ICAO ENVIRONMENT

ICAO Committee on Aviation Environmental Protection (CAEP), Working Group 2 (WG2) – current work on Airports and Operations

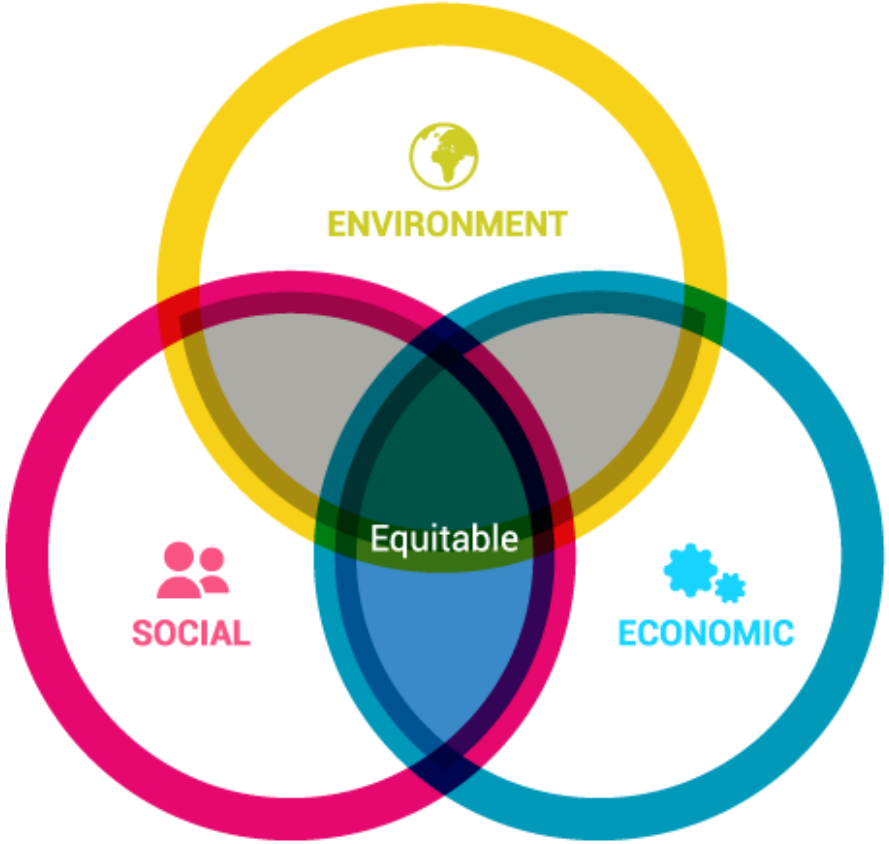
ICAO Secretariat
06/2021

What is Green Airport?

