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From Confrontation to Collaboration?

CBDR and the EU ETS aviation dispute with developing countries

by Benito Müllerⁱ

Executive Summary

The recent extension of the EU Emissions Trading Scheme (ETS) to international aviation has led to considerable controversy – not least with a number of developing countries – and is threatening to escalate into a fully-fledged trade conflict. This Brief focuses on some of the objections that have been raised by India regarding the compatibility of the ETS with the principle of common but differentiated responsibilities and respective capabilities (CBDR/RC) as enshrined in Article 3.1 of the UNFCCC. The aim of doing so is two-fold: to come to a better general understanding of how to assess compliance with this principle, and to use these insights to suggest a way forward in the ETS aviation dispute, away from conflict towards a mutually acceptable practical compromise.

The Brief begins by considering (i) the contention by India and other developing countries that a general exemption of developing countries from taking on additional economic burdens based on Art. 3.1 should lead to an automatic exemption of carriers registered in developing countries from the ETS, and (ii) the counter contention that since Art. 3.1 is about Parties, the ETS aviation decision is automatically compatible because it is about carriers and not countries.

The Brief concludes (see Section 2.c) that neither of the two contentions is ultimately tenable. Art. 3.1 *is* indeed about Parties, and as such, Art. 3.1 differentiations must be in terms of responsibilities and capabilities of Parties which, the Brief concludes, do not automatically transfer to the relevant sub-national actors. In particular, a Party being given a no-net-incidence exemption based on Art. 3.1 considerations does not entail that all its sub-national actors (carriers, passengers ...) can automatically lay claim to no-net-incidence. However, it is also not possible to make automatic inferences on whether the scheme would be compatible with the provisions of Art. 3.1 on the grounds that it deals with sub-national actors.

A concrete ‘enhanced’ interpretation of Art. 3.1ⁱⁱ – based on differentiated levels of Party responsibility for, and capabilities to deal with, climate change – is developed in order to exemplify, by way of the ETS aviation scheme, how to assess Art. 3.1 compatibility in concrete terms.

It is shown that the ETS aviation scheme could be made fully compatible with this interpretation of Art. 3.1 through relatively small burden/effort transfers. The problem is that while it is theoretically possible to estimate the magnitude of these required transfers – less than 3 per cent of the relevant

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ⁱⁱ References to ‘Art. 3.1’ in this Brief are generally meant to be references to the principle of CBDR/RC as referred to in that Article.

global burden/effort of the scheme – it is difficult, in practice, to identify exactly what the ‘relevant’ burden/effort is meant to be, and how such ‘transfers’ would be carried out.

This Brief suggests (see Section 3.c) that the revenue collected at auction from developing country carriers by ETS member states could serve to identify the cost of the relevant burden/effort of the developing countries in question. Indeed, addressing the low-capability country no-net-incidence criterion of the proposed enhanced Art. 3.1 interpretation would, in that case, also address another objection that has been raised against the ETS aviation scheme: developed (ETS member) countries being able to support their budgets with money received from developing country carriers has been said to turn the Convention balances of financial obligations ‘on their head’.ⁱ

This Brief proposes the following measures to avoid such net South–North flows, not only to re-establish these balances, but also to achieve compatibility of the ETS with Art. 3.1 as fully as practically possible:

- All (developing) countries should be given the option to become ‘*part-members*’ of the ETS with respect to flights to and from their territory covered by the scheme. As such they would themselves be entitled to carry out auctions of ETS aviation credits and keep the revenue (for domestic climate change purposes). Moreover, it should give them a voice in the governance of the scheme – the current lack of which being one of the major sources of resentment of the scheme.
- Low-income developing countries not participating in this manner should have the revenue collected at auction from their carriers transferred to them by the developed ETS member countries.
- Carriers from low-income developing country carriers should be able to use Certified Emission Reductions (CERs) generated in their country of origin through the Clean Development Mechanism (CDM) for the purpose of compliance with the ETS for the full duration of the scheme.

