



WORKING PAPER

FOURTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 26 August to 6 September 2024

Agenda Item 3: Air Navigation System Performance Improvement
3.3: Eighth Edition of the Global Air Navigation Plan (GANP)

**PROPOSED IMPROVEMENT IN EFFICIENCY OF AIR NAVIGATION SERVICES
CONTRIBUTING TO LONG-TERM ASPIRATIONAL GOAL (LTAG)**

(Presented on behalf of the 54 Member States² of the African Civil Aviation
Commission (AFCAC))

EXECUTIVE SUMMARY

This paper proposes improvements in the efficiency of air navigation services and emphasizes the need to address the challenges that impede implementation and improvements of efficiencies in air navigation services in order to effectively contribute to the achievement of the ICAO long-term aspirational goal (LTAG) of net zero CO₂ emissions by 2050.

Action: The Conference is invited to:

- a) encourage States to avail funds, adopt cost effective and affordable resources to support the transfer of new technologies that will address infrastructural gaps with minimal negative impacts on the costs of travel.
- b) urge ICAO to incorporate the necessary policies and guidelines to address infrastructure gaps, resource sharing, uniformity of application and mutual recognition of regulatory framework, targeted and tailor-made technical capacitation, free routing and air traffic management improvement.

1. INTRODUCTION

1.1 At the 41st Session of the ICAO Assembly, member States adopted the resolution on the long-term Aspirational Goal (LTAG) of net zero CO₂ emissions by 2050. The LTAG Report³ shows different integrated scenarios of increasing CO₂ emissions reduction potentials with Integrated Scenario 3 (IS3) having the highest potential of about 200 MtCO₂ emission reduction in 2050 (a third of the 2019 CO₂ emissions level) and 210 MtCO₂ emission reduction in 2070. The reductions correspond to 21 per cent

¹ English and French versions are provided by AFCAC.

² Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

³ The LTAG Report can be found at : [REPORT ON THE FEASIBILITY OF A LONG-TERM ASPIRATIONAL GOAL en.pdf \(icao.int\)](https://www.icao.int/reports-and-publications/long-term-aspirational-goal/en.pdf)

reduction from aircraft technologies, 11 per cent reduction from operational improvements and 55 per cent reduction from fuels.

1.2 Significant efforts are being made to achieve the LTAG of net zero by 2050, especially on the CO₂ reductions from fuels including through the adoption of a Global Framework⁴ that targets a 5 per cent CO₂ reduction using Sustainable Aviation Fuels (SAF)/low carbon aviation fuels (LCAF) and other Aviation cleaner energies by 2030.

2. DISCUSSION

2.1 Air transport is a significant contributor to socio-economic development of countries through connectivity across continents and States. In a continent as vast as Africa, air transport plays a crucial role in connecting people and promoting businesses. According to IATA's Global Outlook for Air Transport⁵ in June 2024, Africa is projected to have a compounded annual growth rate (CAGR) of 3.7 per cent compared to the global average of 3.8 per cent. This anticipated growth in African aviation highlights the need to improve the efficiency of air navigation services. Enhancing these services will contribute to the LTAG by maximizing the 21 per cent reduction from aircraft technologies and 11 per cent reduction from operational improvements outlined in the LTAG Report.

2.2 In order to improve air navigation in Africa and contribute to the LTAG through operational improvements, various initiatives are being undertaken. The African Union, in collaboration with AFCAC and ICAO is undertaking a continental aviation infrastructure gap analysis. This analysis aims to identify existing gaps in airports and air navigation services infrastructure, with a traffic projection of 25 years.

2.3 The African Airlines Association, in collaboration with African aviation stakeholders, is leading the trials for Free Routing Airspace⁶. This initiative aims to achieve efficiencies and CO₂ reductions from direct flights.

2.4 African States continuously implement improved air traffic management (ATM) systems and infrastructure programmes such as performance-based navigation (PBN), efficient airspace design and procedures, air traffic flow management (ATFM), collaborative decision-making (CDM) and flexible use of airspace amongst others to enable fuel-efficient flight paths. Additionally, the deployment of new technologies can assist air navigation services providers (ANSPs) in improving planning and better management of air traffic. The development and adoption of Green ATM accreditation by ANSPs will also support in advancement of environmental practices and achievement of LTAG.

2.5 However, several challenges hinder efforts to improve the efficiency of air navigation services, which are essential for States to contribute effectively to LTAG. These challenges include inadequate air navigation services infrastructure, high installation and maintenance costs, difficulty in accessing funding, low level of technological transfer, and gaps in human and technical capacity.

2.6 The LTAG Report projects that operational improvements can deliver approximately 11 per cent of CO₂ emission reduction, with air navigation services providers and airport operators playing a significant role. The cost analysis in the LTAG report indicates that investments of about USD 11-20 billion will be required from ANSPs by 2050. Additionally, the report estimates that technology (21 per cent) and fuels (55 per cent) will contribute significantly to the LTAG, with costs ranging from USD 100-150 billion

⁴ ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies

⁵ <https://www.iata.org/en/iata-repository/publications/economic-reports/global-outlook-for-air-transport-june-2024-report/>

⁶ <https://www.afraa.org/free-routing-airspace-in-africa-inches-closer-to-reality-with-trial-flights-kicking-off-on-2nd-november-2023/>

for airport operators under integrated scenario 3 (IS3) towards implementation of operational measures. These projected costs pose a *challenge to the air transport sector in many developing States* where there is a greater need for further aviation growth and development.

2.7 It is important to note that the LTAG is relatively a new and evolving concept for most States, especially in Africa. Improvements in the efficiency of air navigation services require a rapid uptake of newer technologies to contribute to LTAG. However, these technologies may result in higher costs, potentially limiting growth and development of air transport in developing countries. The following proposals are put forth to address the challenges and enable improvement in the efficiency of air navigation services, thereby contributing to LTAG.

2.7.1 Need to ensure *Cost effectiveness, affordability and availability of resources* to facilitate the adoption and transfer of new technologies to address infrastructural gaps with minimal negative impacts on the costs of travel. The key areas for considerations is technologies to address operational improvements, supporting infrastructure for new aircraft technologies and supporting production and deployment of SAF/LCAF in developing countries especially Africa hence contributing to air transport growth while taking into account the costs outlined in the LTAG report.

2.7.2 Need to ensure *adequate and robust policies and guidelines are incorporated in the Global Air Navigation Plan (GANP)*. The updated edition of the GANP should ensure incorporation of policies and guidelines to address identified infrastructure gaps. There is need to encourage and promote resource sharing, uniformity of application and mutual recognition of regulatory framework, balance climate change targets and efficiency goals in consideration of air transport growth, especially for developing countries, promote targeted and tailor-made technical capacitation for developing States. Lastly, the updated edition of the GANP should encourage the initiatives being implemented in all regions, such as the free routing project, infrastructure gap analysis initiatives, and State driven improvements in air traffic management.

3. CONCLUSION

Achieving the long-term aspirational goal (LTAG) of net-zero carbon dioxide emissions by 2050 is crucial for addressing climate change and ensuring the sustainability of international aviation. This ambitious global goal demands robust policies and effective guidelines, and adoption of cost-effective measures. Improving air navigation services to support the LTAG requires a concerted effort from all aviation stakeholders. Through collaboration and innovation, the aviation industry can meet this challenge and contribute to a more sustainable future especially in the sector.

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