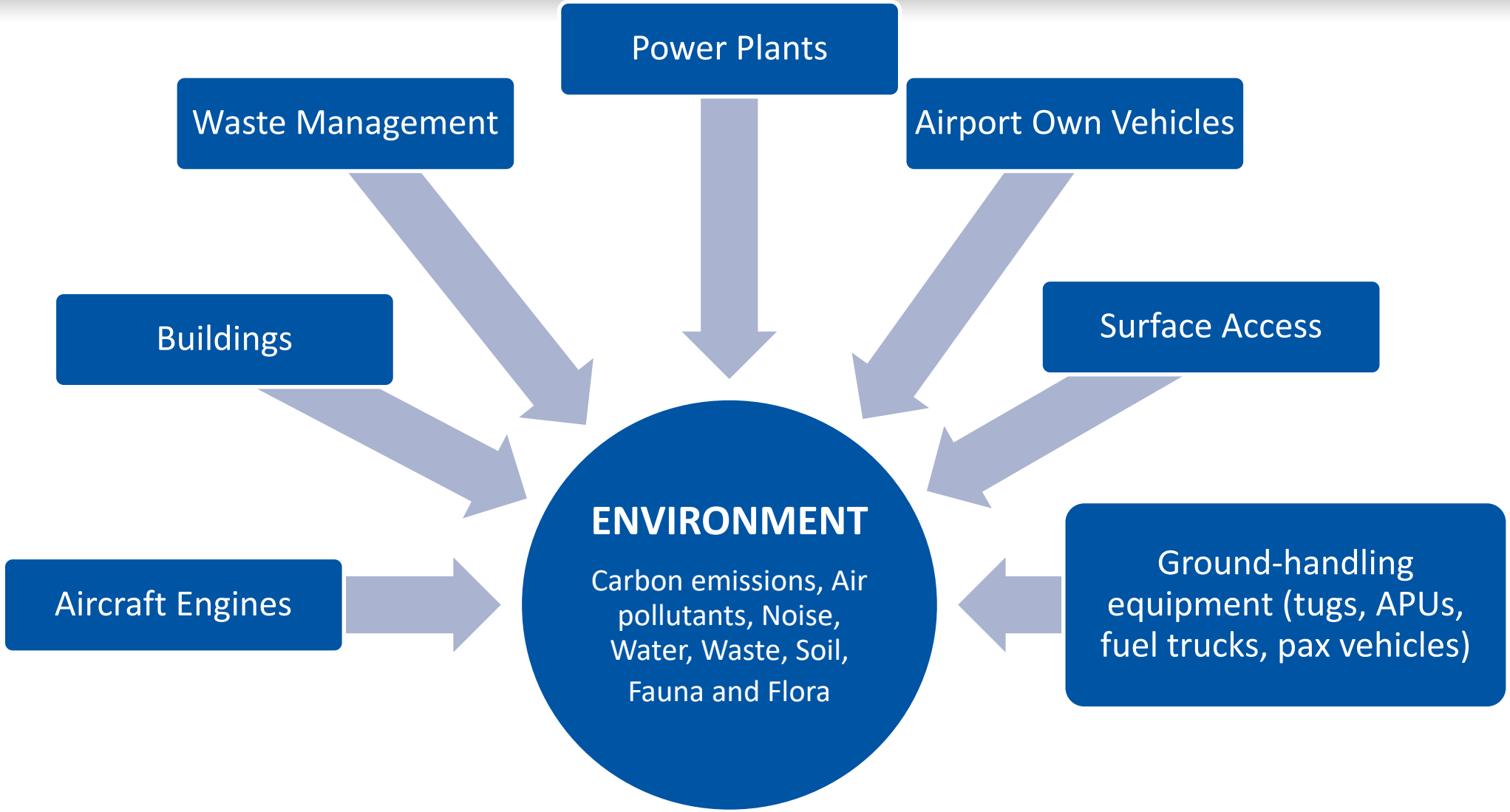
Green Airport

- The quietest?
- The least consumer of natural resources?
- The least energy-demanding?

There are more than 2000 international AIRPORTS and AS MANY WAYS of being GREEN!



