



Workshop Aide Memoire

„Offsets under ICAO’s GMBM: A Robust Design Approach for Ensuring Environmental Integrity of Offsets under a Global MBM Scheme for International Aviation in the light of the Paris Agreement”

Editorial information

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Background

the greenwerk. has been tasked by the German Environment Agency (UBA) to conduct a study on “Offsets under ICAO’s GMBM: A Robust Design Approach for Ensuring Environmental Integrity of Offsets under a Global MBM Scheme for International Aviation in the light of the Paris Agreement”. In this context a workshop with international experts was held on November 30 2016 in Berlin, Germany, focusing on the relevance of an integrated evolution of the Paris Agreement Article 6 on market-based measures, and ICAO’s Carbon Offset and Reduction Scheme for International Aviation (CORSIA). In addition, important aspects of ensuring environmental integrity for offsets and deriving a pathway towards implementation of the CORSIA were discussed.

This paper provides background information on the topic, and summarizes inputs and the debate from the workshop.

The workshop was opened by Dr. Enno Harders of the German Emissions Trading Authority (DEHSt), referred to the specific role of bunker fuels under the UNFCCC and the role of international aviation for anthropogenic climate change. He welcomed the ICAO resolution on CORSIA, and highlighted the link between the ICAO process and the Paris Agreement. Despite the ICAO resolution being a great accomplishment, Mr. Harders underscored that many design issues are still to be resolved to eventually make CORSIA a successful instrument. Accordingly, this in particular relates to safeguarding the environmental integrity of CORSIA in the context of offsets. So far, eligibility criteria for offsets are unclear and need to be further debated. Mr. Harders thus encouraged participants to debate the design of CORSIA in the light of offsetting, in order to further inform the discussion and policy agenda.

Andreas Arvanitakis, who moderated the workshop, provided a short intervention setting the framework for the link between UNFCCC and ICAO. The CORSIA decision specifies that “emissions units generated under the mechanisms established under the UNFCCC and the Paris Agreement are eligible for use in CORSIA, provided they align with decisions by the Council, with the technical contribution of CAEP, including on avoiding double counting and on eligible vintage and timeframe”. The main existing system under the UNFCCC is the Clean Development Mechanism. Looking at supply and demand forecasts by various actors, supply of emissions units from the CDM alone is expected to meet demand from aviation, at least until 2030.

However, that depends on eligibility for CORSIA of the emissions units, plus there is a question over whether the CDM will be kept in operation after 2020. The new mechanisms being developed under the Paris Agreement are in the early stages of development, with no clear deadline by when emissions units that are eligible for compliance with CORSIA will become available.

In terms of the environmental integrity of the CORSIA, the focus should be on the quality criteria for the eligibility of the emissions units. As development of the CORSIA and Paris Agreement mechanisms are running in parallel but are interdependent, Andreas Arvanitakis asked the workshop to consider the case for linking the two discussions.

Offsetting GHG emissions of international aviation with CORSIA

While the international aviation sector is a relevant emitter of GHG and accounts for approximately 1.3 % of the global CO₂ emissions, with a predicted annual growth of 5 % on average, international decision-making on addressing the climate impacts from international aviation has proven to be challenging.¹ In 2013, the International Civil Aviation Organization (ICAO) set itself a goal of achieving carbon neutral growth from 2020. A study by ICAO’s Committee on Aviation Environmental Protection (CAEP) suggested CO₂ emissions from all international aviation would increase beyond 2020 in the range of 142 M t CO₂ to 174 M t CO₂ in 2025 and 443 M t CO₂ to 596 M t CO₂ in 2035. Extrapolating the data points from the CAEP study to produce annual linear results, cumulative CO₂ emissions from all international aviation in the period 2020 to 2035 would be between 3,480 and 4,540 M t CO₂.

After three more years of negotiations, the 39th Assembly of ICAO in October 2016 adopted its resolution on a Global Market Based Measure (GMBM). With this resolution, ICAO creates the CORSIA as a high-level framework, plus it gives direction to the technical building blocks that must still be developed and adopted.