Contentsⁱⁱ

Executive Summary	1
1. The ETS Aviation Dispute	3
<i>a. The Scheme</i>	3
<i>b. The Controversy</i>	3
<i>c. The Indian Submission</i>	4
2. CBDR/RC Compatibility	5
<i>a. The Scope of Art. 3.1</i>	5
<i>b. Art. 3.1 CBDR/CR Compatibility</i>	8
<i>c. CBDR/RC Compatibility: Conclusions</i>	15
3. No Net South–North Flows	17
<i>a. Re-routing/repatriation of revenue</i>	17
<i>b. Revenue Retention through Developing Country Auctions</i>	18
<i>c. No Net South–North Flows: Conclusions</i>	20
References	21
Technical Appendix: Aviation in the ETS	22

ⁱ [2:6] (i.e. page 6 of reference number 2).

ⁱⁱ The Brief consists of an Executive Summary, an introduction to the ETS Aviation Dispute, two analytic parts, and a Technical Appendix on the EU Emission Trading Scheme (ETS). The two analytic parts are: a discussion of ‘CBDR/RC Compatibility’ outlining how the principle of CBDR/RC could be operationalized in concreate terms, and a discussion of how the ETS could become compatible with CBDR/RC by ensuring no (disproportionate) net South–North revenue flows. Each of the two analytic parts ends with a concluding summary.

1. The ETS Aviation Dispute

a. The Scheme

As of 1 January 2012, international aviation has been included in the Emissions Trading Scheme (ETS) of the European Union. Most of the flights arriving in and departing from EU airports have to cover their total flight emissions with ETS tradable permits. The majority of permits needed will be ‘grandfathered’, i.e. given to the airlines for free, but a percentage will be auctioned off by member states of the scheme – at present the 27 EU Members as well as Iceland, Liechtenstein, and Norway. The auction revenues accrue to the administering member state. It has been estimatedⁱ that the scheme will cover around 60 per cent of international aviation emissions.

b. The Controversy

Not surprisingly, given the sensitivities of many developing countries to what is seen as trade protectionism in the guise of unilateral environmental and social legislation by developed countries, the extension of the ETS to cover all airlines, including those registered in developing countries, did create some controversy, as witnessed in the following press accounts:

The Chinese government warned it might impose punitive tariffs and the China Air Transport Association went even further and suggested that Beijing should threaten to reduce future purchases of Airbus aircraft, Russia threatened to hike overflight charges for European airlines flying to and from Asian destinations, and India threatened to levy a retaliatory tax on European airlines operating to and from India.

Not too surprising, the main resistance came from the US. Last October [2011] the House of Representatives passed a resolution prohibiting US airlines from participating in the EU’s ETS, declaring that the EU action ‘directly infringes on the sovereignty of the United States’. But it’s not just the Republicans that are unhappy with the new directive. ... [US] Secretary of Transportation, Ray LaHood and Secretary of State Hillary Clinton wrote to the EU commission reiterating the Obama administration’s objections on ‘legal and policy grounds’, and said the US would respond with ‘appropriate action’, They didn’t elaborate though what that action would be.

Last but not least, there was a legal battle against the directive with a group of US airlines that filed a suit to the EU’s highest court, arguing that ‘forcing them to participate in the potentially costly emissions trading system infringed on national sovereignty and conflicted with existing international aviation treaties’. The court rejected this claim ..., confirming ‘the validity of the directive that integrates aviation activities in the system for trading emissions quotas.’

The court’s decision was final, but US carriers are looking now to take their case to other courts. Airlines for America, an industry lobby group and one of the plaintiffs in the case, said, according to the New York Times, that its members would comply with the system, but would also review options for pursuing the case in Britain’s High Court, which had referred the original complaint to the European Court in 2009.ⁱⁱ

The European Commission said on Thursday [5 January 2011] that airlines that did not follow a new European law requiring them to account for their emissions of greenhouse gases could face being banned from European airports. A European ban on noncompliant airlines would be a measure of ‘very last resort’ applicable only in cases of ‘continued noncompliance’, Isaac Valero-Ladron, the Commission’s spokesman for climate action, said on Thursday at a news conference in Brussels. Mr. Valero-Ladron said airlines would initially face fines by national authorities of 100 euros (\$130) for each ton of carbon dioxide that they failed to account for under the permit system. ‘We’re confident the companies will comply’, Mr. Valero-Ladron said. ‘The penalties for noncompliance are much higher than compliance.’

