

THE DEVELOPMENT OF SPAIN'S ACTION PLAN: BENEFITS AND LESSONS LEARNED

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Introducing the Action Plan of the Aviation Sector in Spain

Spain is a member of the European Union and is fully committed to the policies and objectives of ICAO. In this respect, Spain has developed and submitted its Action Plan for emissions reduction of the Aviation Sector in 2012, as well as its update in 2015.

In addition, Spain is a member of the European Civil Aviation Conference (ECAC), which is an intergovernmental organization dealing with civil aviation, which among other activities supports ICAO's efforts to address climate change. ECAC decided to create the Aviation and Climate Change Action Plan Expert Group (ACCAPEG), which contributes to the ICAO objectives through the elaboration of a common section in the Action Plans for its 44 Member States, including a baseline of the emissions from international aviation and an assessment of the benefits obtained through the supranational measures.

In this context, and recognizing the individual value of each Member State preparing and submitting their Action Plans on international aviation emissions reduction activities to ICAO, Spain developed its Action Plan in 2012 and updated it in 2015. Spain's Action Plan includes both national and supranational voluntary measures, designed to improve fuel efficiency and reduce the carbon footprint of the international aviation sector, which therefore contributes to the ICAO global aspirational goals of 2 per cent annual fuel efficiency improvement and carbon neutral growth from 2020, established in 2010.

Challenges in the Development of the Spanish Action Plan

In the case of Spain's Action Plan for international aviation, the technical team responsible for the development of the Plan has identified different challenges along the process.

First, the technical team needed to familiarize itself with the different steps for the elaboration of the Plan. This process allowed the team to communicate the expected deliverables and positive outcomes linked to the initiative to all of the parties involved. The direct support offered by ICAO has been useful in overcoming this challenge. Indeed, ICAO organized Action Plan seminars for all focal points and made available tools for the calculation of CO₂ emissions, as well as supporting documentation. All these tools and guidance documents have provided the support needed to elaborate the action plan. Spain attended the Action Plan seminar held in Warsaw in March 2015,

receiving training about the development and the objectives of the Plans. Then, a key challenge in the elaboration of the action plan was to secure the voluntary collaboration of all the Spanish international aviation stakeholders. These stakeholders were organized in different working groups, and were informed about the commitment of Spain to elaborate such an action plan, together with the expected benefits resulting from the publication of the plan. The description of these benefits included the selected mitigation measures and initiatives toward the reduction of CO₂ emissions from international aviation.

As a consequence of the formalization of these working groups, the technical team responsible for the elaboration of the action plan cooperated with a number of relevant entities in international aviation, such as Spanish airlines (Iberia, Air Europa, Swiftair, etc.), the airport operator AENA S.A., and the air navigation service provider ENAIRE. In addition, statistical information from the National Institute of Statistics (INE) and outputs from the main collaborative projects among different companies of this sector were considered.

Overall, feedback received from the different parties involved in the process of building the action plan was very positive. In some cases, some stakeholders were reticent to provide information, due to the confidentiality of some of the data needed to develop the plan. However, the confidentiality terms under which the action plan was developed allowed for these data to be provided to the action plan team. They were populated in a way that did not enable to use them in a commercial context.

During the third phase of the development of the action plan, the challenge was to carry out the calculations to elaborate the reference scenario from 1994 until 2014 and the associated forecast from 2015 to 2050 of the international Revenue-Ton-Kilometers (RTK), the fuel consumption and the CO₂ emissions from international aviation in Spain.

Information for the Spanish reference scenario and the quantification of the measures came from two groups:

- The first group developed the international baseline of the emissions from international air transport that was reported to the ECAC Member States and developed by EUROCONTROL. This includes the information from the supranational measures, or the measures involving various countries at the same time;
- The other group developed the national baseline from

international air travel departing from Spain using the Spanish Model for Quantifying Air Transport Emissions (MECETA). MECETA is able to calculate the fuel consumption and emissions for the Landing and Take-Off and cruise phases, adjusting the ICAO certified values for the times in mode and applying the power engine's reduction during take-off. At the same time it adjusts the fuel consumption to the real values through cruise curves.

The implementation of the measures provided by the collaborative entities, the evolution of the international RTK, the fuel consumption, and the CO₂ emissions were reported by the stakeholders and subsequently included in the action plan. It is to be noted that the calculation was difficult due to the uncertainty derived from the evolution of some of the measures. Another challenge was the precision of the information received, which did not allow the technical team to get to the level of precision required to develop a forecast until 2050. Instead, this forecast was limited to the period from 2015 to 2030.

Benefits Related to the Action Plans

Beyond the collaborative benefits related to the Action Plans at a national and international level, the aim of the action plan is to evaluate the present and future implementation of the different mitigation measures selected.

The mitigation measures are selected from a range of measures, which include regulatory and economic measures, or the use of alternative fuels. They also include measures linked to air traffic management and operations, the development of new technology for aircraft or improvements at airports. All these measures lead to quantitative and qualitative benefits. In addition, the action plan can also be used to showcase the associated co-benefits, which are the benefits generated by the implementation of the mitigation measures that have a positive impact beyond international aviation emissions. All these measures favor the sustainability of aviation.

The quantitative benefits derived from the action plan are the identification and implementation of measures to reduce fuel consumption and its associated CO₂ emissions, in line with ICAO aspirational goals for international aviation.

The implementation of the measures described in the Plan also leads to **qualitative benefits** as these measures provide more visibility to the actions carried out by aviation stakeholders to addressing climate change. Importantly, it also opens opportunities for cooperation between different stakeholders, engaging the industry, the financial institutions, and other international organizations in exchanging best practices information, within the ICAO frame, and thus accelerating the financing processes and consolidating alliances between different States.

The collaboration between Spain and Ukraine in 2012 leading to the submission of Ukraine's Action Plan, is an example of this engagement. The more successful the action plan initiative is, the greater the ability ICAO has for extending the benefits of measures to all regions and States. This assists in reducing the legal, security, economic, and institutional barriers to the implementation of new initiatives.

Beyond the qualitative and quantitative benefits already mentioned, there are also the **co-benefits** produced in parallel to the main goals of the action plans. These co-benefits can include the reduction of noise nuisance due to the design of new routes or the penetration of new technologies. They also cover the reduction of emissions impacting the local air quality, and reduction of emissions from domestic aviation.

Evolution of the Action Plan

The Action Plans are live documents. They have to be updated every three years to take into account the constant evolution and the environmental benefits resulting from the implementation of the selected mitigation measures. The compilation of the environmental progress achieved with the implementation of the plan provides information on the CO₂ emissions reductions.

These CO₂ emissions reductions are then compiled with the aim of evaluating the progress leading to the achievement towards the ICAO global aspirational goals. Spain is making significant efforts to reduce emissions and such is reflected in the National Inventories of Emissions from Aviation. Spain developed a set of corrective measures that could be implemented in the event that the objectives planned were not achieved. Such measures range from: new assignments or cuts in budgetary resources, review of tasks, etc., as well as new cooperation between States in the development of analytical models for the prediction of the evaluation of the impacts of aviation.

For Spain, the action plan on CO₂ Emissions Reduction activities is recognized as a collaborative and useful tool that involves various stakeholders in the fight against climate change led by ICAO, within the international air transport sector.