

Beyond CORSIA: Towards a robust strategy for mitigation of international air transport emissions



July 2017 – Last October, ICAO's Assembly adopted a framework for the global Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), a market-based measure to add to the 'basket' of technical and operational emissions mitigation measures already in hand. CORSIA is being designed as the primary tool towards an aspirational goal of carbon-neutral growth (CNG) of international aviation worldwide from 2020, with full effectiveness between 2027 and 2035. Even with full implementation, however, ICAO's basket of measures will not actually produce a reduction in global aviation emissions, which will continue to grow. For more ambitious countries, *Chris Lyle* proposes a more stringent but complementary approach, using the CORSIA database and monitoring, reporting and verification (MRV) procedures directly within the compass of the Paris Agreement.

Market-based measures are crucial to greenhouse gas (GHG) mitigation for international air transport. Technical and operational measures will reduce fuel consumption and hence GHG emissions per traffic unit but, even with the anticipated increase in the use of alternatives to fossil fuels, these per unit reductions will be significantly exceeded by growth in traffic. Thus aviation's emissions are presently expected to grow exponentially for the foreseeable future at a rate of around 3.5% a year, doubling in 20 years. CORSIA is designed to mitigate their impact over and above 2020 levels.

CORSIA is 'route-based', in this manner resolving potential conflict between the UNFCCC's principle of Common But Differentiated Responsibilities (CBDR) and the equal application provisions of aviation's Chicago Convention. Emissions are attributable not to a country but to each carrier operating on each flight stage, with a country responsible for monitoring, verifying and reporting on the emissions data and related offsets for each of its aircraft operators on that flight stage. Exemptions are available for flight stages to and from States with a minimal share of international aviation traffic, Least Developed Countries (LDCs), Landlocked Developing Countries (LLDCs) and Small Island Developing States (SIDS), irrespective of the air carrier operating, unless the exempted countries concerned decide voluntarily to participate in CORSIA. There is, understandably, no direct provision for the application of penalties or sanctions for non-compliance.

The CORSIA framework is a notable achievement, the result of a long, painstaking and resource-heavy process for both ICAO and its Member States, even if some considerable challenges remain before it is implemented.

Ambition constraint

A substantial constraint of CORSIA is that not only is it a 'lowest common denominator' amongst a wide range of circumstances, but individual States are inhibited from being more ambitious, even voluntarily.

If the CNG2020 goal were actually to be achieved, according to ICAO's own estimates it would still mean that some 750 million tonnes of CO₂ would be churned out unchecked annually from 2020 by international civil aviation. From 2020 to 2035 this would produce some 12 billion tonnes of unmitigated CO₂, more than China's total current annual emissions (which are slowing sharply) – and CO₂ can last over 100 years in the atmosphere.

A further annual tonnage of CO₂ rising to 142-174 million tonnes in 2025, 288-376 million tonnes in 2030 and 443-596 million tonnes in 2035 would be subject to CORSIA's questionable carbon offset process. Thus, in addition to the unmitigated emissions, international aviation would produce 3.5 to 4.5 billion tonnes of offset CO₂ over the 15 years. Given the incorporated exemptions and the unmitigated emissions, CORSIA will cover only some 25% of world international air traffic, [according to the ICCT](#). And CORSIA relates only to CO₂ emissions, not the other GHG emissions covered under the UNFCCC.

International aviation is one of the fastest growing sources of GHG emissions and yet CORSIA implementation will contribute relatively much less compared with any – perhaps all – of the first Nationally Determined Contributions which 142 States have committed to GHG emission reductions under the Paris Agreement process and which some States are already on course to exceed. Targeted emissions reduction for aviation may understandably be lower than for other sectors due to the current non-availability at scale of alternative fuels, but if Paris targets are to be achieved they are necessary. Such targets for 2030 are already on the table in the

European Union, and the UK's Committee on Climate Change has advised that UK aviation emissions should be limited to no higher than 2005 levels (compared to limits to 1990 levels for all other sectors).