Environmental impacts of airport operations



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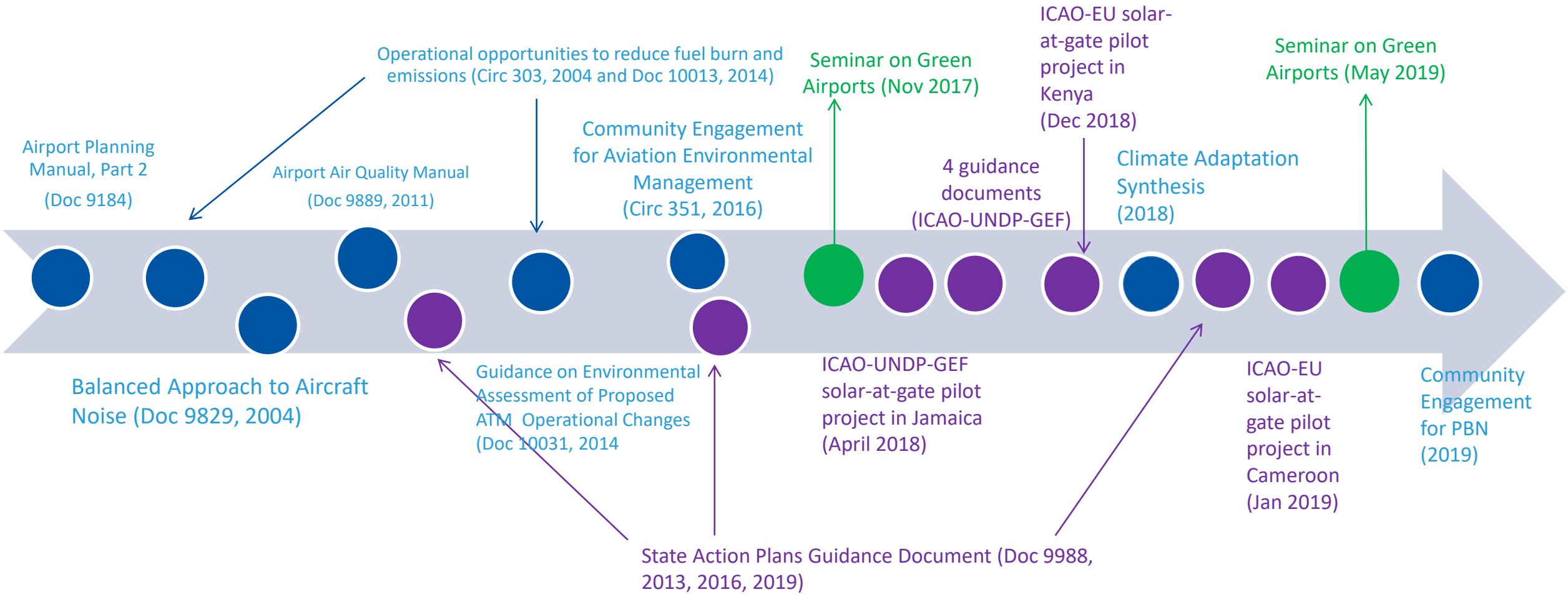
ICAO activities on Airports and Operations - Overview



ICAO Work on Airports and Operations

WG2 work programme for the CAEP/12 cycle (2019-2022)

Airport Planning – Land use and environmental management

- Investigation on possible indicators for encroachment
  - *Collecting good practices by States to assess population encroachment into the noise contours at airports.*
  - **Suvarnabhumi Airport – Thailand :** *adopted noise compensation program for residents and sensitive areas within the forecast noise contour.*
  - **Don Mueang International Airport – Thailand:** *The area is developed and attracted people to live near the airport for work, transportation, and the conveniences. Airport Noise and Operation Monitoring Stations (ANOMS) will be installed in the future to monitor aircraft noise.*

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ICAO Work on Airports and Operations

WG2 work programme for the CAEP/12 cycle (2019-2022)

Airport Planning – Land use and environmental management

- Eco-Airport Toolkit collection
  - Waste Management at Airports including Case Studies
  - Renewable energy at airports
  - Airport Environmental Management Systems
  - Eco-design of airport buildings
  - Water management at airports
  - Climate resilient airports
  - Air Quality Management (completed, to be approved)
  - Green airport surface access (to be completed)

