

Message from the Deputy Director Air Transport Bureau responsible for the Environment Programme at the International Civil Aviation Organization (ICAO)¹

Green Transition of Aviation

I am proud to introduce this fifth edition of the ICAO Environmental Report. We have now covered fifteen years of evolution of the aviation sector action to address its impacts on the environment, and the least we can say is that substantial progress was achieved in the reduction of noise and emissions affecting local air quality and global climate.

The evolution of the ICAO Environmental Report itself was also remarkable as it became a benchmark publication widely recognized as a trusted and reliable source reference for innumerable publications and academic work and the basis for the objective information required for discussions and decisions of the ICAO Assembly sessions on aviation environmental sustainability.

This issue of the report, by all accounts, is a special one as despite the COVID-19 pandemic crisis, and resultant air traffic disruption worldwide, the last triennium has been the stage for one of the most rapid evolutions on environmental



sustainability for the sector. This unprecedented pace was also clearly reflected by progress of the International Civil Aviation Organization (ICAO) in its environmental activities, with exceptional support of its 193 Member States, the aviation industry, and other partners. The triennium was also the stage for many important developments

¹ The Environment programme at the International Civil Aviation Organization (ICAO) encompasses the areas of aircraft noise, local air quality And Climate change mitigation and adaptation as well as cleaner energy sources.

and milestones such as the Sixth IPCC report, the IPCC Adaptation report, the Glasgow Climate Pact and many net zero commitments from States, sectors, and industry, including the aviation sector, and Stockholm +50 that influenced the shape of aviation's green recovery.

In the ICAO Environmental Report 2022, a full spectrum of the achievements addressing aviation noise, local air quality, and climate change impacts are covered but particular emphasis was given to innovation, revolutionary technologies and new approaches, ideas, methods, and systems that have arisen from the "building back better" of international aviation.

One of the main achievements highlighted in this 2022 Report is the Long-term Aspirational Goal (LTAG) Report with wide range of information regarding the work underpinning the feasibility study of a long-term aspirational goal (LTAG) for international aviation. Following the ICAO Assembly's request to the ICAO Council to investigate the feasibility of LTAG for international aviation, the Committee on Aviation Environmental Protection (CAEP) conducted a comprehensive technical analysis through a collaborative, inclusive and transparent process. The twelfth meeting of the CAEP (CAEP/12) held in February 2022, unanimously approved a technical report addressing the feasibility of a series of LTAG scenarios, emphasizing the potential for significant CO₂ reductions through in-sector measures including innovative technologies, operations, and fuels.

With appreciation to the establishment of a consensus scientific understanding on climate change, and the findings of the LTAG report, all ICAO Member States now have a solid base for understanding and decision making on long-term sustainability goal options for international aviation. These options are to be defined at the LTAG High-Level Meeting, and toward the 41st Session of the ICAO Assembly to be held in Fall 2022.

As a matter of course, the LTAG work has innovations at its core, and to support this challenging endeavour, ICAO has organized a continuous Stocktaking process to support and showcase novel solutions, technologies and partnerships to energize the green transition of the aviation sector.

Commencing and delivering from March 2021 to August 2021, ICAO organized a series of ICAO pre-Stocktaking monthly webinars dedicated to battery technology, use of hydrogen, synthetic fuels, eVTOL and urban air mobility, infrastructure development for supplying clean energy for air travel, and a 2021 ICAO Stocktaking preview. Pre-Stocktaking events paved the way to the 2021 ICAO Stocktaking held 31 August – 3 September 2021. It represented unique opportunities for unlocking and showcasing solutions and provided tools toward decarbonized future for the aviation sector.

During the 2021 ICAO Stocktaking event, States, industry leaders, researchers and innovators shared their ambitious plans, solutions, and policies for decarbonizing international aviation, including measures from technology, operations, and fuels. The event concluded with a policy day, featuring high-level interventions to discuss the link between the post-pandemic green recovery and the future of sustainable aviation.

During the 2021 ICAO Stocktaking event, ICAO announced an open call and support for the establishment of a youth umbrella group, which would allow the global youth to engage with ICAO and provide views on aviation sustainable future. The Global Youth Engagement – Facilitation Session which took place on 28 October 2021, furthered the call for worldwide youth, to form an independent Youth Umbrella Group for Sustainable Aviation. ICAO facilitated the initial stages of forming this independent group, and encourages universities, young entrepreneurs, students, and environmental activists throughout the world to participate.

During the COVID19 pandemic, ICAO has also explored the opportunities for the aviation sector to assist in a green recovery to "build back better". The ICAO Aviation Green Recovery (AGR) Seminar held 23-24 November 2021, offered a holistic view of the potential opportunities for aviation to take concrete measures to address environmental issues. It stressed the need for climate action by aviation, displaying inspiring solutions for aviation's deep decarbonization and green recovery. It also discussed how aviation could support others in addressing CO₂ emissions in combating climate change, as well as policies and measures that need to be in place within and outside aviation to support a decarbonization path for aviation.