¹ See ICAO Environmental Report 2016 “Aviation and Climate Change“, URL: <http://www.icao.int/environmental-protection/Pages/ENV2016.aspx>

A representative of the Federal Ministry of Transport and Digital Infrastructure of Germany introduced the CORSIA scheme. The CORSIA scheme uses the average emissions for international aviation covered by the scheme across 2019 and 2020 as a baseline, to which the offset requirement is applied. There are three phases to the scheme, starting in 2021 with a voluntary pilot phase. From 2024 (Phase 1) the scheme is still voluntary, with countries able to opt in, and even opt out again up until 2027.² From 2027 until 2035 (Phase 2) CORSIA is mandatory for those countries above a certain threshold which relates to their share of international aviation. By mid-October 2016, 66 countries representing more than 85 % of international aviation activity had declared their intention to join from the start.

The coverage of the scheme is route-based, meaning that if the countries of both landing and take-off are in the scheme, the route is covered. With the beginning of the scheme, each year, airlines must measure and report to the national authorities all their CO₂ emissions of international flights, regardless whether the routes are covered by the scheme or not. Those reports need to be verified by third parties. At the end of each phase, airlines operating flights on covered routes are to surrender eligible offsets to cover the offset requirement placed on them.

According to the Federal Ministry of Transport and Digital Infrastructure of Germany, Germany has offered support to ICAO on the so called “small scale implementation” for kick-starting the CORSIA scheme, such as initiating a pilot scheme with 10 aircraft operators and 10 administering states in 2017 (March-August 2017).

The Paris Agreement Article 6 on market based instruments

The Paris Agreement marks a milestone in international climate policy achieved under another UN Body, the United Nations Framework Convention on Climate Change (UNFCCC). For the first time in history, both developed and developing countries have agreed on a multilateral approach that aims at cutting GHG emissions to limit global average temperature levels to well below 2°C, compared to pre-industrial levels. Less than one year after adoption of the Paris Agreement, the conditions for becoming effective (at least 55 Parties, representing 55 % of global GHG emissions) were met; on 4 November 2016 the Paris Agreement thus entered into force.

Under its Article 6, the Paris Agreement specifies relevant approaches for the use of market based measures for GHG mitigation after 2020. Two options are established: firstly, a voluntary framework addressing the international trade of GHG emissions via so called Internationally Transferable Mitigation Outcomes (ITMO) (Article 6.2f on “cooperative approaches”). This way GHG mitigation arising from various approaches initiated “bottom up” by the Parties can be accounted towards national GHG mitigation targets of any country. Secondly, a centrally organized mechanism for generating and transferring GHG emission reductions (Article 6.4f). The scientific and technical body under the UNFCCC’s Conference of the Parties (SBSTA) is tasked to develop guidances, modalities and rules and accounting provisions for those mechanisms over the next years.

The Paris Agreement does not specifically refer to GHG emissions from the international maritime and aviation sectors, which are though treated separately under the International Maritime Organisation (IMO) and ICAO.

During the workshop, a representative of the Moroccan COP 22 Presidency, reported on the progress made at COP22 with regards to the Article 6. Rules for Article 6 are to be decided by 2018, which makes the “process ambition” comparable to the CORSIA process. For Article 6, Parties are invited to submit their views on specific aspects by March 2017. Also, a roundtable for debating the further evolution of the Article 6 design is envisaged. Parties will continue negotiations at the subsidiary body meeting in Bonn in May 2017. Overall, he rated the debate on Article 6 at COP22 as very progressive.