Even so, the Europeans and opponents of the system, including airlines and the authorities in China and the United States, will probably have to compromise at some stage, to avoid the dispute turning into a

ⁱ [1:1]

ⁱⁱ [6]

*disruptive trade war. But airlines do not need to hand over permits accounting for their emissions until 30 April 2013, and that could leave room for a compromise to be found over the next year.*ⁱ

This Brief considers some of the concerns and objections that have been put forward by developing countries with the aim to gain a better understanding of them, and to suggest practical options for compromise.

c. The Indian Submission

In October 2011, the Government of India submitted a number of proposals to the Conference of Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC) which included a very clear and succinct statement of some of their objections to the treatment of international aviation in the ETS, under the heading ‘Unilateral Trade Measures’.

The inclusion of international aviation into the ETS itself is used as example of a unilateral measure which is *unlikely to accurately reflect the principled balance of obligations in the climate regime*.ⁱⁱ The submission lists two distinct reasons for this, namely:

[Ind.1] *First, the EU scheme, subject to a few limited exceptions, applies to all airlines. The scheme stands in violation of the UNFCCC as it does not respect the principles of CBDRⁱⁱⁱ of developed and developing countries and proposes to operate the ETS outside the EU boundaries without multilateral or bilateral consent.*

[Ind.2] *Further, EU member states have the discretion to determine how revenues from the auctioning of GHG allowances will be spent. Although intended for EU mitigation activities, and adaptation in the EU and developing countries, there is no obligation to deploy the revenues thus. The FCCC balance of obligations requires developed countries to provide financial assistance to developing countries, yet here developing country airlines will be contributing to climate and other activities in the EU. In this instance, unilateral measures taken in the name of climate protection turn the FCCC–Kyoto balance of obligations on their head. Unilateral measures imposed beyond borders lend themselves to such perversions of multilaterally agreed frameworks for action.*^{iv}

While India is not the only Party to object to the extension of the ETS to international aviation, and while there are other reasons that have been put forward in that context – such as the fear of setting a precedent for other sectors – these two reasons are among the core misgivings of developing country governments^v and will be the focus of the following discussion.

ⁱ [7]

ⁱⁱ [2:6]

ⁱⁱⁱ ‘Common But Differentiated Responsibilities’.

^{iv} *ibid.*

^v To be sure, other sectors will have yet more particular misgivings which can be influential, such as the aviation industry’s fear of inordinate burdens, even if these are not justified (as proved to be the case of the power sector in the ETS context).

2. CBDR/RC Compatibility

[Art. 3.1] *The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.*

Consider, in a first instance, the (CBDR componentⁱ of the) initial objection in the Indian submission [Ind.1], namely the argument that the inclusion of international aviation under the ETS is incompatible with Art. 3.1 because it only exempts some (a limited number), but not allⁱⁱ developing country carriers.

a. The Scope of Art. 3.1

The issue of whether the inclusion of aviation is compatible with the Art 3.1 Principles of CBDR/RC has been the focus of considerable analytic work. Scott and Rajamani, for example, did *examine the concept of CBDR/RC, consider whether it is relevant in the context of the EU's aviation decision, consider whether this decision sufficiently reflects this principle, and explore how best the decision may be adjusted to ensure that it does.*ⁱⁱⁱ

No one seems to be disputing that COP Decisions need to conform to the principles of CBDR/RC in light of Article 3.1. However, two different questions have been exercising minds in this context, namely:

- [Q.1] Are (unilateral) decisions by UNFCCC Parties subject to CBDR/CR (as formulated in Article 3.1)?
- [Q.2] Does (Art. 3.1) CBDR/RC only apply when differentiating between Parties, or does it also apply to sub-national agents, such as airlines or individuals?