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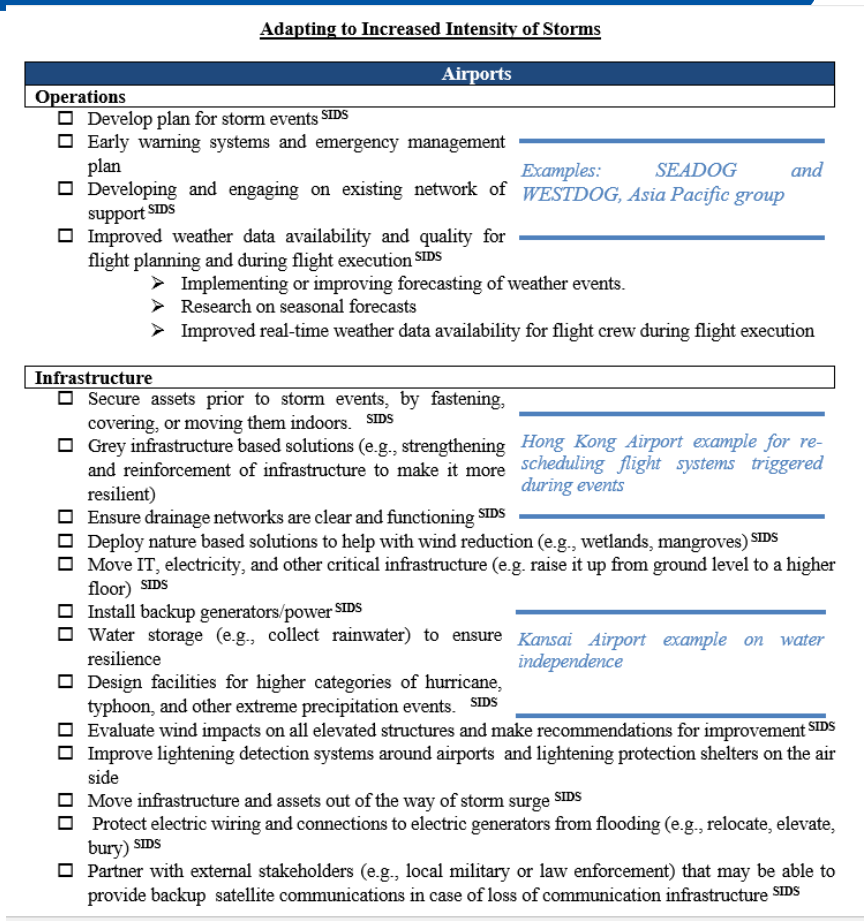
ICAO Work on Airports and Operations

WG2 work programme for the CAEP/12 cycle (2019-2022)

Climate Change Risk Assessment, Adaptation, and Resilience

- Report on identified steps to develop climate change risk assessments, adaptation and resilience measures for aviation stakeholders to consider in air and ground planning including:
  - **Key Steps in Climate Change Risk Assessment and Adaptation Planning**
  - **Key Climate Change Vulnerabilities for Aviation**
  - **Menu of Adaptation Measures**
  - **Summary and recommendations/next steps**



Adapting to Increased Intensity of Storms

Airports	
Operations	
☐ Develop plan for storm events SIDS	
☐ Early warning systems and emergency management plan	*Examples: SEADOG and WESTDOG, Asia Pacific group*
☐ Developing and engaging on existing network of support SIDS	
☐ Improved weather data availability and quality for flight planning and during flight execution SIDS	
➢ Implementing or improving forecasting of weather events.	
➢ Research on seasonal forecasts	
➢ Improved real-time weather data availability for flight crew during flight execution	
Infrastructure	
☐ Secure assets prior to storm events, by fastening, covering, or moving them indoors. SIDS	
☐ Grey infrastructure based solutions (e.g., strengthening and reinforcement of infrastructure to make it more resilient)	*Hong Kong Airport example for re-scheduling flight systems triggered during events*
☐ Ensure drainage networks are clear and functioning SIDS	
☐ Deploy nature based solutions to help with wind reduction (e.g., wetlands, mangroves) SIDS	
☐ Move IT, electricity, and other critical infrastructure (e.g. raise it up from ground level to a higher floor) SIDS	
☐ Install backup generators/power SIDS	
☐ Water storage (e.g., collect rainwater) to ensure resilience	*Kansai Airport example on water independence*
☐ Design facilities for higher categories of hurricane, typhoon, and other extreme precipitation events. SIDS	
☐ Evaluate wind impacts on all elevated structures and make recommendations for improvement SIDS	
☐ Improve lightening detection systems around airports and lightening protection shelters on the air side	
☐ Move infrastructure and assets out of the way of storm surge SIDS	
☐ Protect electric wiring and connections to electric generators from flooding (e.g., relocate, elevate, bury) SIDS	
☐ Partner with external stakeholders (e.g., local military or law enforcement) that may be able to provide backup satellite communications in case of loss of communication infrastructure SIDS	

