

How to be ready for the second state action Plan

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Your safety is our mission.



Know your speaker



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The Civil Aviation Authority of Thailand

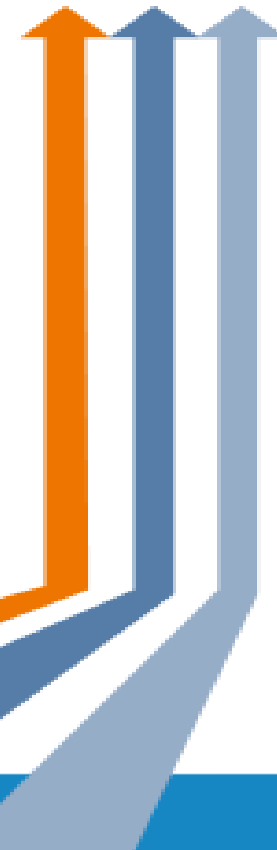


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State Action Plan

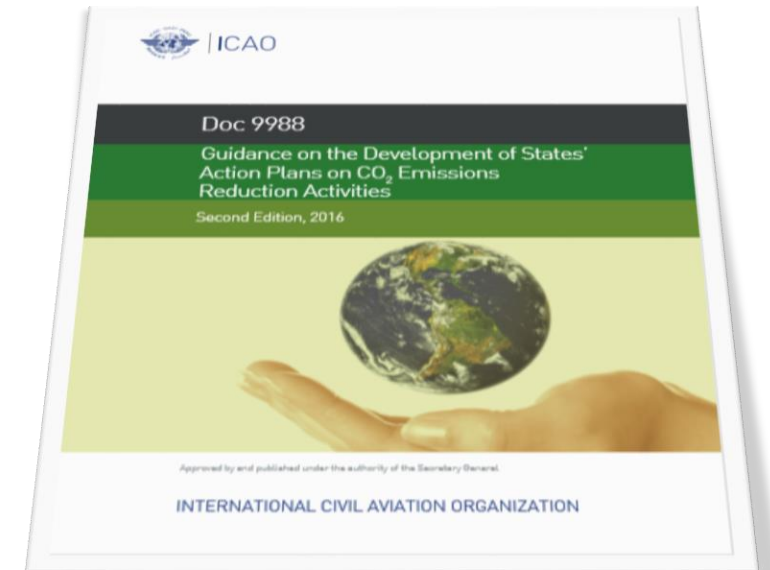
- General information of aviation sector
- Useful information for managing GHG emissions in aviation sector
 - Statistical data
 - Historical data
 - Baseline/Forecasted emissions data
 - Mitigation measures data





➤ ICAO Doc 9988 Guidance on Development of States' Action Plan on CO₂ Emissions Reduction Activities

- Contact Information for the State Action Plan Focal Point
- Baseline Scenario (without action) – including fuel consumption, CO₂ emissions, and RTK
- Selected Measures to mitigate CO₂ emissions
- Expected Results (estimated impact of selected mitigation measures on the baseline scenario) – including fuel consumption, CO₂ emissions, and RTK
- Assistance Needs (if needed)





State Action Plan

- ICAO requests member states to submit **every 3 years**
- Thailand has submitted
 - The 1st Action Plan since 2013 (Thai DCA)
 - The 2nd Action Plan since 2018 (CAAT)





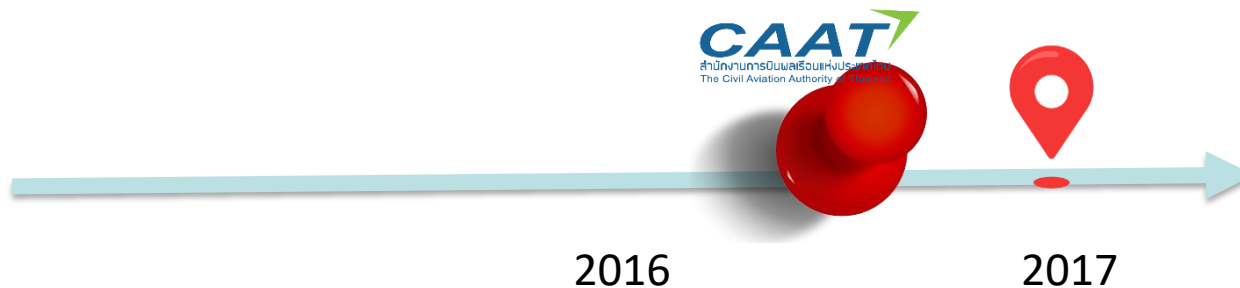
Thailand's State Action Plan



Department of Civil Aviation (DCA)



