International Civil Aviation Organization

A40-WP/55
EX/22
5/7/19

WORKING PAPER

ASSEMBLY — 40TH SESSION

EXECUTIVE COMMITTEE

Agenda Item 16: Environmental Protection – International Aviation and Climate Change – Policy and Standardization

INTERNATIONAL AVIATION AND CLIMATE CHANGE

(Presented by the Council of ICAO)

EXECUTIVE SUMMARY

This paper reports on the work of ICAO on activities relating to international aviation and climate change since the 39th Session of the Assembly, including the progress in the basket of CO_2 mitigation measures related to aircraft technology and Standards, operational improvements, and sustainable aviation fuels, as well as updates on the State Action Plans and associated ICAO projects in partnerships with other international organizations. The paper also briefly reports on ICAO's cooperation with other United Nations (UN) bodies and international organizations in the field of aviation and climate change.

Action: The Assembly is invited to:

a) recognize the good progress achieved in each of the elements of the basket of measures to reduce CO_2 emissions since the 39th Assembly;
b) continue to support the Organization in coordinating, facilitating and monitoring action to reduce aviation CO_2 emissions and to report on progress by the next Assembly;
c) acknowledge the progress achieved under the ICAO State Action Plans for CO_2 emissions reduction initiative, and to encourage States that have not yet developed an Action Plan to engage in this initiative as soon as possible, with the support of ICAO;
d) request that further work on the feasibility of a long-term global aspirational goal, as requested by A39-2, paragraph 9, be presented at the next Assembly; and
e) encourage ICAO to cooperate with other United Nations bodies and international organizations, providing information on current and future activities, including on CO_2 emissions, and ensuring ICAO's leadership in all matters related to international civil aviation.

Strategic Objectives:	This working paper relates to Strategic Objective – *Environmental Protection.*
Financial implications:	The activities referred to in the attached Assembly working paper will be undertaken subject to the resources available in the 2020 – 2022 Regular Programme Budget and/or from extra budgetary contributions.
References:	Doc 10075, *Assembly Resolutions in Force (*as of 6 October 2016) A40-WP/58, *Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate Change* A40-WP/54, *ICAO Global Environment Trends – Present and Future Aircraft Noise and Emissions*

1. BASKET OF CO_2 MITIGATION MEASURES

1.1 The ICAO basket of CO_2 mitigation measures includes aircraft technology and Standards, operational improvements, sustainable aviation fuels and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), in order to achieve global aspirational goals for international aviation of improving fuel efficiency by two per cent per year and keeping its CO_2 emissions from 2020 at the same level (carbon neutral growth from 2020). This paper summarizes the progress of ICAO on the first three elements of the basket, while information on CORSIA can be found in A40-WP/56.

1.2 Long-term Global Aspirational Goal

1.2.1 ICAO initiated work on the feasibility of a long-term global aspirational goal for international aviation emissions, in response to Resolution A39-2, paragraph 9. Work on this item will continue for presentation at the next Assembly.

1.3 Technology and Standards

1.3.1 In March 2017, the new Aeroplane CO_2 emissions Standard was adopted by the ICAO Council as a new Volume III to Annex 16, which will apply to new aeroplane type designs from 2020, and to aeroplane type designs already in-production in 2023. Thus, if an in-production aeroplane design is changed at a time beyond 2023, the aeroplane would have to comply with the new CO_2 emissions Standard. In 2028, there is a production cut-off, meaning that in-production aeroplanes that do not meet the Standard from 2028 can no longer be produced, unless the designs are modified to meet the Standard.

1.3.2 The likelihood of electric aircraft entering service has increased over the past ten years, including all-electric, hybrid-electric, partially turboelectric, and turboelectric aircraft. Research is on-going in this area and ICAO will continue to monitor technologies and update relevant SARPs as appropriate.

