)

## Energy

Please provide information for the energy performance indicators

Electricity	Amount (kWh) in 2013 (in 2014)
	* Please name the key emission source
Gas	Amount (m <sup>3</sup> ) in 2013 (in 2014)
	* Please name the key emission source
Heat	Amount (kWh) in 2013 (in 2014)
	* Please name the key emission source

## Carbon

Please provide information for the GHG / carbon performance

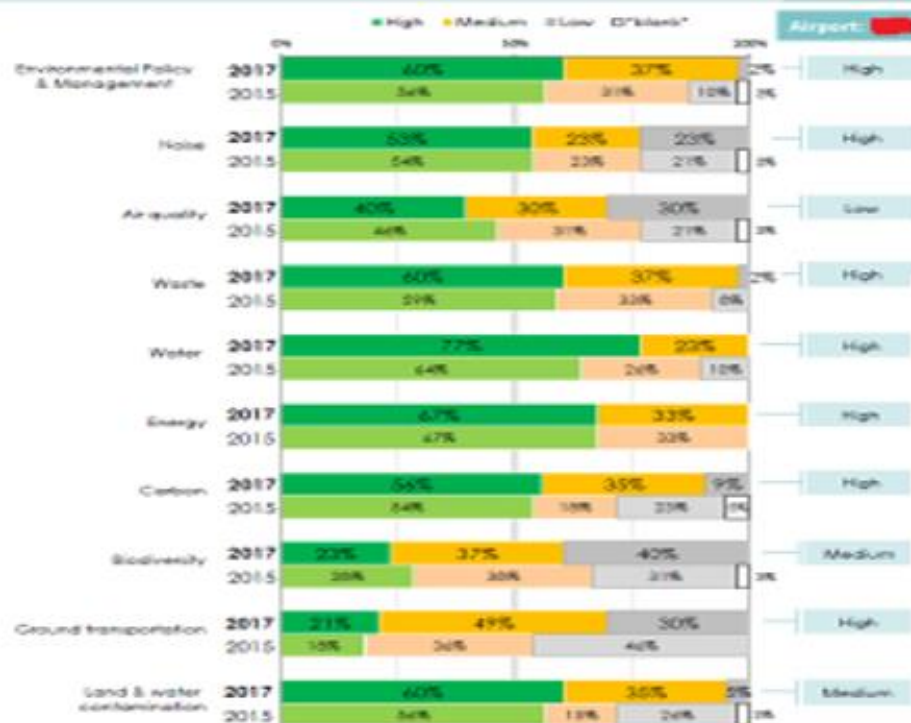
Scope 1 emissions	Amount (tonnes in CO <sub>2</sub> e) in 2013 (in 2014)
	* Please name the key emission source
Scope 2 emissions	Amount (tonnes in CO <sub>2</sub> e) in 2013 (in 2014)
	* Please name the key emission source
Scope 3 emissions	Amount (tonnes in CO <sub>2</sub> e) in 2013 (in 2014)
	* Please name the key emission source
Total GHG emissions	Amount (tonnes in CO <sub>2</sub> e) in 2013 (in 2014)
GHG emissions per passenger	Amount (tonnes in CO <sub>2</sub> e/pass) in 2013 (in 2014)

Lists of surveys for performance indicators

# ACI Asia-Pacific Environmental Survey → Database

## Management priority

Please indicate the management priority of your airport for the 10 environmental aspects covered in this survey.



Customized report for Each participating airports

22  
✈️



## Environmental Management System (EMS)

Does your airport have an Environmental Management System (EMS)?



# AEMS in the ASEAN region

- A regional workshop on this specific topic was organized in ICAO premises in February 2019 to sensitize the ASEAN States on the importance of this topic for ICAO
- At the end of the workshop, all ASEAN states agreed to start discussing on this specific theme
- During the ATWG in April 2019 Thailand decided to take the lead on this activity to showcase the importance of using EMS and including ISO considerations in how airports deal with environment