² Those first two phases are distinguished by the way that the offsetting requirement is calculated. During the pilot phase from 2021, states can choose between applying the offset requirement to the emissions of the given year (2021, 2022 and then 2023), or to the airline’s emissions in 2020 instead. The first phase from 2024 removes the choice of offsetting requirement calculation; until the end of first compliance cycle of the second phase in 2035, the calculation is based on the growth in covered emissions between the given year and the baseline (average of 2019-2020) to derive a sector growth factor, which is then applied to the airline operators covered emissions. For example, if the total emissions covered by CORSIA in 2024 is 5 % higher than baseline, then airline operators must offset 5 % of their emissions covered by CORSIA. Only from 2029 onwards the calculation is increasingly based on the airline’s individual emissions.

The relevance of integrating the discussion on offsetting under UNFCCC and ICAO

A key element for CORSIA are eligible programmes and project types to be used for compliance within the scheme. Eligibility of programmes and project types will be determined through criteria some of which are still subject of ongoing discussions and have not yet been approved by ICAO. Nonetheless, the ICAO resolution states that mechanisms and programs under the UNFCCC should be considered, specifying that they “[take] into account relevant developments in the UNFCCC and Article 6 of the Paris Agreement”.³

The Article 6 framework is expected to establish the international standard under which market-based mitigation instruments will operate from 2020. Hence, in order to ensure full compatibility of those instruments with CORSIA in the future, it is imperative now to closely link the further development of CORSIA with the Article 6 evolution under UNFCCC. Elaborating the technical design and governance approach of the CORSIA implies a reflection of, and an inter-linkage with, the process of spelling out the Article 6 mechanisms under the UNFCCC.

A linked process will in particular be relevant for technical design parameters in the context of the environmental integrity, and thus the eligibility of certificates. An un-coordinated development of both processes on the other hand could lead to fragmentation and inefficiencies in international climate policy, and ultimately potentially preventing the CORSIA from linking to UN offset mitigation instruments.

In light of this, a panel of experts debated over the integration of both development processes of the new market-based instruments and CORSIA. Asked for how he sees the interaction of the ICAO and UNFCCC processes in this regard, a representative of the European Commission stated that it is quite early to judge on the details of CORSIA and Article 6, though there appears to be a chance for interlinking. He sees the need for both processes to recognize each other, with separate mandates required to be mutually supportive. In particular, he highlighted the relevance of respecting the accounting rules and generic rules set under the Paris Agreement. For the credibility of markets, he underscores the importance of ensuring environmental integrity. Here, choices under both bodies need to be made in a robust fashion, and the UNFCCC can serve as the benchmark for future eligible programmes under CORSIA.

The representative of the Moroccan COP22 Presidency regards the COP outcome as successful for upholding the global momentum for fighting anthropogenic climate change. With respect to the perception of CORSIA at the COP, he indicated that some Parties expressed reservations to celebrate CORSIA for technical immaturity as well as the fact that it is an offset mechanism and not an instrument for achieving net emission reductions.

Regarding opportunities to ensure environmental integrity under the CORSIA, the representative of Carbon Market Watch highlighted that the only review clause in the scheme is on the cost efficiency of CORSIA. Also, it would be interesting to better understand ideas, plans and opportunities to address aviation emissions beyond 2035. For Carbon Market Watch the process of designing CORSIA is lacking transparency (particularly when compared to the UNFCCC); for instance, for external observers it is unclear who participates in the Emissions Unit Criteria (EUC) group⁴, and how they could make contributions. Furthermore, elaborated specifications for avoiding double-counting would be welcomed, although the operationalization of the double-counting clause is regarded challenging. Finally, he underscored the need to reconsider lessons learned in the EU ETS with regards to environmental integrity.

Asked on the importance of environmental integrity of an offsetting scheme and the corresponding selection of offsets, the representative of a German airline stated that one should better focus on more practical aspects - as CORSIA is a compromise amongst 190 Parties. From an operator point of view, one needs broad access to market, as well as a MRV system that is transparent and ensures environmental credibility. Given the time for implementing CORSIA, it is important not to spend time reinventing the wheel, but building synergies with existing UNFCCC instruments.

³ The resolution already defines that units generated from mechanisms established under the UNFCCC and the Paris Agreement are eligible for use in CORSIA, provided that they align with decisions by the Council, including on avoiding double counting and on eligible vintage and timeframe.