1.4 Operational Improvements

1.4.1 During the triennium, an analysis was undertaken to estimate and inform the global aviation community on the CO_2 reduction benefits from the implementation of the Aviation System Block Upgrades (ASBUs) Strategy – Block 0 and Block 1 modules. The analysis shows that current and planned implementation of the B0/B1 ASBU elements will provide a total annual global fuel saving in 2025 of between 167 to 307 kg per flight, which corresponds to a reduction of 26.2 Mt of CO_2 to 48.2 Mt of CO_2, or savings of USD 5 to 9.2 billion.

1.4.2 The first global horizontal flight efficiency analysis was also performed, as a first step toward a complete fuel efficiency analysis. The results were broken down by ICAO regions for 2017 data and showed that efficiency levels vary between 94 and 98 per cent. The conclusions identified limitations to the analysis in order to facilitate the interpretation of the results.

1.4.3 The first ICAO Seminar on Green Airports was held in November 2017, and facilitated discussions and the exchange of information on best practices on ground handling, land/air-side mobility, renewable energy, community engagement and sustainability reporting. Following the success of the first seminar, a second such event was held in Lima, Peru, from 8 to 9 May 2019, in cooperation with Airports Council International, and provided updates and developments on these subjects.

1.5 Sustainable Aviation Fuels

1.5.1 The second ICAO Conference on Aviation Alternative Fuels (CAAF/2) was held in October 2017 in Mexico, with a view to developing an ICAO vision on sustainable aviation fuels, and encouraging States to take action at national and international levels to further develop and deploy sustainable aviation fuels. CAAF/2 adopted recommendations and subsequently a declaration was approved for further work by ICAO, Member States and other stakeholders. As part of the declaration, the Conference endorsed the 2050 ICAO Vision for Sustainable Aviation Fuels as a living inspirational path

and called on States, industry and other stakeholders, for a significant proportion of aviation fuels to be substituted with sustainable aviation fuels by 2050.

1.5.2 CAAF/2 also noted that the 2050 ICAO Vision is based on the assumptions of a progressive increased use of sustainable aviation fuels, and that the Vision should be periodically reviewed through a stocktaking process to continuously assess progress on sustainable aviation fuel development and deployment, including through the organization of regular workshops and seminars, leading up to the convening of CAAF/3, no later than 2025, with a view to updating the Vision to include a quantified proportion of sustainable aviation fuels to be used by 2050. The first ICAO stocktaking seminar was held from 30 April to 1 May 2019 at ICAO Headquarters to facilitate the exchange of information among States and relevant stakeholders, and will establish important building blocks for the quantification of the 2050 ICAO Vision, leading to CAAF/3.

2. STATES' ACTION PLANS AND ASSISTANCE

2.1 States' Action Plans

2.1.1 ICAO has continued to work directly with Member States to support the development and update of their Action Plans. This initiative is a key strategy to help Member States implement a range of CO_2 emissions mitigation measures selected from the ICAO basket of measures. As of June 2019, 114 Member States, representing more than 93 per cent of international aviation Revenue Tonne Kilometres (RTK),[1] have voluntarily submitted their action plans to ICAO (Appendix A refers).

2.1.2 In addition, a number of States enhanced the data collection and analysis included in their States' Action Plans, and all States accredited to the European Civil Aviation Conference (ECAC) submitted a fully quantified estimation of their baseline scenario and CO_2 mitigation measures for international aviation, aggregated at a regional level, as a way to complement State-specific information. These successful results demonstrate the high level of interest and engagement of Member States, as well as the impact of ICAO's assistance and capacity-building activities.

2.1.3 In 2017, seven ICAO Seminars on State Action Plans were organized. In early 2019, ICAO also updated ICAO Doc 9988, *Guidance on the Development of State Action Plans on CO_2 Emissions Reduction Activities*, to reflect the key decisions related to CORSIA; and integrate lessons learned from the projects implemented by ICAO (see below). The updated Doc 9988 should also facilitate the identification of assistance needs by ICAO Member States.