Beginning with [Q.1], it has been pointed out that *the final Impact Assessment accompanying the EU proposal to include aviation in the ETS states that the measure is 'fully in line with the principle of "common but differentiated responsibilities under the UNFCCC"'*.^{iv} It would hence not seem unreasonable to see this as an implicit acknowledgment on the part of the EU that the Art. 3.1 version of CBDR does indeed cover its ETS aviation decision. More recently, in a presentation to the ICAO^v Council, the European Commission put forward the following syllogism:

- Premise 1: The EU ETS applies to businesses active in the EU market, not to States.
- Premise 2: The UNFCCC principle of 'common but differentiated responsibilities and respective capabilities' applies to States and the climate measures that they take.

ⁱ [Ind.1] also touches on the question of extraterritoriality, which is a different issue from CBDR compatibility.

ⁱⁱ [Ind.1] refers to 'the principles of CBDR of developed and developing countries' (emphasis added) which suggests that the real objection is against the failure to exempt *all* developing countries, and not just that the current number is insufficient. It should also be noted that the exceptions are actually more numerous than [Ind.1] seems to suggest: 75 States have no commercial operator with flights to the EU; and 23 States have commercial aircraft operators which fall under the de minimis provisions in the EU ETS and are thus exempt from EU ETS. [Source: RAM:24] A closer look reveals the following percentage shares of countries that are exempted from the following groups: LDCs 94%, Africa 71% (sub-Saharan Africa 80%), FCCC 51%, Annex I 3%, non-Annex I 63%, G77+China 68% (see also the Technical Appendix).

ⁱⁱⁱ [1:13]

^{iv} [1:19]

^v International Civil Aviation Organization.

- Conclusion: The inclusion of aviation under the ETS is consistent with CBDR.ⁱ

As mentioned above, there can be no doubt that Art.3.1 CBDR/RC is about states and, in particular, about the responsibilities and capabilities of UNFCCC Parties. However, Premise 2 interestingly also implies that climate change decisions by states in general have to be consistent with Art. 3.1 CBDR, thus answering [Q.1] in the affirmative. Indeed, the thrust of the syllogism is not about [Q.1], but about [Q.2]: it is not meant to demonstrate that Art. 3.1 CBDR does not cover the EU decision, but that the differentiation between carriers employed in the ETS decision (in terms of their traffic volume alone) is consistent with Art. 3.1.ⁱⁱ

With regard to [Q.1], the EU thus seems to concur with the view that *decisions by Parties to the Convention, whether they be taken in a multilateral context (the COP), or domestically ('unilaterally') are subject to Art. 3.1*. While I believe this to be a reasonable view,ⁱⁱⁱ the conclusion drawn about the concurrence of views may not be robust, which is why I propose to bracket this issue for the present purposes.

(i) A Hypothetical 'Art. 3.1 Compatibility Assessment' Scenario

More precisely, let us adopt the following hypothetical scenario: Let us, for the sake of argument, assume the EU ETS aviation directive is being submitted to the COP – or, for that matter, to the International Civil Aviation Organization (ICAO)^{iv} – in the form of a draft decision ('ETS draft decision'), and is to be assessed as to its compatibility with Art 3.1 CBDR/RC.^v This allows us to bracket/side-step a number of contentious issues – not only the applicability of Art. 3.1, but also issues arising from the 'unilateral' nature of the actual EU directive (e.g. the question of extra-territoriality).

This, in turn, permits us to turn our focus on the issue raised in [Q.2], namely whether Art. 3.1 requires an exemption of *all* developing county carriers, and not just some of them. To discuss this, consider a closely related case, namely the proposed inclusion of all passengers – regardless of their origin – in the International Air Passenger Adaptation Levy (IAPAL), which was (actually, and not just hypothetically) submitted by the Maldives on behalf of the LDC Group to COP 14 in 2008.^{vi}

(ii) The International Air Passenger Adaptation Levy

Following the very successful example of the French 'Leading Group' solidarity levy to combat HIV/AIDS, the LDCs Group propose[d] an adaptation solidarity levy on international air passengers to provide more adequate funding for adaptation activities in the poorest and most vulnerable

ⁱ The argument is taken from slide number 40 of [3] which, while not explicitly stating this conclusion, is headed 'Why is EU ETS consistent with CBDR?'

