

2024 ICAO REGIONAL SEMINAR ON ENVIRONMENT

In collaboration with

APAC Region

7 to 8 , August 2024

Bangkok, Thailand

CAAT
สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand



ACT>>SAF

CORSIA

AMBITIOUS PLANNING FOR BRUNEI DARUSSALAM'S STATE ACTION PLAN

AMBITIOUS PLANNING FOR BRUNEI DARUSSALAM'S STATE ACTION PLAN



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OUR ACHIEVEMENT



SUBMIT



Submission of Brunei Darussalam's **first State Action Plan** to ICAO in January 2024!



Brunei Darussalam outlined **strategies and initiatives** to reduce CO₂ from international flights.



Through **participatory approach**, DCA Brunei conducted multiple internal discussions and **engaged airline** throughout the preparation for the 1st State Action Plan.



Stakeholder's contributions ultimately enabled DCA Brunei to collect and analyse data on international traffic growth, fuel consumption and CO₂ emissions as well as quantify the expected results from the execution of selected mitigation measures.



Collaborative efforts are considered as driving factors to DCA Brunei's achievement in submitting the 1st State Action Plan to ICAO.



Publicly available on ICAO's official website:

https://www.icao.int/environmental-protection/Pages/ClimateChange_ActionPlan.aspx