ICAO Work on Airports and Operations

WG2 work programme for the CAEP/12 cycle (2019-2022)

Operational measures to reduce noise and emissions

- ICAO Doc. Operational Opportunities to Reduce Aircraft Noise
- Assessment of the potential for an airport database on noise and emissions management initiatives

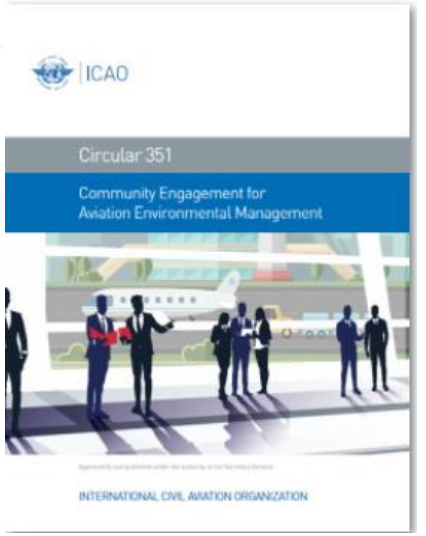
Air navigation and traffic management

- Aviation Stakeholder Community Engagement needs in the context of delivering ATM change
- Environmental metrics of relevance to the Global Aviation System
- Flight efficiency
- Environmental impact of Unmanned Aircraft Operations at and around airports

Main Publications

Guidance Documents and Policies

- Airport Planning Manual, Part 2 **(Doc 9184)**
- Balanced Approach to Aircraft Noise **(Doc 9829)**
- Airport Air Quality Manual **(Doc 9889)**
- Operational Opportunities to Reduce Fuel Burn and Emissions **(Doc 10013)**
- Guidance On Environmental Assessment Of Proposed Air Traffic Management Operational Changes **(Doc 10031)**
- Community Engagement for Aviation Environmental Management **(Circ 351)**
- Eco-Airport e-collection



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Capacity Building and Assistance

- Leverage efforts conducted by ICAO and its partners;
- Airports are key to the implementation of local projects

STATE ACTION PLANS on CO2 Emissions Reduction from International Aviation (Doc 9988)

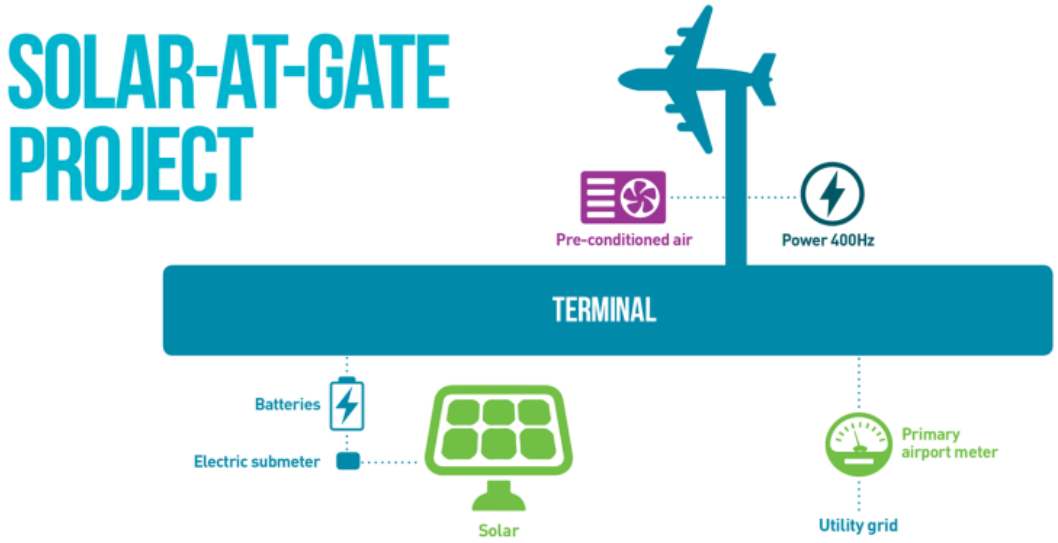
- **121 States representing 97.52% of global RTK** have voluntarily submitted their State Action Plan to ICAO
- Range of airport-specific emission reduction options to implement