It took 18 years after mitigation of international aviation emissions was referred to ICAO by the Kyoto Protocol to agree on the CORSIA framework, and it will be a further four years before pilot implementation. It is by no means too early to start thinking about the design of a more substantive and climate remedial strategy for international aviation. Such thinking may benefit from getting back to conceptual fundamentals. At the same time it would make sense not to throw the baby out with the bathwater but rather to build on CORSIA.

Transcending the silos

Over the past several years, the international aviation sector has gradually and increasingly managed to dissociate its climate action from the UNFCCC. This was noticeable at the ICAO Assembly in language changes to the drafts of Resolutions instigated by the United States, which still placed a reservation on one Resolution "because it does not consider that the principles of the international climate regime apply to ICAO, which is governed by its own regime".

In contrast Argentina, China, India, Russian Federation, Saudi Arabia and Venezuela placed reservations regarding the application of CNG to developing countries and to ICAO's interpretation of CBDR. At the May 2017 intersessional meeting of the UNFCCC in Bonn, some of the latter States called for consistency of the work of ICAO with the Paris Agreement rulebook, notably greater reflection of CBDR.

The 1999 Intergovernmental Panel on Climate Change (IPCC) ['Special Report on Aviation and the Global Atmosphere'](#) was pivotal in framing ICAO action. An update in the light of more advanced scientific knowledge is overdue, but ICAO has decided to keep that in-house, giving its Committee on Aviation Environmental Protection a mandate with a report back in February 2019.

The aviation industry is very close to, and in effect the driver of, the ICAO process. It describes the current ICAO path, which will have a minimal effect on its traffic or economics, as a 'licence to grow'. For its part, the international tourism sector, which is responsible for the bulk of international air traffic, is in its own silo, continuing efforts to reduce its GHG emissions at origins and destinations – which fall under the UNFCCC's NDCs – but seemingly largely unconcerned about the implications for the sustainability of the sector from the 60%, and rising, share of travel and tourism emissions from international aviation.

ICAO continuously expresses a concern regarding international aviation as a potential source for the mobilisation of climate finance to other sectors (aside from its own CORSIA) while international aviation is in practice favourably biased through exemption from fuel, value added and some other taxes.

There is a crucial, overwhelming need to transcend the silos and have international aviation more closely associated within the context of the UNFCCC and the Paris Agreement. Only against the much broader contributions of tourism and trade in particular to the three pillars of sustainability – economic, social and environmental – can a balanced, coherent role be assessed for the sector.

International aviation emissions, in the first instance those not covered by CORSIA and for more ambitious countries, should be brought under the direct responsibility of States through their NDCs. At the Kyoto Conference in 1997, this was considered "too difficult" in the context of the transborder issues but, despite the evolution of the process and particularly of data availability, the issue has not been revisited substantively since. It is time for another look.

Advantages of such an approach would include:

- averting the silos through a national imperative to balance out amongst various sources of emissions according to the situation of each State concerned, rather than attempting to do this for a single source at a disparate multinational level;
- choice of emissions mitigation measures at the discretion of individual governments in reflection of their particular circumstances and avoidance of having to work with different mechanisms for international

aviation and for various sectors domestically (including domestic aviation, which is difficult to separate from international, and both international and domestic airports);

- each country taking into account in its emissions reductions the competitiveness of all its affected industries – including aviation at a generic company-wide level (as with the application of corporate taxes);
- each country in a position to create incentives for, or impose sanctions on, air carriers as necessary under its sovereign jurisdiction;
- holding governments directly accountable for reducing international aviation emissions rather than second-hand via their airlines, and avoiding the ‘subservience’ of individual governments to a global lowest common denominator;
- application of the generic CBDR principles as agreed in Paris rather than a differentiated, complex and perhaps inconsistent application for aviation alone – indeed removing the perceived conflict between the uniform application provisions of the Chicago Convention and the UNFCCC principle of CBDR rather than having to get round it;
- avoidance of any overlap and inconsistency between ICAO Emissions Unit Criteria (EUC) and UNFCCC carbon offsetting provisions;
- reduction of concerns, and provision of safeguards, regarding double counting of offsets;
- potential improvement in transparency from the opaque and secretive ICAO silo, within which many meetings, documents and databases are closed or restricted and NGO participation is severely hampered; and
- potential transition in the longer term from a hybrid arrangement to comprehensive coverage by the UNFCCC, meaning: substantial simplification; release of ICAO from the climate policy and resource-heavy aspects of its function; reduced distraction for ICAO from its fundamental role in safety, security and air traffic management; and transfer of the global co-ordination responsibility from a body whose function is to protect and promote aviation to one whose mandate is to reduce greenhouse gas concentrations in the atmosphere – and not proscribe national action.