REPORTED MITIGATION MEASURES



AIRLINE



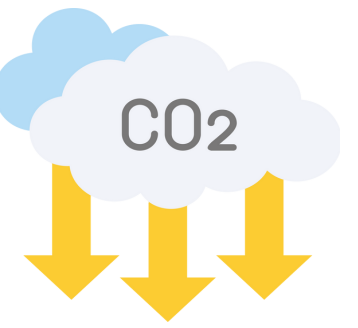
AIRPORT



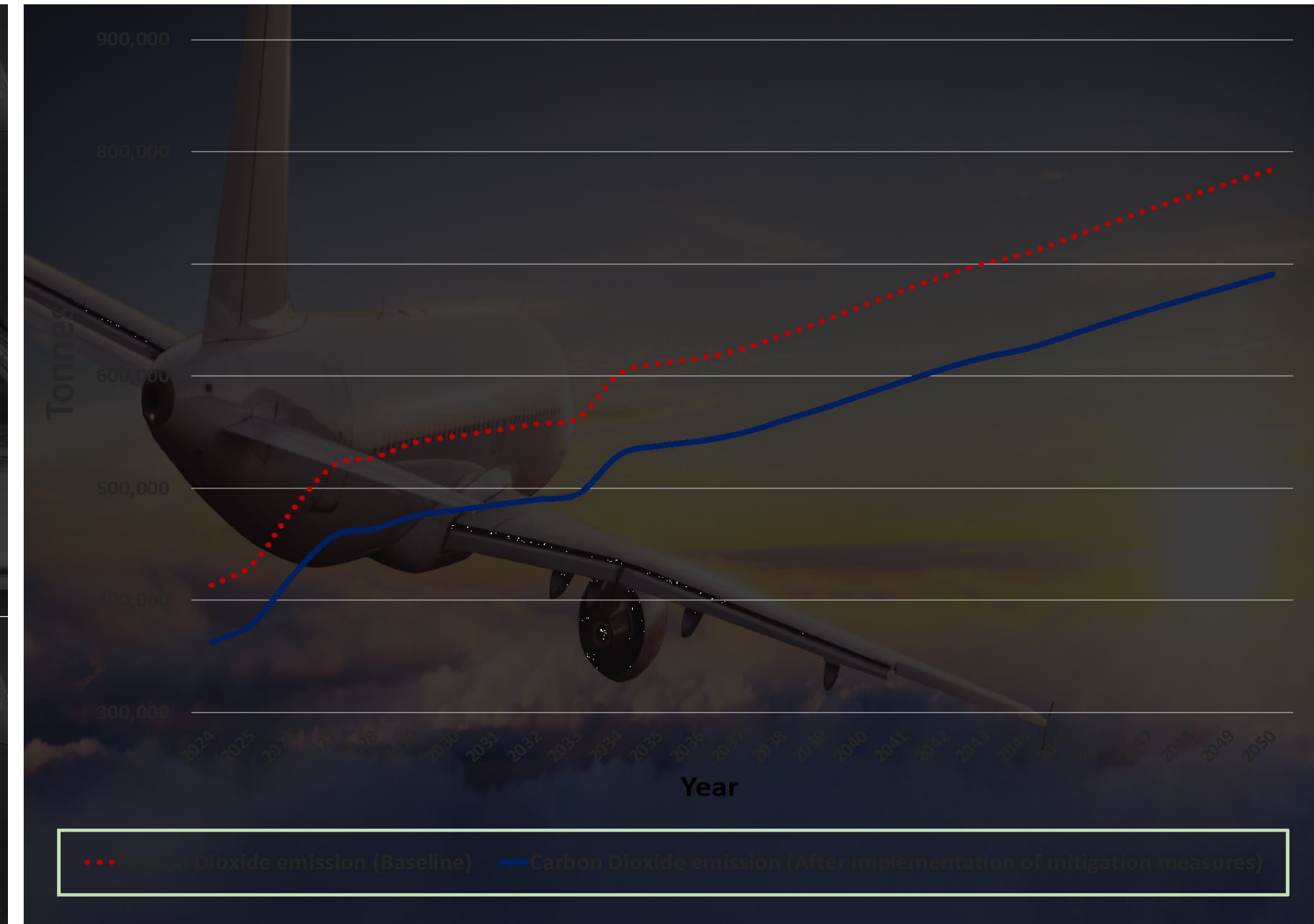
ANSP

PURCHASE OF NEW AIRCRAFTS		OPTIMIZED AIRCRAFT MAINTENANCE	
<input type="checkbox"/> <i>Purchase of B787 Aircrafts & A320 New-Engine Option (NEO) Aircrafts</i>		<input type="checkbox"/> <i>Engine Wash</i> <input type="checkbox"/> <i>Zonal Dryer</i>	
BEST PRACTICES IN OPERATIONS		SUPPLEMENTAL BENEFITS FOR DOMESTIC SECTORS: AIRPORT IMPROVEMENT	
<input type="checkbox"/> <i>Single Engine Taxi-In</i> <input type="checkbox"/> <i>Continuous Descent Approach (CDA) and Reduce Acceleration Altitude (RAAL)</i> <input type="checkbox"/> <i>Idle Reverse Thrust (REVT)</i> <input type="checkbox"/> <i>Aircraft weight reduction</i> <input type="checkbox"/> <i>Utilization of GPU during Intraday Aircraft Turnarounds</i>		<input type="checkbox"/> <i>Use cleaner alternative sources of power generation for hangar building</i> <input type="checkbox"/> <i>Alternative fuel operated ground vehicle</i> <input type="checkbox"/> <i>Uptake of Sustainable Aviation Fuel (SAF)</i>	
MARKET-BASED MEASURES			
<input type="checkbox"/> <i>Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)</i> <input type="checkbox"/> <i>Emission Trading Scheme (ETS)</i>			
SUPPLEMENTAL BENEFITS FOR DOMESTIC SECTORS: AIRPORT IMPROVEMENTS			
<input type="checkbox"/> <i>Upgrading of Conventional Airfield Lighting to LEDs in Airfield Pavement Rehabilitation Project Phase 1 & 2</i> <input type="checkbox"/> <i>Energy Saving Initiative at Airport Terminal Building</i> <input type="checkbox"/> <i>Proposal: Installation of electrical/fixed Ground Power Units (GPU)</i>			
IMPROVED AIR TRAFFIC MANAGEMENT (ATM)			
<input type="checkbox"/> <i>Operational usage of Automatic Dependent Surveillance – Broadcast (ADS-B)</i> <input type="checkbox"/> <i>Implementation of Surface Movement Radar (SMR)</i> <input type="checkbox"/> <i>Implementation of Performance Based Navigation (PBN)</i>			

2050 EMISSIONS PROJECTION

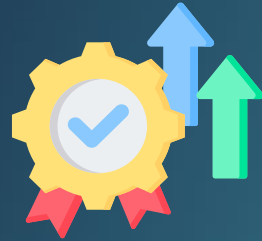


Expected Results:
Reduction of Fuel Consumption
for 2024 – 2050 period



Expected Results:
Reduction of CO₂ emission
for 2024 – 2050 period

UPSCALING PLANS



IMPROVED QUALITY

Improve the quality of our State Action Plan in line with ICAO's Guidance on the Development of State Action Plans on CO₂ Emission Reduction Activities.