To investigate broader opportunities for the aviation sector to address climate change, ICAO organized the ICAO Flying Forest Fire Fighting (I4F) Dialogue on 22 November 2021. This Dialogue presented and demonstrated best practices, initiatives and encouraged the strengthening of international cooperation for aerial firefighting action.

The Dialogue also highlighted the importance of the role of ICAO and identified the need for an informal multi-stakeholder working group to increase awareness and gain support for forest fire fighting efforts. This included: the need for additional outreach, certification, awareness and innovations on firefighting forecasting, mitigation and prevention, and the coordination on facilitating new international aviation regulations and harmonization across Member States.

While aiming to make in-sector CO₂ emissions reductions, I am also very pleased to say that CORSIA implementation is on track. The Carbon Offsetting and Reduction Scheme (CORSIA), as the only global market-based measure for international aviation, ensures that CO₂ emissions from aviation are accounted for just once. CORSIA is crucial to the ambitions of the aviation sector in dealing with its impact on the global climate. This implementation was enabled by the ACT-CORSIA capacity building initiative and is another great example of ICAO Member States cooperating to implement global and robust ICAO policies.

Another important step towards a decarbonized aviation sector, ICAO organized the ICAO Global Coalition for Sustainable Aviation. This Coalition was designed to serve as a forum for those stakeholders who aim at facilitating the development of new ideas, and to accelerate the implementation of innovative solutions that will further reduce greenhouse gas emissions at source, both on the ground or in the sky.

The main objective of this Coalition is to promote a sustainable international civil aviation by close collaboration among the proposed global coalition partners – Member States, aviation industry and other stakeholders, toward the sustainable future for aviation system.

During the 2021 United Nations Climate Change Conference, held 31 October – 12 November 2021 in Glasgow, Scotland,

United Kingdom, ICAO also launched the first edition of “Innovation Driving Sustainable Aviation” which provided an overview of the innovations presented during the 2021 ICAO Stocktaking, and updates from the Global Coalition Partners. This Global Coalition Partners remains open and is welcoming new partners to join.

It is worth noting that all this progress was achieved under the unusual working mode “virtually”, the so-called new normality. Instead of face-to-face meetings, we have made a transition to multiple online events and meetings, where the top-level experts from all around the world could contribute to the mutual efforts. To support the new mode of work, we have also prepared additional tools, taking advantage from the online paradigm.

As a part of the ICAO Global Coalition for Sustainable Aviation, we developed the ICAO tracker tools of aviation CO₂ emissions reduction initiatives to monitor the latest innovations from aviation stakeholders. These interactive tracker tools regularly provide a wealth of information on measures to reduce the environmental footprint of aviation, including details on the most ambitious actions being taken by stakeholders. The tracker tools are organized to capture initiatives on four main streams namely Technology, Operations, Sustainable Aviation Fuels (SAF), and Net-Zero Initiatives.

The technology tracker tool captures all the latest initiatives from all stakeholders, containing initiatives on electrification, hydrogen, Urban Air Mobility/Advanced Air Mobility (UAM/AAM) and all aircraft technologies. The operations tracker tool on operations gathers all the most recent initiatives from all stakeholders, containing initiatives on green infrastructure, and operations in the air and on the ground.

The Sustainable Aviation Fuels tracker tool captures all fuel related announcements and data such as airports that distribute SAF, policies on SAF, SAF offtake agreements, certified conversion processes, and the commercial flights that used SAF.

During this triennium, the ICAO State Action Plan (SAP) initiative celebrated its 10th anniversary. SAP has become one of the most successful assistance and capacity building programs in the Organization since it was launched at

the 37th Session of the ICAO Assembly in October 2010. ICAO initiated the second phase of the ICAO Project-Capacity Building for Carbon dioxide (CO₂), Mitigation from International Aviation-Development of ICAO SAPs with an implementation period from 2020 to 2023. In the second phase of the project, ICAO will also assist 10 African countries in developing their State Action Plans.

State Action Plans will continue to increase its relevance by allowing States to demonstrate their latest green innovations and longer-term low-carbon strategies in a more robust, quantitative, and forward-looking manner. The State Action Plans will also act as “dynamic communication tools” via which countries may present their coordinated aviation and climate change plans and promote green finance in the context of achieving a global long-term aspirational goal. The continued success of the ICAO State Action Plans initiative requires the participation and cooperation of both States and other stakeholders in delivering and refining quantified and qualified inputs.

In my role as the Secretary of CAEP, I would like to welcome new CAEP Members and Observers, who have joined the Committee during the last three years. These

additions in CAEP membership have improved geographical representation and added to the global significance and relevance of its recommendations. It is a great pleasure to see the increased interest and expert participation from more States and Regions worldwide.

To conclude, I have to emphasize that this green transition that we are evidencing in aviation was only possible and can only be sustained if the level of cooperation from all States and partners within and outside the aviation sector continues to be at the same unprecedented level, we experienced during these last three years. We are grateful for their cooperation and enthusiasm and look forward to continuing our partnership and cooperation.

As we look back, this triennium was very rich on challenges and achievements, and we are delighted to share with you this progress and the incredible foundations for the sustainable journey of the aviation sector that were forged. I hope you enjoy reading this 2022 Environmental Report.

Jane Hupe

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