What led IATA to develop its own CO2 emissions calculations, when others are already available (e.g., ICAO's)?

Air travelers' clear demand for CO_2 emissions transparency has resulted in a proliferation of carbon calculators and different CO_2 calculation methodologies, catering to both individuals and, on a larger scale, to corporates for their sustainability reporting and carbon offsetting. For a given flight, per-passenger CO_2 calculation results are displayed as part of different offerings, e.g., on airline websites as part of the ticket booking process, travel search engines, or booking interfaces of travel management companies. When comparing calculations results of different providers looking at the same flight origin and destination, results are often very different and not comparable due to the application of varying methodologies. It is widely recognized that the current condition could potentially lead to passenger confusion, whereby users may question the accuracy and credibility of the data—even that provided by airlines.

Furthermore, it was recognized by airlines and other industry stakeholders that the existing ICAO CO2 Calculation guidance, based on theoretical data models, uses outdated fuel burn information that does not include newer aircraft model variants (A320neo or B737MAX), hence not reflecting fuel efficiency improvements related to the use of these aircraft models. In addition, load factor information uses one average value for all flights in the passenger and cargo version that often fails to reflect reality depending on the area of operation or business model. Other new emerging areas that have an impact on calculated results such as initial guidance on the use and impact of Sustainable Aviation Fuels (SAF) were lacking as well.

To address this situation and to introduce more transparency and accuracy into the process of calculating per-passenger CO_2 emissions, the IATA Sustainability & Environment Advisory Council (SEAC) recognized the value of having one, uniform, industry best practices approach to allocating CO_2 emissions to passengers and cargo (RP1726, RP1678). The industry-recommended practice promotes the u**se** of airline-specific and actual fuel burn and actual load factors. Furthermore, IATA's RP recommends the use of audited data, e.g., independently verified under globally accepted protocols such as CORSIA.

Both RPs passenger and cargo, provide a lot of flexibility to adapt to specific operating circumstances, with different options, for example where local legislation exists. The option also exists for the Passenger weight where deviations may exist to the standard weight of 100kg including the application of add-on weight – 50kg, which could account for dedicated passenger infrastructure such as the seats, galleys, and lavatories.

A dedicated working group (WG) under SEAC researched this topic very intensively and looked at the pros and cons of including/excluding passenger add-on weight. As part of this research, the WG gained an understanding of the applicability of passenger add-on weight, its current use in existing methodologies, and the validity of the then-existing weight recommendation of 50kg as part of the Cargo RP1678. A survey was conducted with freight forwarders and shippers, and two large aircraft manufacturers were involved to assess the weight impact of the average cabin equipment weight. The result of the survey indicated that an overwhelming majority of freight forwarders and shippers favored the exclusion of the passenger add-on weight element.

This finding was underpinned by the strong desire for harmonization with other existing and upcoming standards such as the EN 16258, ISO14083, Smart Freight Center GLEC Framework, as well as EcoTransIT, German DIN, - standard, all of them following the proportional share of weight approach

(excluding the add-on weight of 50kg) when allocating fuel use between passenger and belly cargo. To our understanding, this approach is supported by most environmental organizations, academics, and the greater aviation community.

These were announced at industry events and in industry working groups, published on IATA's website as well as in the Cargo Services Conference Resolution Manual.

Publication of Recommended Practices:

- Recommended Practice Cargo RP 1678 endorsed by Cargo Services Conference – published February 2015. The RP was endorsed by ICAO CAEP in 2016.

- Recommended Practice Passenger RP 1726 endorsed by Passenger Standards Conference – published in March 2022.

- Revision of the Recommended Practice Cargo RP 1678 endorsed by Cargo Services Conference – published in November 2022.

What is the stakeholder consultation process to develop these RPs?

Passenger and cargo recommended practices are developed and adopted under the IATA Standards Conferences, where all Members can participate and vote.