2.1.4 Assembly Resolution A39-2 encouraged States that have already submitted action plans to share the information therein, and to build partnerships with other States that have not yet prepared action plans. ICAO has been facilitating the establishment of such ICAO State Action Plan buddy partnerships. To date, seven such partnerships have been established[2].

2.2 ICAO-European Union (EU) project

2.2.1 The ICAO-EU project has been a successful environmental initiative funded by the EU and implemented by ICAO from 2014 to 2019, supporting 14 selected States in Africa and the Caribbean with the development and implementation of States' Action Plans, and the establishment of CO_2 emissions monitoring systems for international aviation (Appendix B). ICAO managed the funds, provided the administrative services, and recruited project experts in each region, while the selected States appointed dedicated focal points and provided local offices for the project implementation. This approach proved beneficial to ensure the coherence of the project deliverables with ICAO's SARPs and policies, and that States were fully involved in the implementation. All 14 selected States developed and submitted fully quantified Action Plans, and established National Action Plan Teams with relevant stakeholders from the aviation sector to oversee their implementation. An Aviation Environmental System (AES) was installed in each State as a tool to monitor CO_2 emissions from international aviation.

[1] Based on RTK for 2015.
[2] https://www.icao.int/environmental-protection/Pages/ActionPlan-Questions.aspx

2.2.2 Many States have expressed their interest to receive assistance on environmental protection as the successful ICAO-EU project. Additional funding will allow ICAO to extend these benefits to more Member States and replicate the pilot projects highlighted above at a larger scale.

2.3 ICAO-UNDP/GEF project

2.3.1 This project supported States in implementing emission reduction measures, in particular developing States and Small Island Developing States (SIDS). Funded by the Global Environment Facility (GEF), the project was implemented by ICAO from 2015 to 2018, in cooperation with the United Nations Development Programme (UNDP), and included the implementation of two solar-at-gate pilot projects at two international airports in Jamaica, which could now serve as a model for other airports to follow as an emission mitigation strategy (Appendix C).

3. COOPERATION WITH OTHER BODIES

3.1 ICAO continued to cooperate with other international organizations involved in policy making on climate change, notably with the United Nations Framework Convention on Climate Change (UNFCCC). During the UNFCCC meetings, ICAO delivered statements and written submissions, and organized and participated in side events, emphasizing the progress of the ICAO work on international aviation and climate change. ICAO also continued to keep abreast of developments in other UN bodies, including the International Maritime Organization (IMO), Intergovernmental Panel on Climate Change (IPCC), World Meteorological Organization (WMO), United Nations Environment Programme (UNEP), World Health Organization (WHO) and UN Environment Management Group (EMG).

3.2 In addition, the UN Secretary-General will host a summit on climate change on 23 September 2019 at the UN Headquarters in New York, focussing on 9 thematic areas related to climate change, such as mitigation strategy, energy transition, resilience and adaptation, climate finance and carbon pricing, and industry partnerships. ICAO has been engaged in the process toward this Summit, with the aim of maintaining ICAO's leadership role in all issues related to international aviation and climate change, by highlighting ICAO's achievements, and seeking clear recognition of ICAO's mandate for international aviation, which will complete the ambitions set forth by the Paris Agreement.

4. OUTREACH ACTIVITIES ON ENVIRONMENTAL PROTECTION

4.1 ICAO organized the Environmental Symposium "Destination Green: the Next Chapter" from 14 to 16 May 2019 in Montréal, Canada. Member States were informed on developments related to environmental protection in international aviation, prior to the 40th Session of the Assembly. A similar approach is endorsed for the development of the 2019 ICAO Environmental Report "Destination Green: the Next Chapter"[3].