2013



2016

2017

CAAT
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The Civil Aviation Authority of Thailand

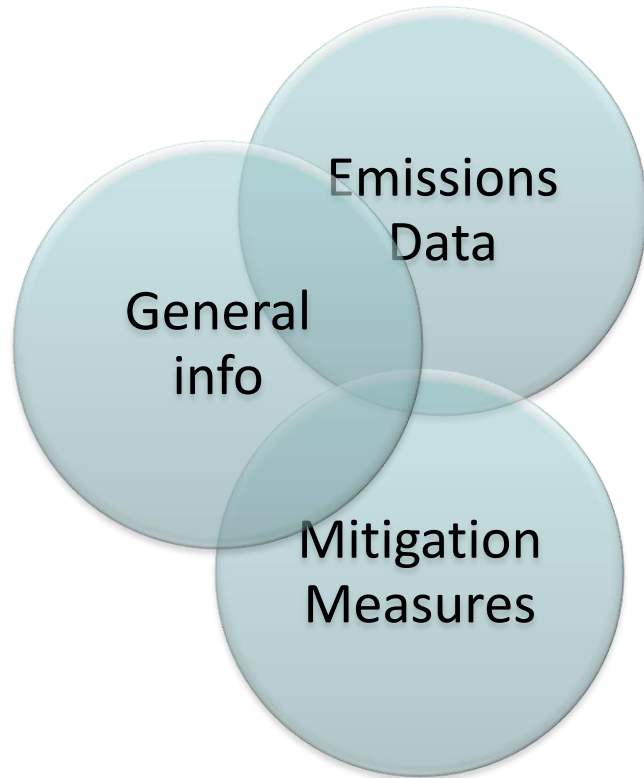


2018

Current

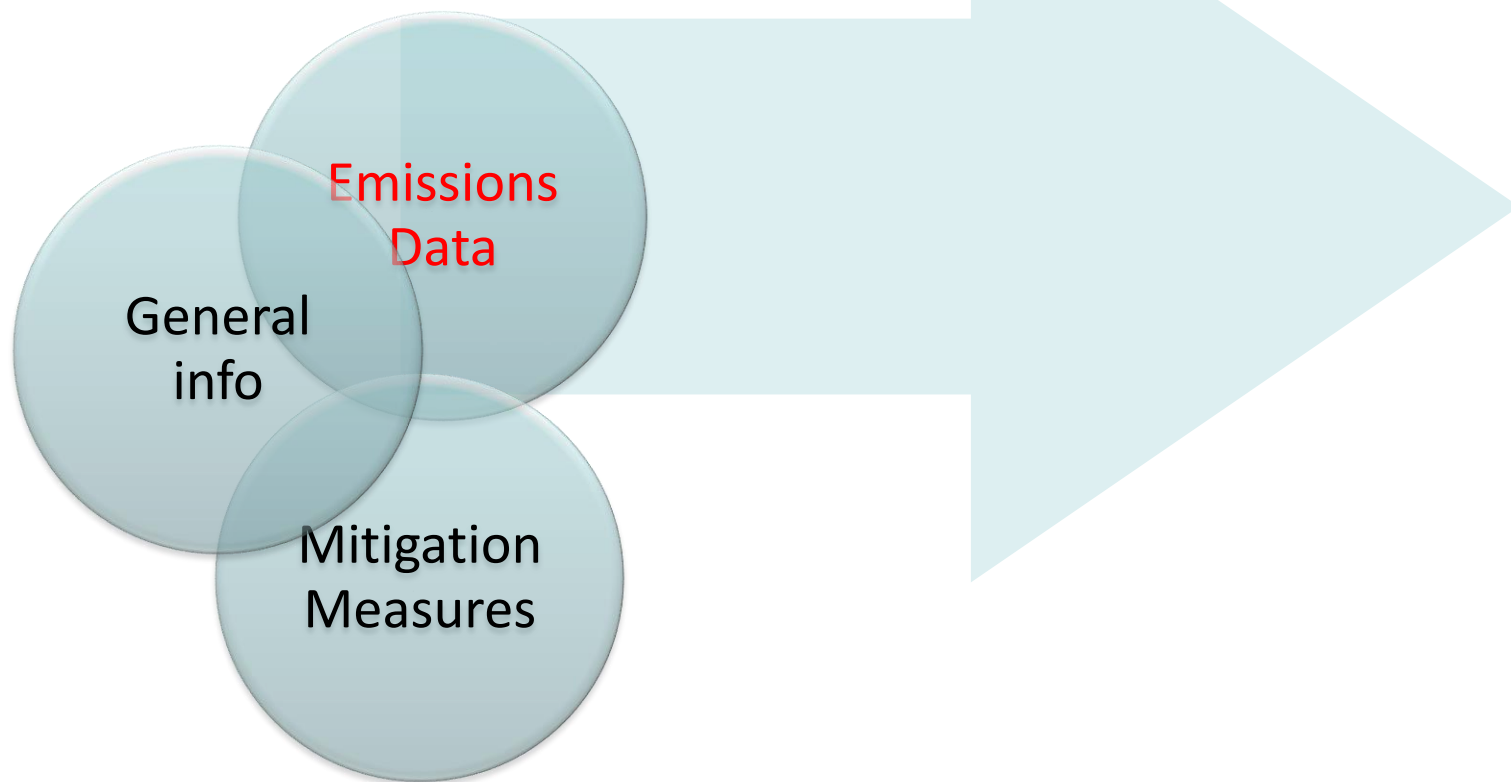


Action Plan Monitoring: Action Plan's Elements

