

Sustainability of the aviation industry

(Interview with Juan Carlos Salazar, Secretary General, ICAO)

1. How do you define sustainability in aviation?

Sustainability as a policy concept has its origin in the United Nations Brundtland Commission Report of 1987. Sustainability was defined at that time as “meeting the needs of the present without compromising the ability of future generations to meet their own needs,” and this is still the most widely used definition. Sustainability also refers to an integrated approach that takes into consideration environmental and social concerns along with economic development, something we see reflected very directly in the UN 2030 Agenda for Sustainable Development. Adopted by all United Nations Member States in 2015, this agenda provides a shared blueprint for global peace, prosperity, and environmental stewardship.

As part of the UN system, ICAO is committed to promoting and implementing Agenda 2030, and our Strategic Objectives for international aviation connectivity help to drive benefits and progress which directly support the achievement of 15 of the 17 specific Sustainable Development Goals (SDGs) which compose it. This includes SDG 3 on Health, SDG7 on renewable energy, SDG9 on infrastructure and innovation, SDG11 on human settlements safety and resilience, and SDG13 on climate change.

One of ICAO’s five comprehensive Strategic Objectives is to minimize the adverse environmental effects of civil aviation activities. Our environmental efforts focus on aviation noise, local air quality and climate change. ICAO Member States are strongly committed to these objectives, and to-date they’ve adopted aspirational goals to achieve a 2% annual fuel efficiency improvement through to 2050 for international aviation, and carbon neutral growth for the air transport sector from 2020 onwards.

Another ICAO Strategic Objective related to sustainability is the Economic Development of Air Transport which fosters the development of a sound and economically viable civil aviation system.

2. What are the key features of a sustainable aviation industry?

A sustainable aviation industry is one which demonstrates an unwavering commitment to minimizing its adverse climate, environmental, and social impacts. A sector that is not afraid to take up new challenges, raise its climate ambition and transform itself, whether via its technologies and practices, its economic model or its policies.

A sustainable aviation sector must also be proactive in embracing change and innovation so that sustainability is continuously improved and so that crises like the one we are now confronting can be leveraged as an opportunity to do better. More concretely, it must be a sector that sets ambitious short, mid and long term goals, that elaborates precise roadmaps to achieve those goals, and that drives actions and solutions, starting today.

3. How can the aviation industry best reduce its environmental footprint?

There is an incredible wave of technological innovation taking place today, and very clearly the world has become collectively inspired to achieve advances in aid of its greener, more sustainable future. Aviation is no exception to this rule.

While aviation faces greater challenges than other modes of transport in adopting and applying some of the advances now being made, by as early as 2024 we may already see fully electric aircraft certified for passenger operations, and manufacturers and airlines are already partnering with innovators on hydrogen and electric technology.

It is evident today that there is simply too much motivation and dedication in this direction for these efforts not to be successful. This brings to mind as well the very concrete and detailed commitments we've seen amongst industry groups to progress our sector to its net-Zero emissions future, not to mention the importance of the many coalitions being formed with academic and other researchers to accelerate these advances.

In terms of more specific recent actions by States through ICAO to mitigate aviation's environmental footprint, countries have already adopted environmental standards and practices addressing noise, aircraft CO₂ emissions, and gaseous pollutants and non-volatile particulate matter emitted by aircraft engines.

This regulatory framework was developed to ensure that only the most effective and green technologies are implemented in new aircraft designs entering the market, and we're continuously on the lookout for new opportunities to make the associated provisions more ambitious.

More generally, with respect to CO₂ emissions reduction, countries have also adopted a Basket of Measures through ICAO which includes activities and solutions focused on new airframe and engine technologies, optimized operational measures, increased production and availability of Sustainable Aviation Fuels (SAF), and emissions offsetting under the CORSIA initiative.

ICAO is fully committed to helping States and industry realize their environmental goals, and has prepared a full spectrum of measures available for the aviation sector to address this global challenge.

4. How will investments in sustainability impact the efficiency and profitability of aviation?

It's a misnomer to characterize sustainability and profitability as conflicting priorities. Modern aircraft are already over 80% more fuel efficient than the first jets to enter service because fuel costs have always been one of the most important considerations in terms of airline profit-ability.

We in ICAO believe that in this century the successful manufacturers and operators will be those who most quickly deliver more sustainable and efficient new forms of passenger air travel without any sacrifices in terms of current safety, security, or efficiency performance. It is an extremely challenging balance, but this is where cutting-edge technologies and tools will really be making their mark.

There are very high expectations being placed on our sector today to green our operations and make aviation more sustainable, and we're working at a very high pace to help achieve those outcomes. This was clearly in evidence at the UNFCCC COP26 meeting where ICAO showcased the efforts and increased ambitions of the aviation sector in this area. This is a key moment for action, and without any delay.

5. What are the industry's best practices, already in place, that improve sustainability?

Since 2020, ICAO has been organizing Stocktaking Seminars in order to bring together Member States, industry leaders, researchers, innovators and civil society advocates, and to share information on their ambitious plans, solutions and policies for emission reduction in international aviation. Aircraft technologies, operational improvements, sustainable aviation fuels (SAF), and many other developments have been showcased at these events.

With respect to current options and best practices, a wide variety are already in place today and ready to be used. Aircraft are lighter and more fuel efficient, their trajectories can be optimized using Performance-based Navigation and other operational measures to reduce fuel burn, and new infrastructure at various airports is allows aircraft to use solar power while at their gates or take advantage of electric taxiing options.