⁴ The Environment Advisory Group (EAG) of ICAO receives support on technical work by the Global MBM Technical Task Force (GMTF) of the ICAO Committee on Aviation Environmental Protection (CAEP). The inputs requested by the EAG and the Council on the impacts of different approaches for designing a global MBM scheme have been conducted by the GMTF. Specific work on MRV, eligible emissions unit criteria (EUC) and emissions unit registries has been undertaken in working groups, with the goal to provide recommendations for CAEP at its meeting in February 2016.

Identifying global best practice in offsetting

Offsetting GHG emissions at a global level has been practiced since more than a decade, including experiences under multilateral schemes (the UNFCCC's Clean Development Mechanism, CDM), or the REDD+ mechanism, as well as the so called voluntary markets outside the UN system. Here, the CDM is the most relevant GHG offsetting scheme in terms of GHG emission reduction volumes and geographical coverage. The CDM was established as a project-based mechanism of the Kyoto Protocol for helping Annex I Parties to comply with their mitigation commitments as per Annex B of the Protocol. As the second commitment period of the Kyoto Protocol will end at the end of 2020⁵, the CDM will lose its function unless the UNFCCC agrees on provisions for prolonging CDM activities and potentially accommodating it under the Paris Agreement.

Voluntary markets comprise a diversity of standards for offsetting GHG, which vary in terms of scope, volume and quality. Credits generated under those standards have been used mainly by corporate stakeholders for offsetting GHG emissions.

The aviation sector has already gained a vast experience on offsetting GHG emissions by airlines through their voluntary passenger offset schemes. Here, the experience shows that the majority of airlines offering offsetting services opt for recognised international standards, the majority selecting the CDM, Gold Standard CDM and voluntary market, and Verified Carbon Standard; and for renewable energy and forestry projects.⁶ This is likely to reflect the airlines' understanding of passenger preference.

With respect to offset supply, the CAEP reviewed a World Bank study⁷ on the likely supply of credits from the CDM. Accordingly, by 2020, after demand from other sources has been satisfied, there would still be between two and four billion CDM credits available. While those figures are based on a series of assumptions, the findings still indicate that the available supply of CERs could very well satisfy aviation demand for offset credits. Besides the CDM, further supply sources are likely to arise (such as the Article 6 mechanisms) that could potentially be eligible for CORSIA, certainly by 2035.

In this context, a representative of Southpole Group provided an overview on existing offsetting standards. He hereby focused on the voluntary carbon markets and recognized that the voluntary markets have been more stable over time, which might be due to the fact of not being driven so much by politics but by corporate decisions. The 5 standards that represent 95 % of voluntary markets are: the KP project-based mechanisms (CDM/JI), the Gold Standard, the Verified Carbon Standard (VCS), the Climate Action Reserve, as well as the American Carbon Registry. He focused the discussions on the three more relevant: the CDM/JI, the VCS as well as the Gold Standard.

A code of best practices for offsetting that has been published by ICROA⁸ identifies the following integrity principles for offsetting standards: additionality, conservativeness, permanence, measurability, transparency, addressing of leakage, third party auditing provisions, registry requirements as well as uniqueness for each tonne of CO₂e. As per his assessment, the CDM, JI Track 2, the Gold Standard and the VCS address and fulfil those principles in general, while JI Track 1 is not rated appropriate in this regard. Particular lessons from the regarded standards indicate that the CDM can serve as the benchmark for international offsetting, while the VCS is an attractive and robust voluntary standard that "cracked the nut" in the land-use and forestry sector, including for REDD activities, and has certain double counting provisions in its guidelines. The Gold Standard relies on the CDM for methodologies, allows demonstration of high sustainable development impacts, has a focus on household level / water filter projects, as well as a good standing with NGOs. He concluded that the vast experiences gained in many countries regarding the quality and eligibility of offset certificates could serve as a further input for the ICAO process.