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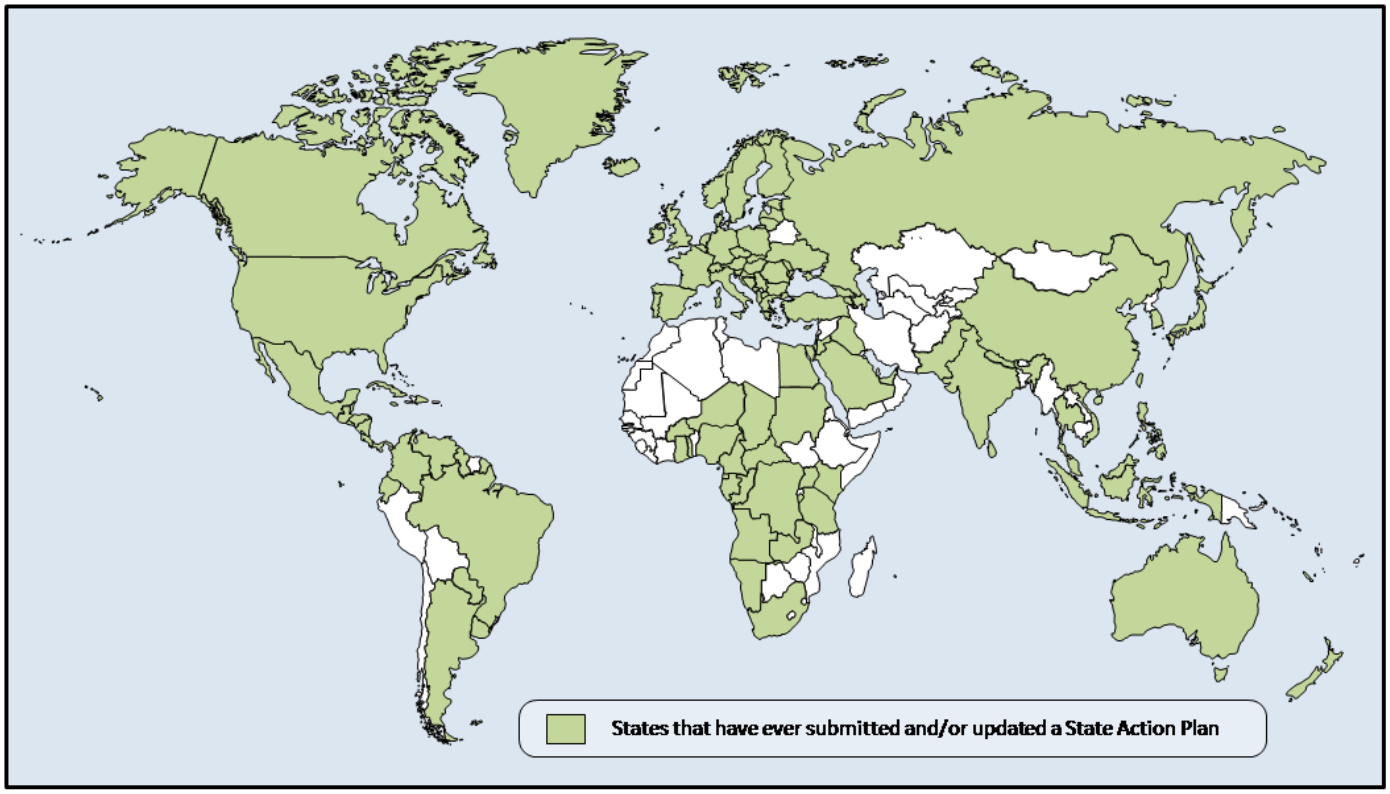
[3]To be released prior to the 40th Session of the Assembly: https://www.icao.int/environmental-protection/Pages/envrep2019.aspx

APPENDIX A

STATUS OF STATE ACTION PLANS SUBMITTED

(As of June 2019)