Capacity Building and Assistance

ICAO-EU Capacity Building for CO2 Mitigation from International Aviation

- ICAO Assistance Project with EU Funding Phase I:
  - Implementation (2014-2019)

ICAO "Solar-at-gate" pilot project for the reduction of CO2 emissions of aircraft during ground operations launched in Kenya (2018)



- Ground-mounted 500kW solar power generation facility and mobile airport gate electric equipment
- Avoid emitting at least 1,300 tonnes of CO_2 every year
- Serve more than 2,500 flights per year

Capacity Building and Assistance

ICAO-EU Capacity Building for CO2 Mitigation from International Aviation

- ICAO Assistance Project with EU Funding Phase II:
  - Implementation (2019-2023)

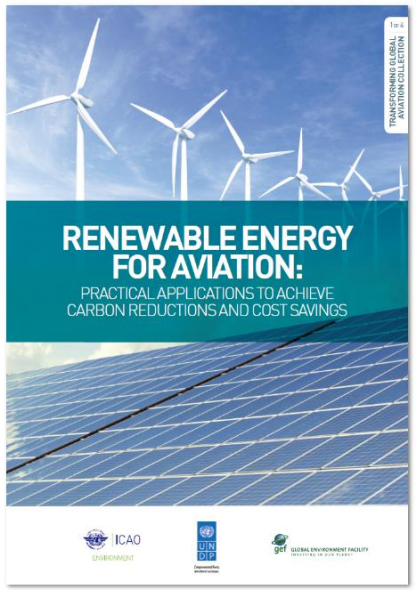
Supporting 10 selected AFI States in both ESAF/WACAF regions

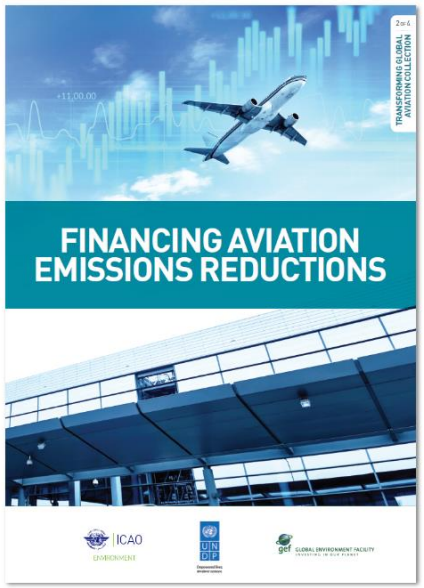
Virtual/online support in COVID-19 circumstances

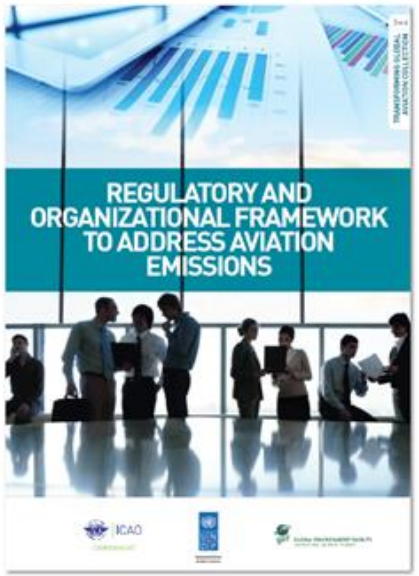
Capacity Building and Assistance

ICAO-UNDP-GEF

"Transforming the global aviation sector: emissions reductions from international aviation" assistance project