For complementing the debate on the voluntary market standards, a representative of the German Emissions Trading Authority, also serving as Vice Chair of the CDM Executive Board, spoke on lessons learnt with the Clean Development Mechanism. In essence, the CDM offers credit supply, existing and working governance structures, an elaborated MRV system, unrestricted access and flexibility.

⁵ Note there is still no legal enforcement for the Kyoto Protocol to finish after 2020.

⁶ Arvanitakis, A. (2015): Status of voluntary passenger carbon offset schemes in commercial aviation. Report for Aviation Sector Association

⁷ CAEP did the assessment based on: World-Bank (2014): State and trends of Carbon Pricing, URL: <http://documents.worldbank.org/curated/en/505431468148506727/pdf/882840AROREPLA00EPI2102680Box385232.pdf>

⁸ See: <http://www.icroa.org/The-ICROA-Code-of-Best-Practice>

It can be applied for non-compliance purposes (MRV of climate finance, green bonds, etc), and can offer a prompt and sufficient volume of CERs for the pre-2020 early action phase in ICAO which may be used for post-2020 obligations (until 2023) of airline companies under CORSIA. CORSIA's pre-2020 early action through voluntary cancellations of CERs can also contribute to "Enhanced action prior to 2020" that is encouraged by the Paris Agreement" (para. 106 of 1/CP.21). Though, certain challenges exist concerning the suitability of using the CDM in the context of CORSIA; firstly, the post-2020 future of CDM is not clear. Although the Kyoto Protocol does technically not end after 2020, there is no guarantee for CDM to be operational after 2020. While the transition of CDM-elements to Article 6 mechanisms has been proposed and discussed at COP22, air operators would only have clarity once the ICAO has discussed eligibility, and once the UNFCCC has debated the CDM transition. This clarification might take another 1-2 years. The representative of an airline underscored that this is a pressing issue for airlines to be resolved better sooner than later.

Ensuring environmental integrity in international offsetting

While the policy framework of CORSIA is in place and a direction and timetable for setting the technical aspects already exist, there are some key policy and technical issues that are still left open, particularly in the monitoring, reporting and verification (MRV) rules, the setting up of the online emissions registries and the eligibility criteria that will determine which offsets can be used for compliance. The design of such technical aspects will determine the environmental effectiveness of the scheme as a whole. Also, the avoidance of double counting is of core relevance, i.e. ensuring that certified GHG emission reductions foreseen for offsetting under CORSIA have been, or will only be used, counted and claimed once (i.e. under the CORSIA), and not used in other schemes or put towards other targets as well.

A participant from Stockholm Environment Institute elaborated on aspects related to environmental integrity of offsetting mechanisms. He furthermore discussed the issue of double counting. In this regard he underscored the fact that most countries put forward economy wide targets in their NDCs, and with this running the risk of countries and airlines counting towards the same target. As the Paris Agreement only addresses double counting between NDCs, one would need rules under the UNFCCC in order to avoid double counting between NDCs and CORSIA. Here, countries would need to adjust their NDC in case of emission reductions units are transferred. Such "corresponding adjustments" would also be required for units transferred to other sectors. Against this background, conditions that increase the suitability of credits from Art. 6 for CORSIA could comprise the projects being "new", having a high likelihood of additionality, having sustainable development co-benefits, originating from countries that agree to avoid double counting (country attestations from Parties), and originating from countries with multi-year emission targets.

The pathway towards CORSIA implementation

The CORSIA resolution gives significant weight to encouraging states to work together to accelerate the process, including capacity building and collaboration on registries (see paragraph 20h), but the fact remains that the tasks are considerable and the timeline - in particular for MRV where rules need to be adopted by the ICAO Council and implemented through states by January 2019 - is extremely challenging by any measure. Core technical questions to be debated and solved before CORSIA starts include the eligibility of offset credits from programmes or mechanisms. In particular, the legal character of the "emission unit criteria" is to be decided, i.e. whether they are standards, recommended practices or guidance. Moreover, the principles on which the criteria are based need to be agreed, for instance comprising additionality to business-as-usual, representing permanent emissions reductions, reflection of a realistic and credible baseline, mitigation against potential increase in emissions elsewhere, a robust MRV approach, the avoidance of double counting, a clear and transparent chain of custody, or provisions for not doing net harm.