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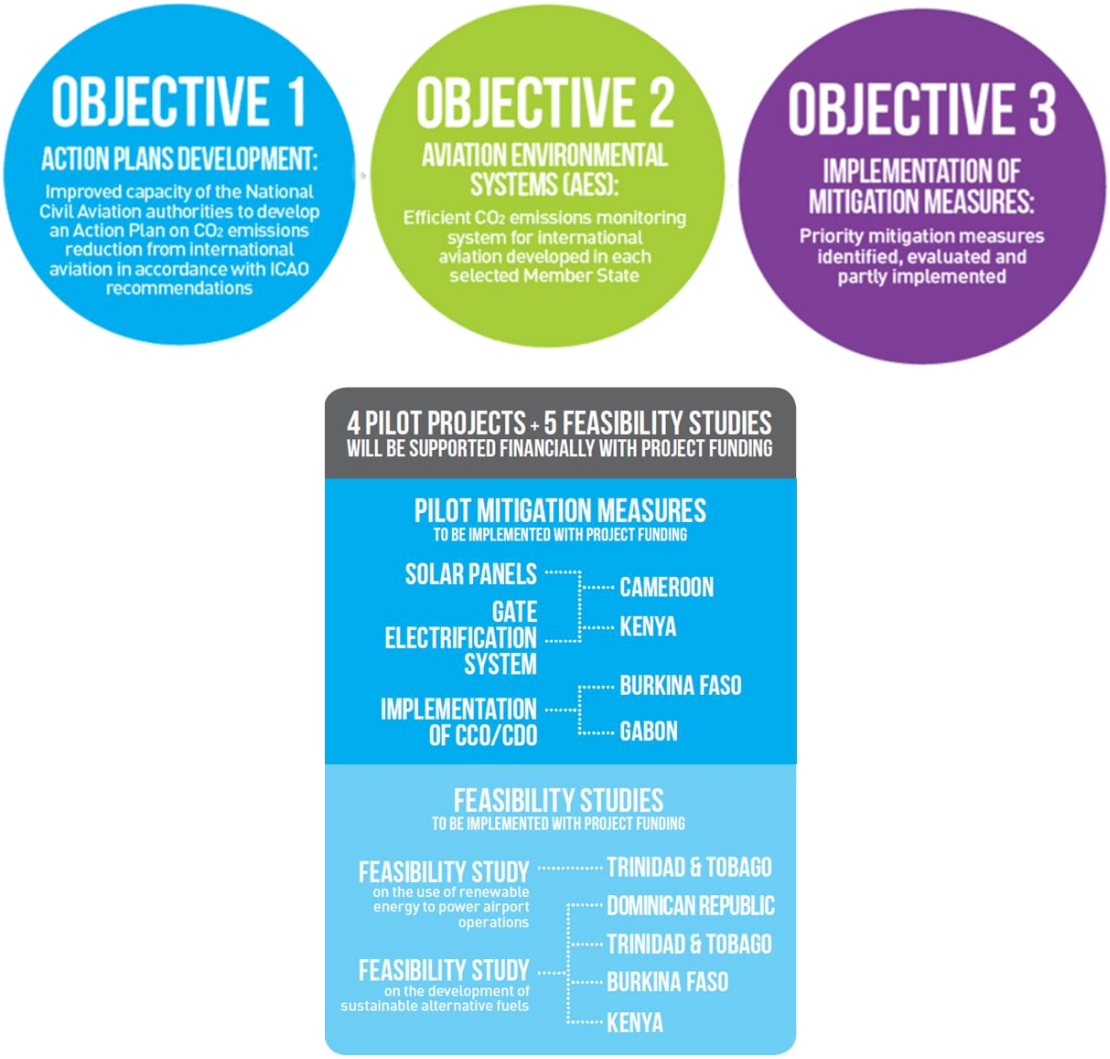
APPENDIX B

ICAO-EU PROJECT ON CAPACITY BUILDING FOR CO_2 MITIGATION FROM INTERNATIONAL AVIATION



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APPENDIX C

ICAO-UNDP-GEF PROJECT ON TRANFORMING THE GLOBAL AVIATION SECTOR: EMISSIONS REDUCTIONS FROM INTERNATIONAL AVIATION

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