Aircraft Noise - What is going on in ICAO/Europe and how will that have an effect in Sweden

CSA Workshop 2017-10-09
This presentation includes:

- Aviation Noise – the role of Swedish Transport Agency
- ICAO Balanced Approach
- ICAO/CAEP/WG1: Noise at source (aircraft)
- ICAO/CAEP/WG2: Noise at airports
- ECAC/ANCAT/AIRMOD/CNOSSOS
- European regulation concerning noise-related operating restrictions at Union airports
- How will this work have an effect in our country?
Aviation Noise – the role of Swedish Transport Agency

- **Reduction of noise at source (the aircraft)**
  - Participation in CAEP and other international bodies. Possibilities to influence the continuous work on more stringent noise standards in ICAO Annex 16, Vol I.

- **Land-use planning and management**
  - ECAC Document 29

- **Noise Abatement Operational procedures**
  - CAEP/WG2

- **Operating restrictions**
  - Swedish Competent authority for European regulation concerning noise-related operating restrictions at Union airports
Aviation Noise – the role of Swedish Transport Agency

- Nationally
  - we provide input to the negotiations in the Environmental Court concerning environmental permit/conditions for Swedish airports
  - We update information concerning the Environmental conditions for all Swedish Airports
  - We provide input to the Swedish Transport Administration/municipalities in their work to monitor Noise and update Noise Action Plans according to Swedish regulation 2004:675
  - We participate in "Nationell samordning av Omgivningsbuller" (National Noise coordination)
  - We have responsibilities within the environmental objectives system
  - Information
  - Issue Noise certificates for aircraft
Environmental conditions

- [link](https://www.transportstyrelsen.se/globalassets/global/luftfart/miljo/miljo-ohalsa/villkorssamling_flygplatser_2016.pdf)
ICAO Balanced Approach

1. Reduction of noise at source

2. Land-use planning and management

3. Noise Abatement Operational procedures

4. Operating restrictions
ICAO/CAEP/WG1: Noise at source (aircraft)

Source: ICAO

Figure 1 Progression of the ICAO Noise Standard
According to CAEP, it is difficult to infer a direct causal effect between environmental standards and fleet composition since there are many other factors, beyond environmental standards, that influence fleet definition. It is possible that environmental standards both reflect and influence market forces. Environmental standards may also encourage a positive environmental trend by preventing back sliding to older technologies. Ultimately, the trends examined show that improvements to the global fleet environmental performance have occurred.
ICAO/CAEP/WG1: Noise at source (aircraft)

A global forecast from ICAO/CAEP show a ”Noise Neutral Growth” from 2020 to 2040 if there is a moderate Aircraft Technology improvement, and without assumptions on Operational Improvement. Noise= Contour area of DNL 55 dB
ICAO/CAEP/WG1: Noise at source (aircraft)

• Work during CAEP/11:
  – Noise Certification of civil supersonic aircraft
  – Helicopter Noise
  – New measurement points
  – Smaller UAS: do they need full certification?
ICAO/CAEP/WG2: Operational procedures/noise around airports

- Example of ongoing tasks related to noise:
- Environmental Community Engagement for PBN
- Operational Opportunities to Reduce Aircraft Noise
- New Airport Planning Manual, Part 2 Appendices
- Eco-Airport Toolkit
ECAC/ANCAT/AIRMOD/CNOSSOS

- Common NOise aSSessment methOdS (CNOSSOS-EU) for road, railway, aircraft and industrial noise, to be used in Directive 2002/49/EC relating to the assessment and management of environmental noise
- ECAC Doc. 29 3rd Ed forms the basis for the *aircraft module* of CNOSSOS-EU
- Swedish experts work for ECAC in a group called AIRMOD, to update Doc 29 continiously.
- ECAC adopt the changes, Swedish Transport Agency is a member of ECAC.
European regulation concerning noise-related operating restrictions at Union airports

REGULATION (EU) No 598/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 16 April 2014

on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC
How will this work have an effect in our country?

• We follow-up the number of aircraft movements at the 8 major airports in Sweden including the aircraft used.
• The aircraft type is sorted into different ”noise groups” = ACI Index.
• The change in noise source can be calculated
How will this work have an effect in our country?

Initial results show that aviation noise from the source has not increased in the 8 airports from 2010-2014 even though the air traffic have increased.

Validation and sensitivity analysis is ongoing. 100% of the air traffic movements do not have data concerning aircraft type and some generic assumptions have been done.
How will this work have an effect in our country?

• The last 10 years we have seen the following trends:

• SAS and other airliners have phased out the noisy MD-80, -81 and -90. Less noisy B737-800 and A320NEO is much more common at Swedish Airports today.

• Since 2005, the more noisy turboprop F-50, SAAB-340 and SAAB-2000 have decreased. Less noisy ATR-72-600 is now replacing SAAB 2000.
## Reservbild

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<thead>
<tr>
<th>Criteria to be met concurrently</th>
<th>Categories (and Former Categories)</th>
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<td>R1</td>
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<td>Cumulative EPNdB reduction from ICAO Chapter 3 standard of at least:</td>
<td>Less than 0</td>
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<tr>
<td>Individual EPNdB reduction from ICAO Chapter 3 Standard at each noise measurement point of at least:</td>
<td>Not applicable</td>
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Ovanstående dB skillnad kopplas till beräkning av antal exponerade personer. Möjlighet att beräkna samhällsekonomiska kostnader (baserat på ASEK-värden för buller) finns.