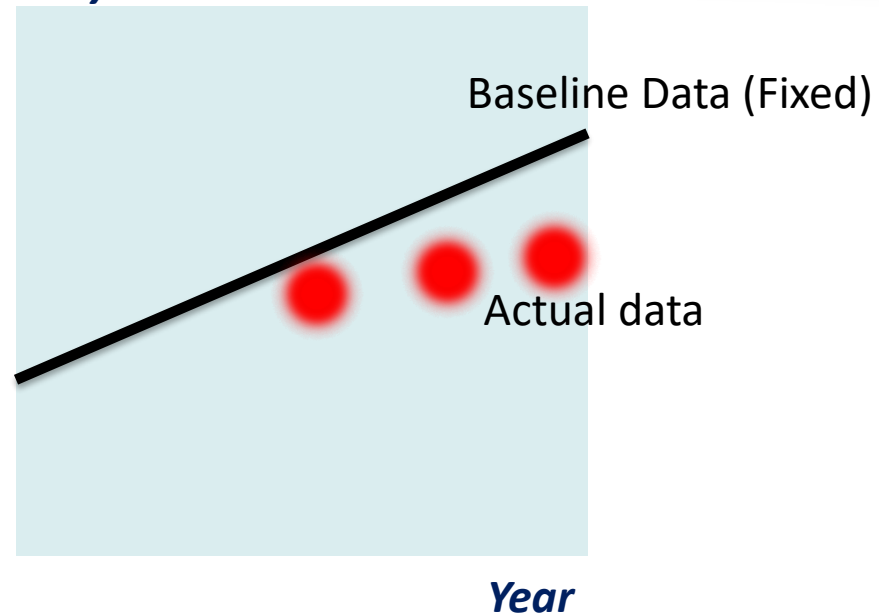




Action Plan Monitoring

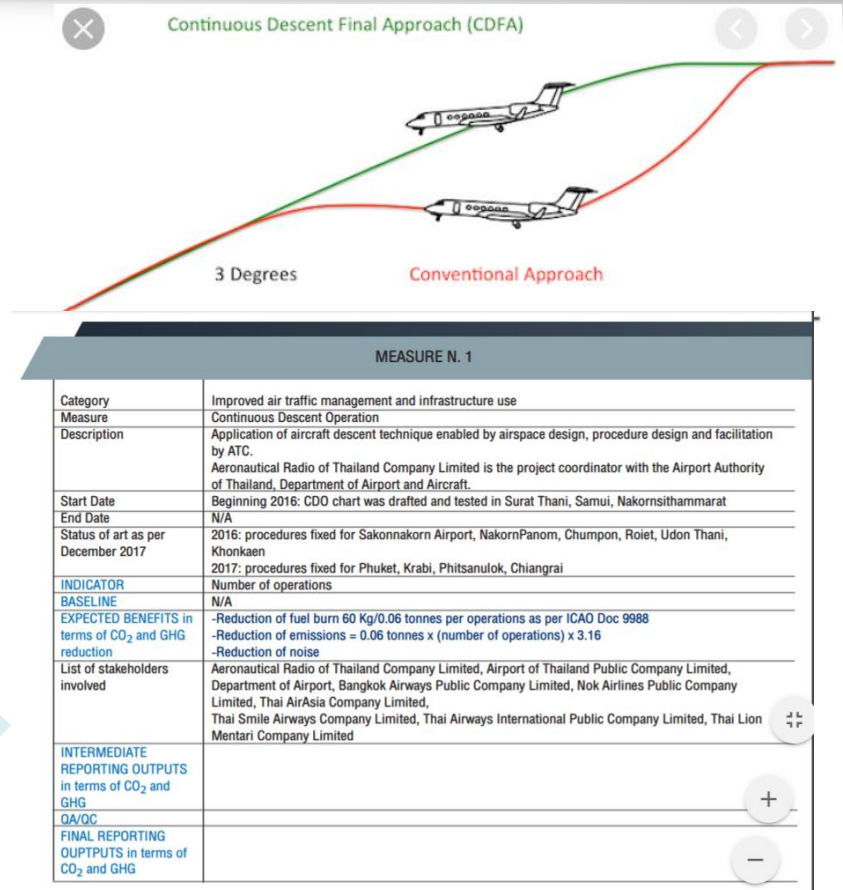
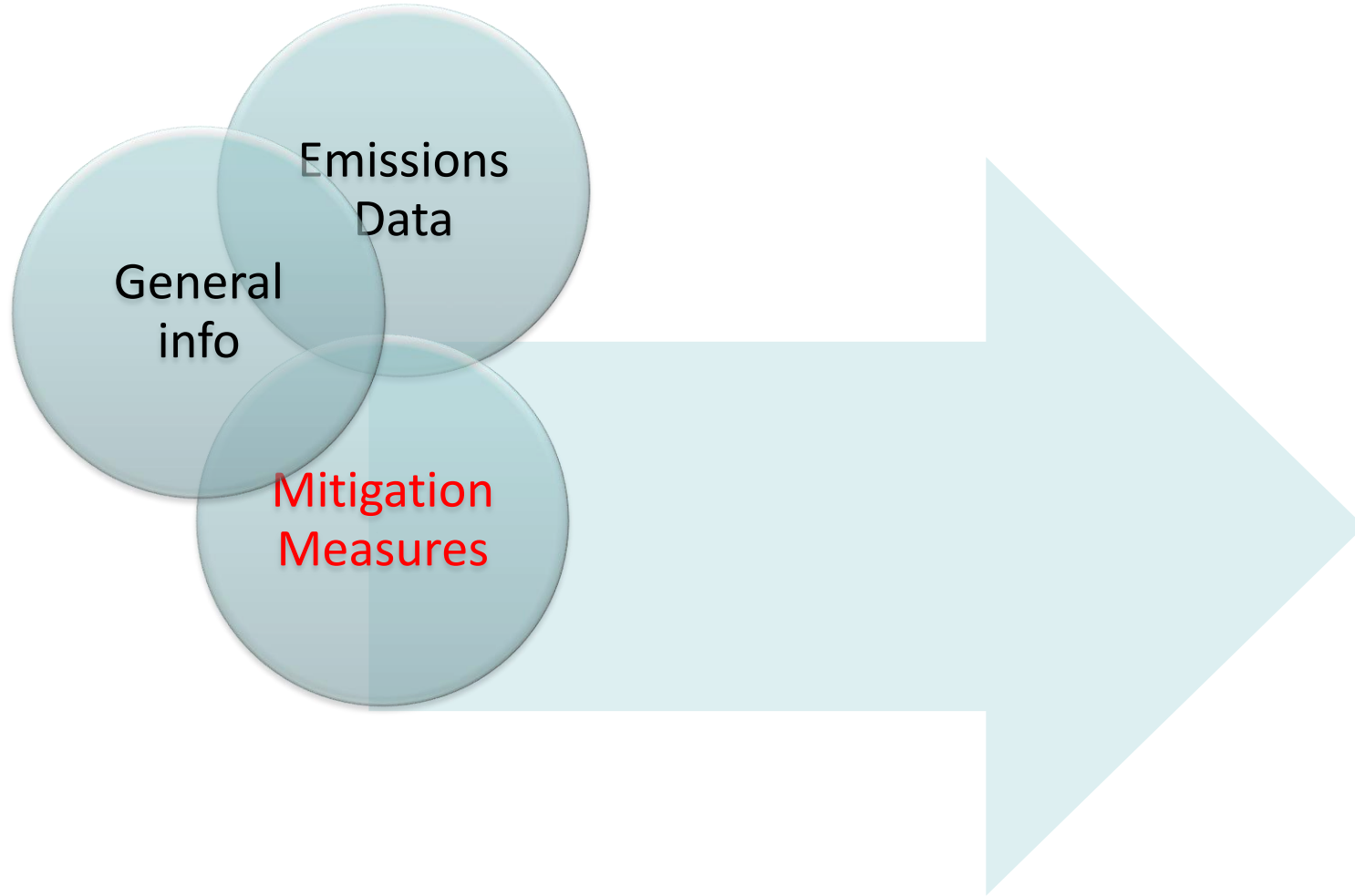