https://www.icao.int/environmental-protection/pages/icao_undp.aspx

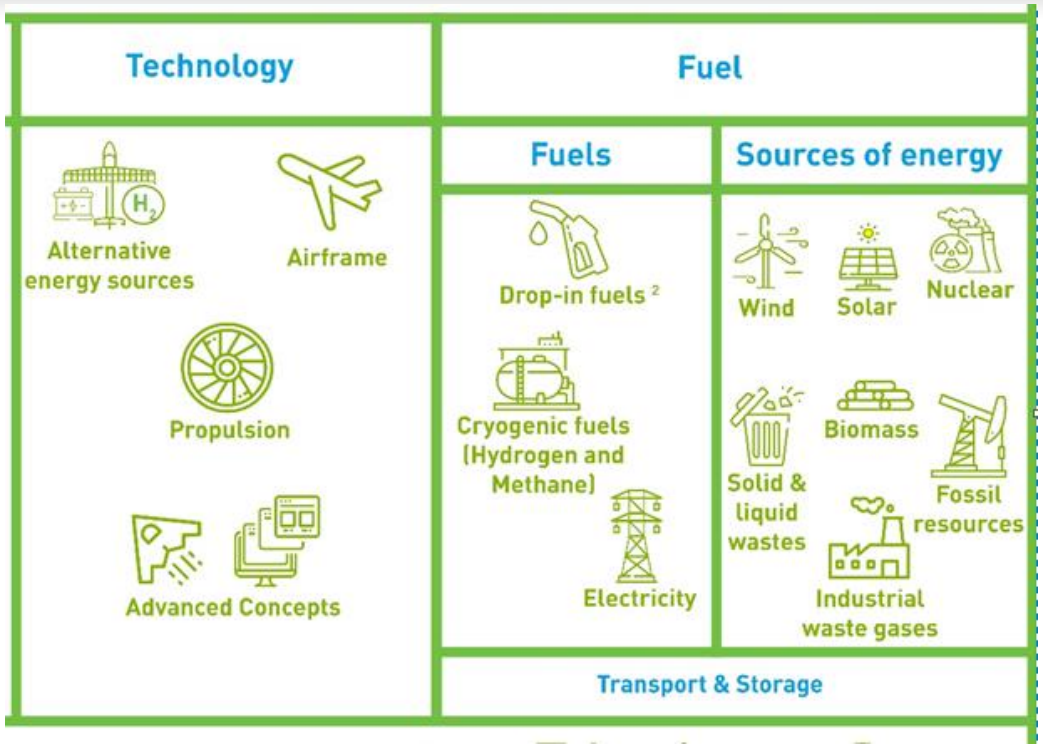
Outreach

- Eco-Airport Toolkit e-collection
  - **Practical information**
  - **Ready-to-use**
  - **Concrete options / case studies**
- Seminar on Green Airports
  - **November 2017**
  - **May 2019**
  - **November 2021 (Tentative)**

https://www.icao.int/environmental-protection/pages/ecoairports.aspx

Future Challenges

- Airports to play a lead role in reducing the aviation sector's emission
- New breakthrough aircraft technologies
- Range of clean energy types of fuels
  - **Drop-in fuels**
  - **Non drop-in aviation fuels**



Airports will play a lead role in clean energy production, transport and storage. Therefore development of suitable infrastructure at airports is essential for the integration of new innovative emission reduction solutions.

Conclusions

- No single definition for “Green airport”
- No single solution for managing the environmental impact of the aviation
- Comprehensive environmental management is a solid foundation
- Airports will be clean energy hubs in future

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THANK YOU

ICAO Stocktaking 2021