TOP-DOWN & BOTTOM-UP APPROACH

Employ both top-down and bottom-up approaches for the prioritization and selection of mitigation measures.



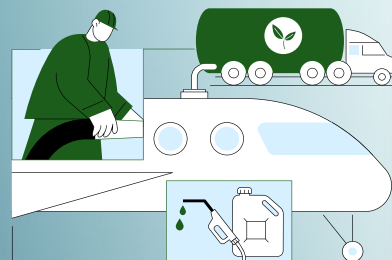
DATA ACCURACY

Work with the affected stakeholders to upgrade the accuracy of data.



SIGNIFICANT PROGRESS

Demonstrate significant progress in CO₂ emission reduction for Brunei Darussalam's international aviation sector until 2050.



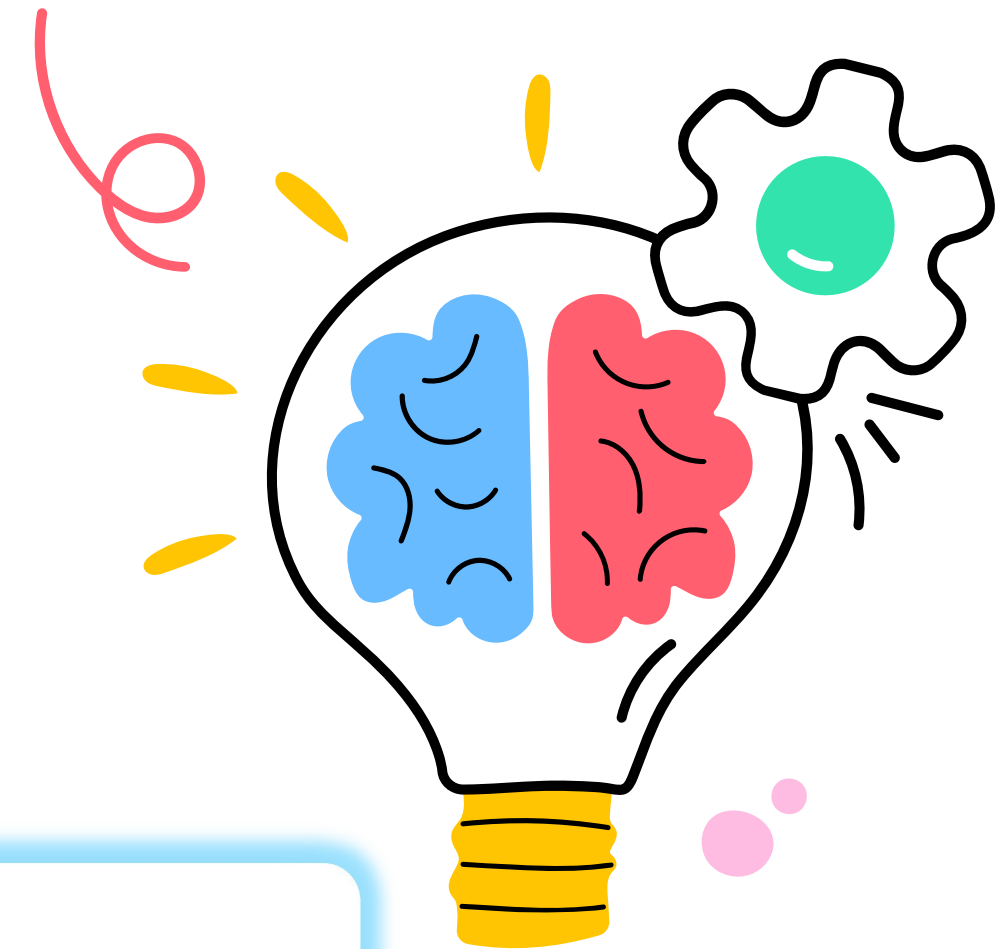
EXPAND SUSTAINABLE AVIATION FUEL SECTION

Brunei Darussalam's SAF national actions and further recommendations will be included in the next update of the State Action Plan as several discussions are currently underway to support this initiative.



FINANCING AVIATION DECARBONISATION

Outline funding opportunities and financial instruments that may be available to Brunei Darussalam for its aviation decarbonization projects.



FORMULATION, ADOPTION & IMPLEMENTATION OF NATIONAL POLICY



Sustainable Aviation Fuels



Introduce a supporting SAF Policy Framework to facilitate the development, deployment and use of Sustainable Aviation Fuels (SAF) in Brunei Darussalam.