Quantity





Action Plan Monitoring



Progress of the implementation
Descriptive information
Data in terms of CO₂ emission



Updating The Action Plan

Are you ready?





CHECKLIST

- ✓ ☒ Tools to facilitate data collection
 - ✓ ☒ Database
 - ✓ ☒ MRV system/regulation
- ✓ ☒ Readiness of stakeholders
 - ✓ ☒ Knowledge → Training
 - ✓ ☒ Participation → Communication, Engagement, Promotion
- ✓ ☒ Someone to guarantee this work
 - ✓ ☒ The Committee





Readiness of stakeholders



Communication



Training

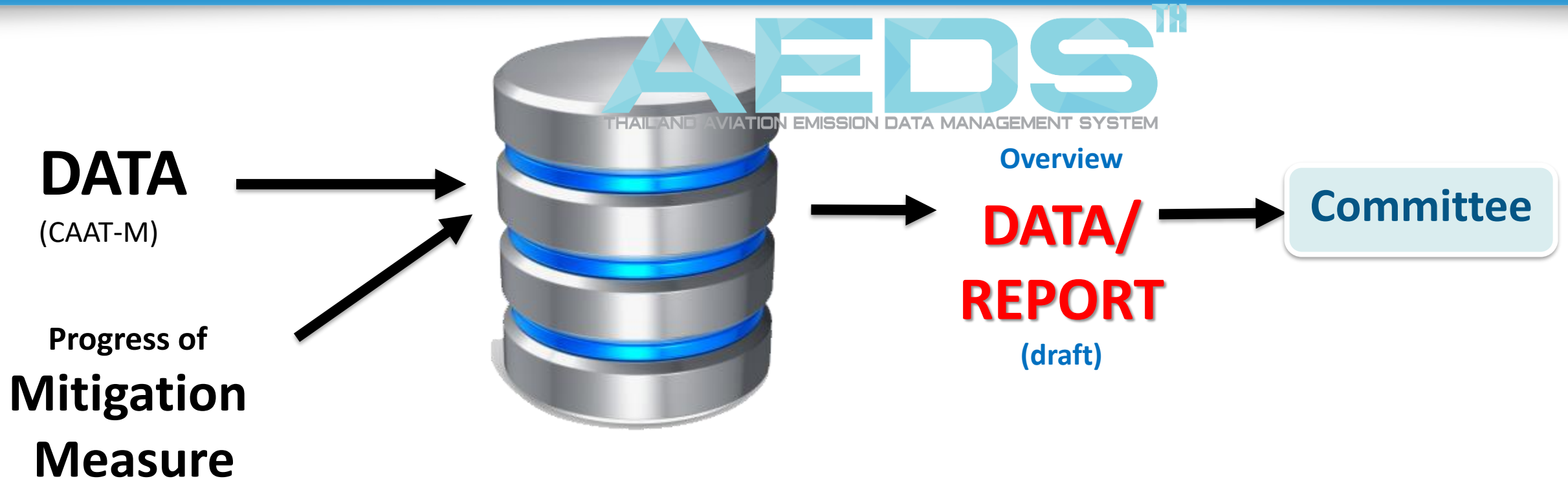
Engagement



Cooperation



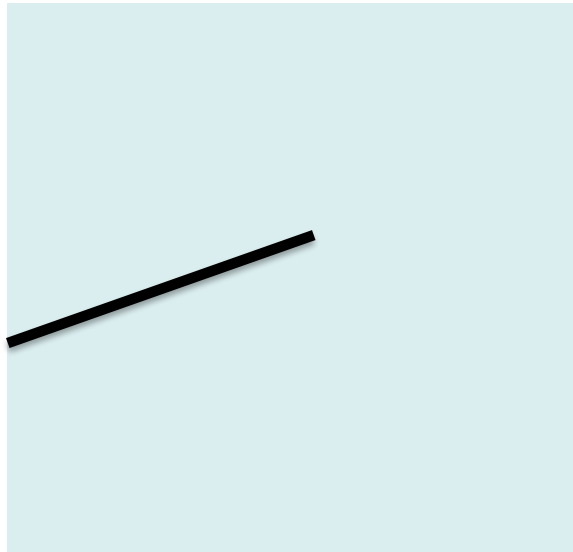
Main Process steps to develop ACTION PLAN



