ASECNA

AGENCY FOR AIR NAVIGATION SAFETY
IN AFRICA AND MADAGASCAR

ASECNA,

An African model of sustainable development

Les routes du ciel, notre métier

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Reduction of CO2 emissions in Africa : the ASECNA contribution

One of the major challenges facing the international aeronautical community consists in curbing CO2 emissions in order to fulfil its duties as part of the planetary mission relative to the protection of the environment. This explains why ICAO then made it a point to include the issue of environmental safeguard in its five strategic objectives.

To this effect, ASECNA made a lot of efforts in the field of airspace organization, flight procedure design and air traffic management based on the new operational and optimization concepts aimed at managing the air traffic in the spaces and close vicinities of airports so as to safely reduce the impact of CO2 emissions on the surrounding environment.

This, of course, does not only fall within the ATS system effectiveness improvement plan in the AFI region, but also falls under the implementation of procedures to measure and monitor the CO2 emissions in the region.

Since 2005, under the impetus of ICAO coupled with the strong involvement of IATA, ASECNA in partnership with other air navigation services providers in the AFI region, has contributed to constantly improving the air traffic management system, namely the organization of the airspace and the implementation of optimal flight paths and effective flight procedures.

Factoring in the improvement of aircrafts «board» performances doubled with the improvement of air traffic management procedures as well as a better way of addressing the « wind » factor by crews, have led to reducing distances and flying times between “city pairs”. Consequently, this results in a reduction in the fuel consumption hence a cut in the CO2 emission as well.

The Agency for Air Navigation Safety in Africa and Madagascar (ASECNA), is a public organisation endowed with an international status .

ASECNA is vested with the responsibility of cooperative management of an airspace of 16.1 km2, and is the main Air Navigation Services Provider of the Africa and Indian Ocean (AFI) Region.

ASECNA also develops capacities in the field of the commercial and technical management of the airports, studies and realizing of aeronautic infrastructures, the maintenance of the aeronautic equipment, the calibration of the instruments for helping the air navigation and the training to the civil aviation jobs necessary for its mission implementation

ASECNA includes 18 member States which are: Benin, Burkina Faso, Cameroon, Central Africa, Comoros, Congo, Ivory Coast, France, Gabon, Guinea Bissau, Equatorial Guinea, Madagascar, Mali, Mauritania, Niger, Senegal, Chad and Togo.

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Implementing actions as an evidence

The improvements in terms of environmental protection concern all the FIRs under the responsibility of ASECNA.

Oceanic airspace

- Introduction of the Atlantic Ocean Random Routing Area (AORRA) airspace which allows aircraft to fly optimised trajectories in relation to beneficial wind conditions
- Provision of more than 50 entry/exit points for flights from Northern America to Southern Africa
- Participation in the implementation of the Indian Ocean Random RNAV in the FL290-410 band
- Involvement in the on-going initiatives in the Indian Ocean and the Arabian Sea

Continental airspace

- Implementation of Reduced Vertical Separation Minima (RVSM) in 2009 which allows aircraft to operate more optimised flight levels leading to a better fuel efficiency and lower CO2 emissions
- Introduction of flexible and PBN routes: an assessment from ICAO for the time period 2005-2011 shows a reduction in fuel consumption estimated to about 144 000 000 kg, and a reduction of CO2 emissions in the order of 455 000 000 kg.

Terminal area and approach

- Implementation of SID, STARs, and RNAV (GNSS) procedures as a PBN enabler: beyond the safety benefits, the introduction of PBN-based SID and STARs in the 32 main airports of the ASECNA member States, allow to operate more optimised trajectories in comparison to conventional procedures.

Continuous Climb and Descent Operations (CCO, CDO)

In relationship with IATA, after having raised the awareness of the air traffic controllers, flight crew are allowed since 2013 to operate continuous climb and descent from/to the Dakar and Abidjan airports. Further to the higher fuel efficiency achieved by the airlines, IATA has requested to introduce CCO and CDO to Brazzaville and Libreville in 2014, bearing in mind safety issues.

The main challenge for ASECNA is now to undertake scientific assessment of its efforts in terms of environment protection, in order to measure in a systematic way its actual contribution in this regard. This may certainly be achieved through the use of advanced tools such as IFSET (ICAO Fuel Savings Estimation Tool), GMC (ICAO Green Meetings Calculator) and INM (Integrated Noise Model).

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ASECNA and the Eco-energy

The Agency is committed to a process of management and reduction of electricity charges. The aim is to save energy, to protect the budget and the environment. This approach contributes to achieve the strategic objective of improving the governance and the economic effectiveness of ASECNA.

Setting precise objectives

The cost reduction objectives established by the Director General are:

- **6.20%** and **5%** of the operating budget for fuel consumption by the generators in 2014 and 2015 respectively, a global reduction of 10.89% ;
- **14.56%** and **5%** of the electricity charges for the same period, **a global reduction of 18.83%**.

Further to these objectives, a reduction of **15,97%** in the electricity expenses was observed in 2014 compared to 2013, with a visible effect on CO2 emissions reduction.

Strengthening the institutional and legal frameworks with OIF

- Conclusion in June 2014 of a cooperation agreement with the Organisation Internationale de la Francophonie (OIF)
- Measures to strenghen the institutional and legal frameworks with the energy management bodies in ASECNA

Staff training and awareness

- Training of technical staff from the Units “Energy and Lightening” of ASECNA
- Awareness of more than 50% of the Agency staff with a priority for the managers

Achieved and on-going innovation

- Decision to build low-energy premises, in compliance with applicable standards
- Use of photovoltaic and thermal solar energy, as a normalised practice within the Agency
- Exploration of the use of technologies based on skylights