Based on the mandate received by the SEAC (mentioned above), IATA's Passenger CO2 Calculation Methodology was developed together with an airline subject matter Working Group (20 airlines, including several leading cargo carriers) and consulted and discussed with various stakeholders across the industry, including international standards-setting bodies such as ISO; and major freight forwarders and shippers. The resulting draft followed a multilayered review process, i.e., consultations with the passenger and cargo subject matter experts under the IATA Conferences before the proposal was presented to the Conference for voting by all airlines.

All major findings were presented to the different stakeholders and in particular input concerning the inclusion or exclusion of passenger add-on weight was considered and became part of the decision-making process.

Referring back to the 50kg add-on weight, some arguments for its exclusion were:

- The need for alignment with current and upcoming methodologies, such as ISO14083, EN16258, German DIN, and EcoTransIT.
- Parts of the aircraft structure and interior only exist to support the transportation of cargo, e.g. reinforced cargo deck and fuselage and cargo transport therefore need a higher CO2 share.
- Operating equipment weight varies considerably between airlines and aircraft types and a fixed 50kg may skew the fuel allocation unfairly.
- Cargo infrastructure such as pallets, Unit Load Devices (ULDs), contribute to the weight of cargo but may not be accounted for directly in the allocation. ULD Tare Weight is excluded in the RP as they considered part of the aircraft structure (removable equipment).
- 50 kg is a fixed value that is not based on a scientific assessment.
- Part of the heavier passenger-related interior such as premium seats is already assigned a bigger share by applying a cabin factor.

- Feedback from manufacturers that data is not readily available to back up the 50 kg, noting high configuration variability amongst carriers.

Our airline members recognize the need for harmonization and alignment with upcoming EU legislation such as CountEmissions EU and the EASA Ecolabel (now renamed Flight Emissions Calculator), requiring airlines to follow the EU methodology that is in its draft format closely linked to ISO14083. The ISO14083 standard proposes the use of 100kg per passenger without add-on weight.

Furthermore, an industry task force was launched to develop belly cargo-specific metrics that can highlight the benefits and value of cargo shipments in passenger aircraft in a transparent manner. In addition, open avenues of communication and exchange with industry stakeholders take place at various events.

How does this change the calculations of emissions for passengers vs cargo?

The removal of the add-on weight has an impact on the CO2 distribution due to the proportional weight allocation principle, indeed increasing the share of emissions allocated to cargo. Our analysis shows that the impact is less or more pronounced depending on the passenger and cargo load factors and flight distance. In spite of challenges with redistribution of a flight's emissions between passenger and cargo, the removal of the add-on simplifies the calculation process. Furthermore, with the immense variability in airline fleets, configurations, and operational strategies, the removal of the 50kg add-on tackles the issue of data availability that would be required to sufficiently justify the inclusion of an add-on. Any change in the allocation principle will have an impact on either, cargo or passenger emissions. We also recognize that if the passenger cabin is underutilized, the CO2 allocation shifts toward the cargo portion, but cargo cannot affect the passenger utilization. These issues are being explored by a taskforce with industry stakeholders to determine additional KPIs, metrics, etc.

When comparing results with the ICAO passenger CO2 calculator, it was noticed that many of the results using the IATA RP in combination with airline-specific and actual fuel burn and load factor, showed higher CO2 results than ICAO. This can be attributed to the fact that ICAO uses a global average load factor and modeled fuel burn that is often not representative of a given flight. This is also true for cargo calculations.

IATA's RPs aren't set in stone and are updated as developments occur in the industry and feedback is received from members and stakeholders. For example, the need to account for SAF use in CO2 calculations, or non-CO2 emissions, and specific guidance will be included once consensus exists - and brought forward to our support groups, SEAC, CAC, etc. Naturally, we are listening to our members' feedback and keep abreast of developments. Should there be a need to address a specific issue (and it is supported by multiple airlines) we will do so. The same applies to the allocation of CO2 emissions between passenger and cargo where we are certainly listening to our members and looking at a collaborative approach to get to an industry guidance.