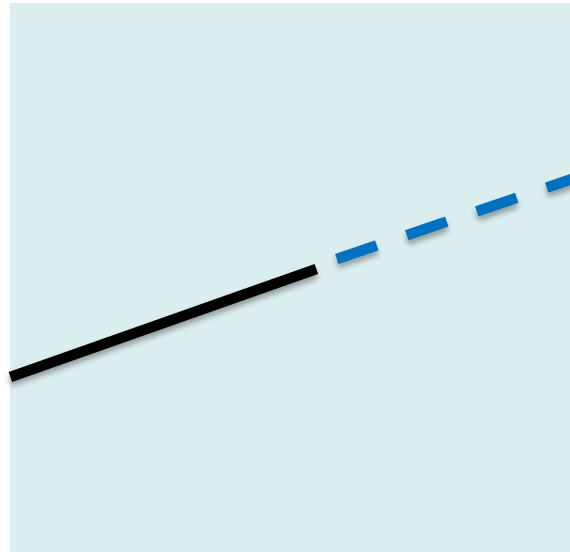


Generating baseline and forecasted emissions

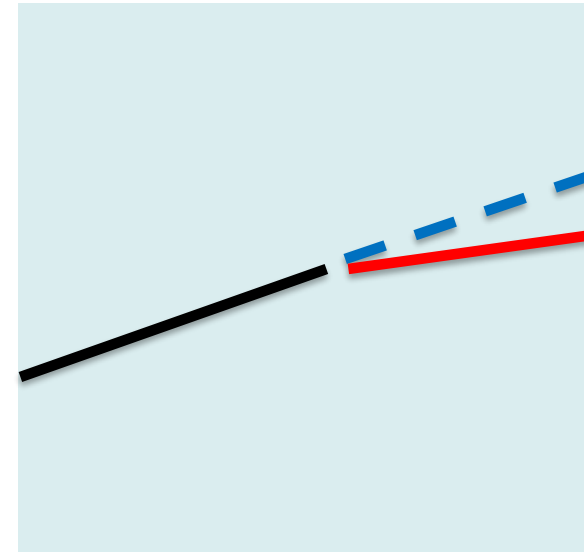
Emissions Data



•Statistic



•Baseline



•Forecasted emission
•with ACTIONS



Mitigation measures Data



Airbus A350 XWB

widebody family that is shaping the future
of long-haul airline operations

**Aircraft
Technology**

**Operational
Efficiency**

- What are mitigation measures to be proposed
 - Description
 - Stakeholder involved
- Indicator, Quality Control
- CO2 emissions emitted / reduced from the implementation
 - NUMBER!!!!!!!



AIRCRAFT & ENGINE WASH

- Thai Airways International
- Optimize aircraft maintenance
- Aircraft wash can reduce friction and improve fuel efficiency which result in 0.4% fuel consumption reduction





PURCHASING NEW AIRCRAFT

- Thai airways for A350 and B787
- Thai Air Asia for A320 NEO
- Thai Lion Air for B737 max





SINGLE ENGINE TAXIING

- Bangkok Airways
- Airbus One Engine Taxi
- By procedure
- With record





WEIGHT REDUCTION/ OPTIMIZATION

- Thai Airways Int. and Bangkok Airways
- Reduce potable water as per water Loading Matrix
- Water uplift as follow by the number of passenger onboard
- Quantity of potable water variation direct with flight hours





ANSP and Airports

Improved **Air**
Traffic
Management

Increase
Airport Capacity

- Airport Collaboration Decision Making (A-CDM)
 - Parallel route
- Construct New Runway (AOT/BKK)
- Etc.



Action Plan Monitoring



- CAAT has been collecting emissions data and mitigation measures implementation data on yearly basis → Annual DATA
- Open for the new measures proposed and then to be included in the Action Plan.