The ICAO Council must at the same time take account of developments under Article 6 of the Paris Agreement and must meet its own timetable without prejudicing the outcomes of the UNFCCC developments. This requires a robust system that is also flexible enough to reflect those developments and ensure the two systems are compatible, in terms of policy decisions and also technical aspects, to ensure that aviation has access to a wide market of offsets while those being environmental integer.

Such aspects were also discussed with a representative of the Federal German Ministry of the Environment. He underscored Germany's general interest in providing incentives for carbon markets for the future. Specific issues in the context of establishing CORSIA until 2020 involve capacity building measures in the CORSIA member countries, including support for the elaboration of NDCs or detailed programmes, the consideration of offsetting funds for airlines, consistent understanding of ITMOs, understanding the important role of private companies in the voluntary market providing offset services for the aviation sector, as well as understanding the important role of global players on carbon markets, in particular the World Bank.

With respect to capacity building, two representatives of the World Bank presented relevant capacity building initiatives of the bank that are deemed relevant in the context of offsetting and CORSIA. In particular, the World Bank is currently preparing the launch of a capacity building programme with the ICAO Parties to provide technical and financial assistance to developing countries for a successful and ambitious implementation of CORSIA. The initiative will build upon experiences made with the Partnership for Market Readiness (PMR) and will comprise activities such as knowledge sharing and advisory with ICAO, elaboration of outreach and background materials, dialogues, workshops and seminars, as well as financial assistance for infrastructure development. Another initiative presented was the Carbon Pricing Leadership Coalition, which is working with governments at putting forward carbon pricing instruments. In the context of aviation, it can become relevant for mobilizing support for carbon pricing, showcasing leadership and facilitating discussions on further actions by working with key aviation partners.

The discussion welcomed this initiative, but also recognized the need to harmonize global capacity building approaches.

A research approach presented by a MIT representative discussed the application of a CO₂ benchmark in order to go beyond pure offsetting of GHG emissions. According to the presentation, such a CO₂ benchmark could be used to incentivize the aviation industry to go beyond a carbon neutral target and abate an efficient level of emissions. It could operate within the proposed offset system and would reduce the number of offsets required to achieve carbon neutral growth. By pricing marginal emissions, the CO₂ benchmark would provide the global leadership needed to protect aviation's future emissions capacity needs.

Conclusion

In conclusion, the workshop discussed the relevance of these two processes to consider one another in moving forward and designing the respective mechanisms for the period after 2020. A particular risk identified is that incompatible timing, or incompatible standards particularly regarding to the environmental integrity of offset units and the avoidance of double counting, could leave the airlines covered by ICAO with limited access to UN-based emissions reduction units, presenting a price risk to CORSIA.

The expert participants at the workshop from both the climate policy and the aviation sector side were in agreement that there should be ongoing cooperation between the two processes, specifically the setting of emissions unit criteria, necessary to enable early action by airlines under ICAO on one hand, and the rules, procedures and modalities under the Paris Agreement, on the other.

While the timetable for ICAO is short, different stakeholders in the room discussed the programmes underway to help support countries and airlines to prepare for the CORSIA. There was some optimism that the deadlines would be met. However, the Paris process also faces considerable challenges to establish its international rules.

In terms of the risks affecting the environmental integrity of the CORSIA scheme, the lively discussion tended towards two aspects. Firstly, participants discussed the volume of potentially available emissions units under the CDM, with some being of the opinion that the majority of which should be excluded from the scheme by setting a later 'start date' for eligibility. Secondly and most prominently, discussions focussed on the avoidance of double-counting and the potential challenges which, once met, may lead to supply constraints at least in the medium term.

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