ICAO COSCAP SEA

## EASA – ICAO COSCAP SEA Workshop: Airport Environmental Management Systems (EMS)

ICAO Asia and Pacific Regional Office, Bangkok, Thailand  
25 – 26 February 2019



ICAO

Mr. Peter Dundas  
ICAO Asia and Pacific Office



ICAO COSCAP-SEA

Mr. Nicolas Grossenloup  
ICAO COSCAP-SEA

# The case of Thailand

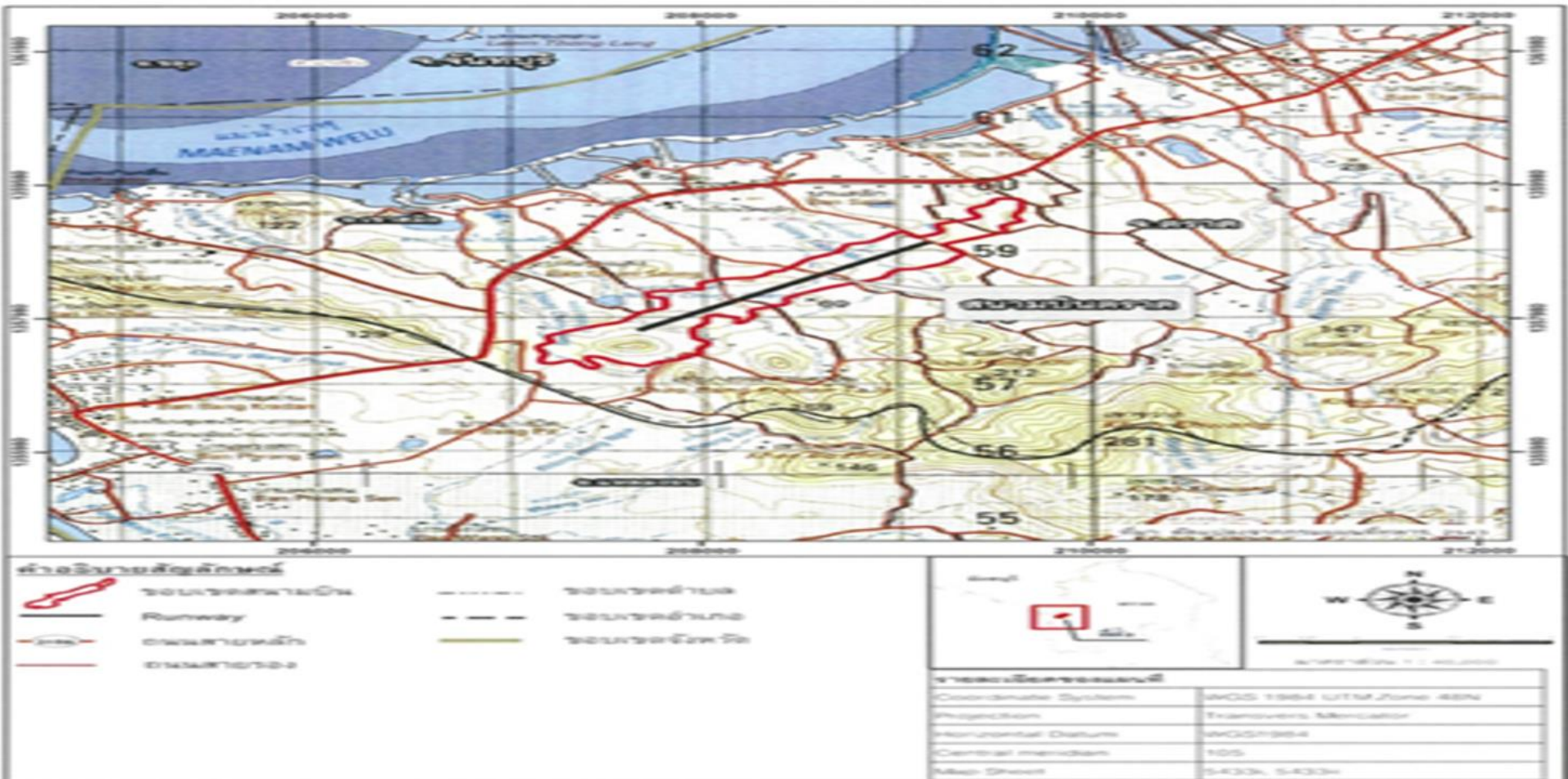
- A small airport with 3 flights per day was selected to test this modus operandi.
- A local expert was engaged and working in direct contact with CAA Thailand and the airport staff to assess their needs and challenges.
- After 5 missions and 40 wds: the work was officially finalized and Trat airport is now implementing the AEMS in their premises.
- From a voluntary decision, they committed to be audited by CAAT as they understood the benefits of this approach despite the costs to tackle it.



1. Airport Administration Office
2. Garbage room
3. Maintenance Department Office
4. Apron (Runway 23 side)
5. Runway 23
6. Meeting Point
7. VIP room
8. First Aids
9. Arrival Passenger Terminal
10. Departure Passenger Terminal
11. Boarding pass check
12. Ground Support Equipment Parking Area
13. Ground Support Equipment Temporary Parking Area
14. Air Traffic Control Tower
15. Runway
16. Runway 05
17. Electricity Division
18. Fire Fighting and Emergency Division
19. Non-Directional Bacon (Navigator)







# What was delivered?

- Desk study on environmental management and risk assessment
- Training and capacity building activities
- Training on audit and simulation of audit
- Checklists
- AEMS guidelines
- AEMS manual
- Manual audit for CAAT already integrated into the aerodrome procedures of CAAT



# AEMS under ARISE+

- During the last meeting of the ATWG, sub working group env, ASEAN states expressed the interests of being supported in designing an AEMS for their airports.
- This will be developed under the ARISE+ event.
- By the end of the ARISE+ project, the ambition is to be able to use the pilot activities designed for the selected airport as the guidelines to draft regional procedures on AEMS to be then implemented in the ASEAN region.

# What's next? - Conclusions

- It is important to raise the ambitions on AEMS as Thailand did (i.e. from a small airport to a medium size airport with stronger environmental problems impacting the residential areas and the tourists as well).
- It is important to express your interest in being supported by ARISE+ in the design of the AEMS in your selected airport.
- It is important to be committed in scaling up the ambitions towards environmental considerations in each state to gather different experiences and challenges to be included into regional guidelines.



# Thank you for your attention!

[easa.europa.eu/connect](https://easa.europa.eu/connect)



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