Market-Based Measure (CORSIA)



Exempted from voluntary participation in CORSIA under aviation-related criteria.

Decisive step forward: Brunei Darussalam undertook a review on the proposal for Brunei Darussalam to voluntarily participate in CORSIA beginning 2025 or subsequent years.

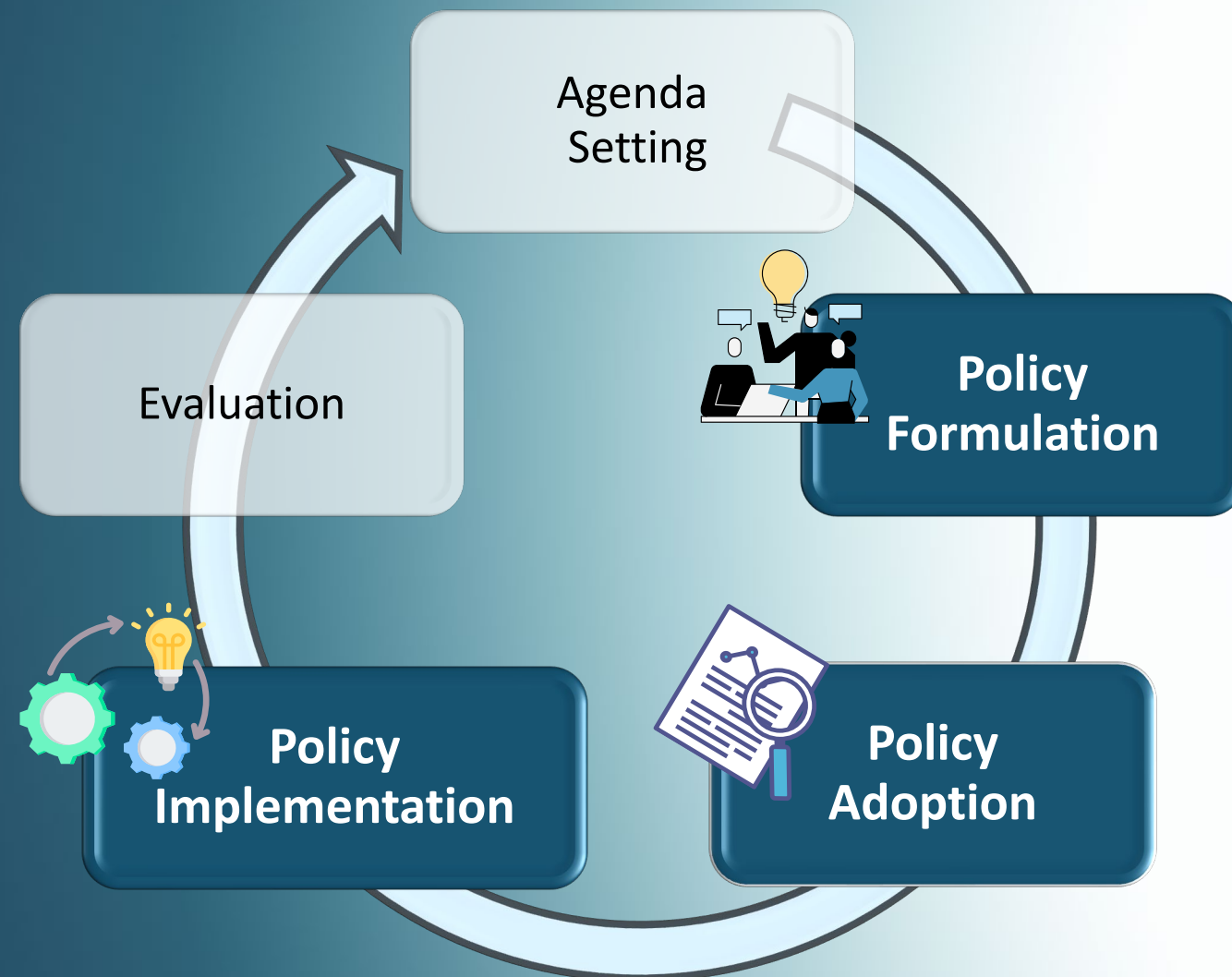
Operational Improvements



Execution of operational measures will deliver environmental benefits in the near to medium term.