Application would be voluntary and in the first instance applicable to (below CNG) emissions not covered by CORSIA, with ratcheting up of the CORSIA effect by interested parties at a later phase – perhaps at some point factoring in GHG emissions other than CO₂. Ideally, co-operative frameworks would be agreed amongst interested States ([see Commentary](#)) but individual State action would not be ruled out. The ICAO role would be to maintain the Registry and MRV process. Limited participation, even just by the European Union States or a relatively few other major aviation States, could produce a larger mitigation impact than global application of CORSIA.

The bulk of international aviation emissions needs to be brought into the mainstream of climate change regulatory control to the extent possible and as soon as possible.

Attribution of emissions

Every State claims the right to determine the contribution to international aviation emissions that it is prepared to accept as its own responsibility. But it is of course desirable that the methodology for determining the contribution of each State is reasonably consistent.

In essence, the purchaser of any good or service is ultimately responsible as the source of the emissions, in the case of aviation this being the originating passenger or shipper. But measures on emissions mitigation are generally addressed to the supplier of the good or service concerned, in this case essentially the air carrier. At the same time both the origin and destination countries, as well as the air carrier, are economic beneficiaries. In the case of aviation-related products, outgoing tourism is an import while outgoing freight is an export.

Reflecting the elemental root of the emissions has become feasible in recent years in the case of international air transport, with true origin and destination data – and routings – for both passengers and freight routinely recorded by carriers, and governments requiring data such as Advance Passenger Information or Electronic Travel Authorisation for security reasons. The emissions attributed to a State would be based on the originating market for passengers (round trip) and origin or destination market for freight. Consolidated data could be filed

without breaching competitive confidentiality, privacy or security, and public registries used for monitoring and verification.

Another approach would be to build on CORSIA by dividing emissions data for each flight stage, say 50:50 between the two States concerned, amalgamating the data for each and every State and assigning responsibility accordingly. In this way, the emissions data would be more closely aligned with the balance of economic benefit.

A simple approach, if not the most rationally satisfying, would be to build directly on CORSIA. Consistent with attribution to a service supplier, emissions would be ascribed on basis of the 'principal place of business' of each air carrier – a well-established regulatory criterion in international aviation – into national inventories and commitments. Thus international aviation would be treated like any other export/import business. As with the two approaches above, exemptions could still apply consistent with the CORSIA framework. Indeed, the mitigation commitment defined by the MRV function of a State would simply become the responsibility of that State rather than that of its air carriers. The emissions would be assigned entirely to the origin country of the carrier concerned and none to its destinations, but this limitation has already been tacitly accepted by a large number of States in the evolution of CORSIA. There would be no specific attribution to exempted flight stages but obligations and exemptions by flight stage and in total would be included in public registries in order that they could be monitored against the emissions mitigation action taken generically or specific to aviation by each State concerned.

The withdrawal from the Paris Agreement by the United States is immaterial to the above since the US would in any event have been unlikely to participate in anything more stringent than CORSIA. If the US government should withdraw from CORSIA, as is being considered, the US carriers – which strongly support the Scheme but have remained silent on the Paris Agreement – might find ways of continuing participation outside the regulatory process.

The immediate imperative is for creation of a multilateral dialogue by interested parties on a strategic, silo-outstepped overview of aviation and climate change policy from economic, trade, tourism and emissions mitigation perspectives, centred on but beyond aviation interests. Climate change concerns are already influencing airport expansion and there are calls for more drastic measures such as slot constraints and fleet capacity limits, and even restrictions on air services. And aviation's contribution to climate change is growing proportionally every year. A more substantive and justifiable 'licence', a 'sustainability licence', is required for civil aviation.

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