DATA 

- These data will be prepared for updating the State's Action Plan.
- OFFICIALLY USED → need to be endorsed



Data management Mechanism

➤ Committee of Climate change in Aviation Sector

- Chair by DG of CAAT
- Airport operators
- Airlines
- Ministry of Transport
- Ministry of Environment
- Thailand's GHG Organization
- CAAT's related functions



➤ Roles and Responsibilities

- Determine and Promote GHG reduction policy and measure
- Manage GHG data in aviation sector
- Others



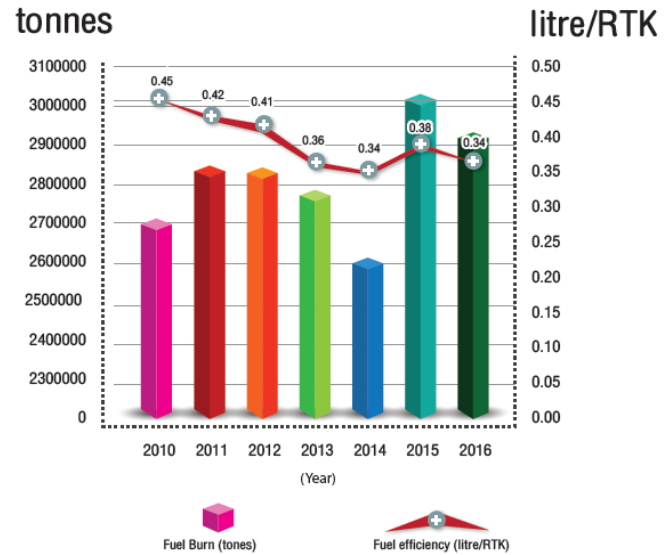


Figure 6: Fuel consumed (tonnes) and fuel consumption efficiency (litre/RTK) during 2010 -2016

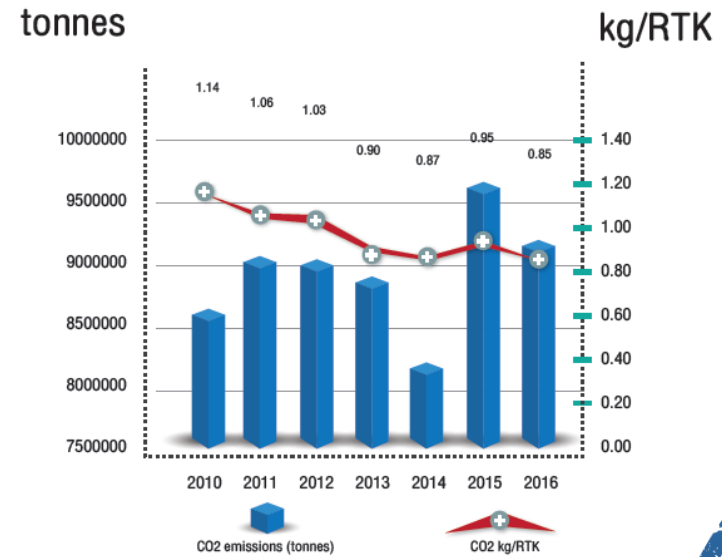


Figure 7: Greenhouse gas emission during 2010 - 2016

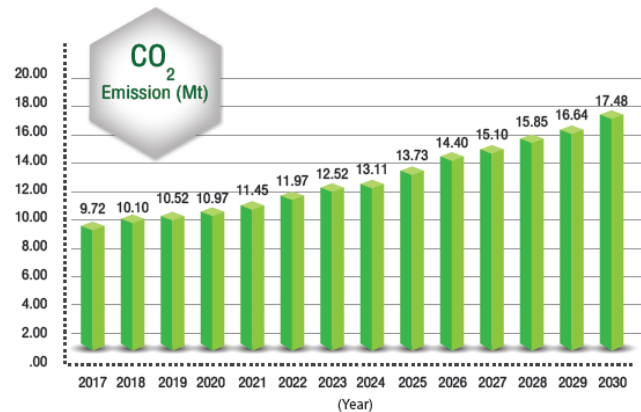


Figure 9: Forecast of CO₂ emissions by Thai airlines in international flights (in mega tonnes) 2017-2030

EMISSION DATA

THAILAND'S INTERNATIONAL AVIATION

Fuel consumption, CO2 Emission, Fuel Efficiency
Emission with measures





THAILAND's ACTION PLAN 2018

Thailand's Action Plan to Reduce Aviation Emission 2018



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The Civil Aviation Authority of Thailand