Opportunity: Drive further improvements in fuel consumption and CO₂ emission from the execution of associated mitigation measures under Operational Improvements category

Proposal: Introduce a mandate with obligation on airlines to achieve higher fuel/CO₂ savings through the on-going implementation of mitigation measures.



FORMULATION, ADOPTION & IMPLEMENTATION OF NATIONAL POLICY

POLICY FORMULATION	POLICY ADOPTION	POLICY IMPLEMENTATION
<p><i>ICAO Guidance on Potential Policies and Coordinated Approaches For The Deployment of SAF</i></p> <ul style="list-style-type: none"><i>Formulate long-term, stable policies</i><i>Policy Category & Policy Options for each Impact area:</i><ul style="list-style-type: none"><i>Stimulate growth of SAF supply</i><i>Create SAF demand</i><i>Enable SAF markets</i><i>Cover all required themes:</i><ul style="list-style-type: none"><i>Feasible</i><i>Effectiveness</i><i>Practicality</i><i>Define time horizon</i> <p><i>Recommendations outlined in SAF Feasibility Study and SAF Business Implementation Report</i></p> <p><i>Consider constraints and opportunities specific to Brunei Darussalam</i></p> <p><i>Involvement of SAF Experts, Policy-makers and Industry Professional/Leaders</i></p>	<p><i>SAF Policy Options & Categories and its resulting impacts will be further discussed and contemplated by the National SAF Taskforce</i></p> <p><i>Proposed SAF Policies will be tabled at Brunei Darussalam National Council on Climate Change for deliberation and decision-making.</i></p> <p><i>Include SAF Policy Framework in National SAF Roadmap</i></p> <ul style="list-style-type: none"><i>Generate awareness on Brunei Darussalam’s existing policy on SAF</i>	<p><i>Issuance of SAF Directive</i></p> <p><i>Obligation on:</i></p> <ul style="list-style-type: none"><i>Airline</i><i>Fuel producer / Fuel supplier</i> <p><i>Maintain continous consultation and coordination between SAF stakeholders</i></p>



FORMULATION, ADOPTION & IMPLEMENTATION OF NATIONAL POLICY

POLICY FORMULATION	POLICY ADOPTION	POLICY IMPLEMENTATION
<p><i>Consider the possibility of Brunei Darussalam choosing to participate in CORSIA from 2025, 2026 or 2027 or remain status quo.</i></p> <p><i>Policy Options and sub-options were proposed:</i></p> <ul style="list-style-type: none"> • <i>Policy Option 0 – Brunei Darussalam will not voluntarily participate in CORSIA</i> • <i>Policy Option 1 – Participate from 2027</i> <ul style="list-style-type: none"> • <i>Policy Option 1a – Participate from 2027</i> • <i>Policy Option 1b – Participate from 2030</i> • <i>Policy Option 1c – Participate from 2033</i> • <i>Policy Option 2 – Participate from 2026</i> • <i>Policy Option 3 – Participate from 2025</i> 	<p><i>Proposal must be scrutinized and debated holistically by Ministry of Transport and Infocommunication and Brunei Darussalam National Council on Climate Change.</i></p> <p><i>Present:</i></p> <ul style="list-style-type: none"> • <i>Benefits of voluntary participation in CORSIA</i> • <i>Implication of inaction</i> • <i>Assessment of its economical, environmental and social impacts</i> 	<p><i>DCA and airline will continue to implement CORSIA Standards and Recommended Practices for MRV and Offsetting (ICAO Annex 16 Vol IV CORSIA)</i></p>
POLICY FORMULATION	POLICY ADOPTION	POLICY IMPLEMENTATION
<p><i>Prioritization and selection of mitigation measures:</i></p> <ul style="list-style-type: none"> • <i>Identify and prioritize mitigation measures through a top-down approach</i> • <i>Aggregate expected result of measures selected</i> <p><i>Setting % fuel and/or CO₂ saving target</i></p> <ul style="list-style-type: none"> • <i>Determine anticipated fuel and/or CO₂ savings per year</i> • <i>Realistic & achievable</i> • <i>Consultation with airline on the proposed mandate</i> 	<p><i>Decision by Department of Civil Aviation</i></p> <p><i>Endorsed by Ministry of Transport & Infocommunications</i></p> <p><i>Mandate to be issued and adopted through Aviation Circular/Notice</i></p>	<p><i>Implementation by airline</i></p> <p><i>Pilots must be well-trained to implement the mitigation measures to achieve required fuel / CO₂ saving targets.</i></p>

QUANTIFICATION & MONITORING SYSTEM

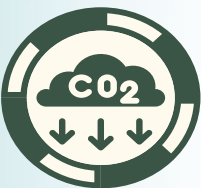


ICAO Doc 9988 Guidance on the Development of State Action Plans on CO₂ Emissions Reduction Activities

“All information generated or collected during the Action Plan process to be documented and archived for future use. Having such a system in place facilitates regular updates and periodic reporting.”