SAF are available now. As part of the implementation of CORSIA and a means to reduce airline's offsetting requirements, in 2021 ICAO adopted the first-ever internationally harmonized SAF sustainability criteria that cover all three pillars of sustainability, with environmental, economic and social themes.

In order to monitor the latest innovations from aviation stakeholders, the ICAO tracking tools of aviation CO₂ emissions reduction initiatives are set up to regularly provide a spectrum of information on measures to reduce the environmental footprint of aviation, including details on the most ambitious actions being taken.

Best practices nationally and regionally can also be appreciated using the information in ICAO's State Action Plans for aviation emissions reduction, which countries compile and submit to us to advise on their national progress. To-date over 120 States representing nearly 98% of global international aviation traffic have voluntarily submitted their Plans to ICAO, so as you can see there is some tremendous momentum at play to address these challenges and green our sector.

6. How can these best practices be more fully implemented throughout the industry?

High-level political will and ambition always come first when it comes to changing practices and implementing climate action.

It's therefore essential for public and private decision makers to set a clear path, bold goals, and detailed roadmaps. Strong financial support from public and private stakeholders is similarly decisive to support that change. Investment drives results, and the right policies need to be in place to backbone these evolutions, at the State level but also internationally to scale up results and avoid competitive distortions for businesses.

And to ensure that no country is left behind in the green transition, capacity building, assistance and training are just as crucial in order to facilitate everyone's engagement.

ICAO is working hard today to increase related awareness and organize numerous online events and seminars, bringing the stakeholders to roundtable discussions and exchanges. We are also facilitating implementation of the best practices available, supporting the aviation decarbonisation transition taking place.

7. What are the regulatory impediments to increasing sustainability?

One of the impediments we face is that it takes time for a brand new aircraft to enter into the market. From its design to its first test flight, from its certification to its serial production, the process is a long one, and even more so when we consider the need for entire fleets to be renewed.

A key factor in these timelines is that they allow us to safeguard safety objectives, which are always an underlying priority at ICAO. So when new aircraft concepts emerge, including those powered by electricity and hydrogen, one of the main challenges we face is how to embrace their green innovations as quickly as possible, reducing regulatory impediments by streamlining processes and without any compromises to current air transport safety, security, and reliability.

Aircraft certification procedures are an especially important part of this process, and I've been very encouraged to see that the European Union Aviation Safety Agency announced in 2020 the first type certification worldwide of a fully electric aircraft for use in pilot training.

Another lever of action is the international standards making process, and it is a key goal of mine to transform ICAO to become a more efficient enabler of latest innovations. The ICAO Council's Committee on Aviation Environmental Protection (CAEP) is one of the ICAO technical bodies currently looking into the issue.

8. How can industry participants, including airports, airlines, and air navigation providers, cooperate to improve sustainability?

Recently, the global air transport industry jointly adopted a long-term climate goal of net-Zero carbon emissions by 2050, confirming the commitment of airlines, airports, air navigation providers and aircraft and engine manufacturers to reduce sectoral CO2 emissions.

States are also developing their sustainability roadmaps, stretching beyond the aviation sector, and these serve to increase the cooperative approach towards sustainability.

In parallel, ICAO is currently exploring the feasibility of a long-term global aspirational goal (LTAG) for international aviation CO2 emissions reduction, as requested by the 40th Session of the ICAO Assembly in 2019. This prioritized work will be heavily reliant on these new partnerships and commitments, and is being conducted with tremendous support from the States and all the stakeholders. Its results with scenarios and means of implementation will be considered and deliberated on at the 41st session of the ICAO Assembly Session in September and October of this year.

Additionally, there are numerous partnerships between the stakeholders aimed at jointly reaching our environmental goals, and ICAO has organized its Global Coalition for Sustainable Aviation to serve as a forum to facilitate and accelerate their progress.

9. Sustainability is often thought of as a long-term goal, but what three key changes can the aviation industry implement within the next five years to increase sustainability?

2022 is a key year for us at ICAO. As I've mentioned, ICAO is currently exploring the feasibility of a climate LTAG for international aviation. Detailed studies have been conducted through a three year technical process to assess the attainability and impacts of any goals proposed. I am working to assure a constructive dialogue during the Assembly, a coherent and synergistic approach, and of course a successful outcome.

Last year we received a crucial piece of information that permeates our work on Climate Change: the outcomes of the IPCC Six Assessment Report. There is a clear call from the scientific community for zero carbon for 2050 from all sectors to keep the impacts of climate change on check. For the aviation sector, it is therefore very important to ensure that we address in our work on the feasibility of a long-term aspirational goal, possible scenarios and means of implementation towards this scientifically driven goal in terms of technology, operations, fuels and clean energy.

In terms of concrete actions available now, along with the fleet renewals already taking place, aviation stakeholders can immediately begin using drop-in SAFs made from renewables or biomass. Forty-four airports are distributing SAF currently, and more are coming, and 22 States have adopted related policies or have them under development. New announcements on progress in this area are

being made every month, as reflected in the ICAO Global Framework for Aviation and Alternative Fuels (GFAAF). Technologies are being validated, the supply chain is ready, and airports infrastructures are in place, and more than 360,000 commercial flights have used SAF already. This momentum needs to be amplified, and the sooner the better for aviation and our world.

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