4.3 TREND IN AIR TRAFFIC STATISTICAL DATA AND GHG ESTIMATION

The data and figures contributed to the above analysis are to be separately developed and clarified in their own systems, parameters, and limits in the following tables:



5.2 UPDATES ON MITIGATION MEASURES CITED IN THE 2013 ACTION PLAN

5.2.1 OVERVIEW

The basket of measures designed, submitted, and started, under Thailand's Department of Civil Aviation (DCA) in 2011 has been re-evaluated, and related data have been updated, in order to reflect the real status of the civil aviation sector in Thailand after the changes incurred during the transfer of power from DCA to the newly established Civil Aviation Authority of Thailand (CAAT). This will give ICAO a better overview of the current framework which defines the official position of Thailand in contributing to the ICAO's global aspirational goals.

It shall be pointed out that most of the quoted previous mitigation measures cannot be assessed in terms of GHG and CO₂ reduction due to lack of appropriate controlling standards and methodologies on data quality check before the application of the measures and at their natural end. DCA had none of procedure in place to verify the data submitted by operators/stakeholders. The procedure has since been developed after the establishment of CAAT, however, the exact results regarding the environmental and climate impacts of the measures suggested in the previous version of the Action Plan cannot be ascertained.

To demonstrate the development, efficacy and follow up of each measure started under DCA in 2011, CAAT opted to use the same Action Plan measure template submitted by DCA to ICAO in 2013.

Table 3: Fuel burn, RTK, fuel consumption efficiency (FB/RTK) and CO₂ emissions during 2010 -2016

Year	Fuel Burn (FB)		RTK	FB/RTK		CO ₂ Emission
	(LITRE)	Tonnes	thousand (Tonnes-km)	LITRE/RTK	kg/RTK	Tonnes
	[A]	[B]	[C]	[D] = [A]/[C]	[E] = [B]/(1,000)/[C]	[F] = [B] x 3.16
2010	3,440,992,343	2,752,794	7,574,912	0.4543	0.3634	8,671,300
2011	3,582,037,382	2,865,630	8,511,965	0.4208	0.3367	9,026,733
2012	3,575,544,966	2,860,436	8,766,787	0.4079	0.3263	9,010,375
2013	3,456,980,863	2,765,585	9,686,980	0.3569	0.2855	8,711,592
2014	3,251,262,249	2,601,010	9,424,065	0.3450	0.2760	8,193,181
2015	3,792,499,121	3,033,999	10,034,051	0.3780	0.3024	9,557,098
2016	3,636,640,352	2,909,312	10,822,393	0.3360	0.2688	9,164,334

Source: M-Forms submitted by airlines and CAAT calculation using no. of flights (Dk) from airport operators, considering AOC's nationalities

Table 3 presents historical statistical data and emission inventory for 2010-2016, used to forecast air transport activities in the baseline scenario.

*These numbers were not available in the M forms and the values have been established using surrogate methods.

Despite lacking the appropriate data collection and verification procedures in the past, it should be emphasized that, recently, the purchase of more advanced and bigger aircrafts to replace dated models (measure n. 2) as well as the implementation of more efficient ATM planning, ground and terminal operations, and the increasing efficiency level in infrastructure use have already produced the first noticeable results – a decrease in CO₂ emissions by 392,764 tonnes; down from 2015's 9,557,098 tonnes to 2016's 9,164,334 tonnes.

Therefore, even with the lack of data to establish how the indicators of those measures have changed from the reference scenario, the graphic on GHG emissions from 2010 until 2016 (figure 7) demonstrates the first impacts after the introduction in terms of CO₂ emissions reduction.



The next TH-Action Plan

3rd

Your safety is our mission.



► From 2018 and along the next 3 years



2018



2019

2020



2021



TH - Progress on action plan monitoring

Monitor → Emissions Data

→ Progress of mitigation measures implementation



2018



2019



2020



2021



Challenges

- The difficulty in implementation of mitigation measures
- GHG emissions evaluation methodology
- **The appropriate mitigation measures** in terms of ...
 - Practice
 - Evaluation





For next version of TH-Action Plan

- Data 2018-2020 will be completed
- Baseline vs. Actual emissions will be compared
 - Emissions Reduction
 - Performance improvement
- **Appropriate Mitigation Measures**



Thank you

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An Agency of the European Union 