Quantification

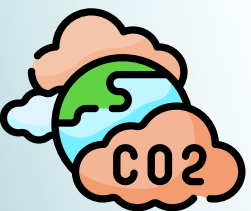
PURPOSE



Provide a reasonable approximation of the benefits associated with a specific measure in the quantified expected results section

ICAO Rule of Thumbs for estimating the environmental benefits

PURPOSE



Track the progress on all implementation of all mitigation measures every year

CORSIA MRV system will be used to collect fuel consumption and CO₂ emissions data annually

Collect air transport activity and fuel consumption data through ICAO Statistical Form – Form M

Actual and potential fuel & CO₂ savings can also be closely monitored within the airline’s Skybreathe Fuel Efficiency Management System.

Monitoring System



QUANTIFICATION & MONITORING SYSTEM

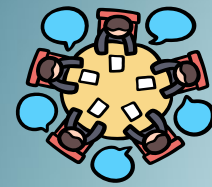


POLICY MONITORING

SAF POLICIES	CORSIA
<p><i>ICAO Guidance on Potential Policies and Coordinated Approaches For The Deployment of SAF</i></p> <ul style="list-style-type: none">• Assess policy effectiveness<ul style="list-style-type: none">○ Qualitative metrics for assessing policy effectiveness<ul style="list-style-type: none">○ Flexibility○ Certainty○ Financial Cost and Benefits○ Price sensitivity to externalities○ Ease of implementation○ Contribution to SAF deployment and GHG Reduction○ Unintended consequences○ Robustness of policy• Report current implementation of adopted policies and its effectiveness to National SAF Taskforce<ul style="list-style-type: none">• Identify any gaps in policy implementation and propose solutions to address these gaps• Evaluate any proposed changes/adjustments to current SAF policies taking into account current circumstances and any external factors.	<ul style="list-style-type: none">• Monitor CO₂ emissions being emitted from international flights and the amount of CO₂ that is being offset for subsequent years.• Determine projected CO₂ emissions in the current policy scenario to track further increase in CO₂ emissions should status quo remain.• Current policy decision may be evaluated before 30 June every year.• For any proposed changes to the current policy, DCA Brunei and aeroplane operator may propose to table the latest proposal at Brunei Darussalam National Council on Climate Change and obtain necessary approval.<ul style="list-style-type: none">• Guided by ICAO’s technical analyses and future projections on CORSIA Eligible Emission Units and CORSIA Eligible Fuel.
	MANDATE ON OPERATIONAL IMPROVEMENTS
	<ul style="list-style-type: none">• Obtain feedback through consultation with airline<ul style="list-style-type: none">○ Evaluate the impact of the policy and performance of pilots in executing the mitigation measures – is the adopted mandate effective?○ Did we achieve the % target every year?○ Do we need to adjust/revise the mandate?

FUTURE NATIONAL ACTIONS

Sustainable Aviation Fuel



Establish National SAF Taskforce by 2025

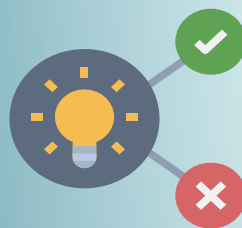


Develop a Feasibility Study on the use of Sustainable Aviation Fuels (SAF) in Brunei Darussalam including Business Implementation Report on Sustainable Aviation Fuels by 2026



Establish National Sustainable Aviation Fuel (SAF) Roadmap by 2027

- ☐ *Adoption of National SAF Policy Framework*
- ☐ *Integrate Technology Roadmap or Strategy*
- ☐ *Outline National Financing Strategy*



Initiate SAF project by 2027

State Action Plan



Develop & Submit second State Action Plan by 2027

- ☐ *Content will be drafted based on the upscaling plans & any additional suggestions from Stakeholders*



Future National Actions for aviation environmental protection will also be documented and published in Department of Civil Aviation's Strategic Plan 2025-2027 !

Thank You