ⁱⁱ The fact that this is indeed the issue at stake is underlined by the last bullet point on the slide in question: 'Discriminating between operators on the basis of nationality would be incompatible with the Chicago Convention'.

ⁱⁱⁱ After all, Art. 3.1 recommends that Parties should protect the climate system, and do so on the basis of equity and in accordance with CBDR/RC, *tout court* – i.e. without reference to COP decisions

^{iv} Article 2.2 of the Kyoto Protocol stipulates that *Parties included in Annex I shall pursue limitation or reduction of emissions of greenhouse gases ... from aviation ..., working through the International Civil Aviation Organization*. Whether ICAO would wish to carry out such an assessment is, of course, a different issue, although *the EU recognizes the differentiated responsibilities and capabilities of various countries, and we are open to considering how this could be reflected in the use of revenues coming from further market-based action agreed upon in ICAO*. [8:6]

^v As mentioned earlier, there is no dispute that the Articles of the Convention apply to COP Decisions.

^{vi} [4]

countries and communities. In line with the French levy, the LDC Group proposal is to establish a small passenger charge for international flights – differentiated with respect to the class of travel – to raise between \$8bn and \$10bn annually for adaptation in the first five years of operation, and considerably more in the longer term. This will constitute a significant step towards ensuring adequate financing for developing country adaptation costs. The levy is to benefit the Kyoto Protocol Adaptation Fund, which currently is replenished by a two per cent solidarity levy on the share of proceeds from the Clean Development Mechanism. It is to be universal in the sense of covering all international air travel and collected by airlines at the point of ticket sale. Being international and dependent only on the evolution of air travel demand – and not on bilateral replenishment – the funds raised will truly be new and additional, as well as significantly more predictable than traditional funding mechanisms.ⁱ

In this context, the question about CBDR and the differentiation of sub-national entities is whether it is contrary to CBDR that all (capable) individuals should be made to pay, regardless of their race, creed and, in particular, origin. More precisely, it is should passengers from developing countries be exempted from paying the levy because of CBDR/RC?

(iii) ‘Art. 3.1 CBDR/RC’ versus ‘in-flight CBDR/RC’

To discuss this in more concrete terms, consider the quantified country/region shares of (historic) responsibility for climate change put forward in an OCP study on *Differentiating (Historic) Responsibilities*.ⁱⁱ The motivation for this study was to flesh out the idea of CBDR, as used in Art. 3.1, with a view of gaining concrete insights into ***how global costs of combating climate change should be shared following the idea of the ‘polluter pays’ principle***. According to these findings, the respective shares of strict (historic) responsibility of the EU15 and India in 2005 were 15.9 per cent and 0.3 per cent, respectively – implying that the burden to be borne by the EU15 should be 53 times that of India. Does this mean that a European should also pay 53 times more than a person of Indian origin under the IAPAL scheme? No. The responsibilities calculated in the OCP Study are UNFCCC Party responsibilities – i.e. responsibilities of states/regional economic integration organizations. They are not the same as those of (sub-national) actors. In particular, the fact that the historic responsibility of the EU15 is 53 times that of India does not imply that each EU15 citizens is 53 times more responsible than every Indian citizen.

This does not mean that individuals cannot be differentiated in accordance with CBDR/RC. As it happens, IAPAL uses a version of CBDR/RC based on responsibilities and capabilities of ***individual people relative to a common activity***, namely taking the same flight and the resulting harm imposed (on others). As such, it is possible to justify a differentiated liability on the basis of what might be called ***‘in-flight CBDR/RC’***, operationalized in terms of parameters such as personal space occupied on the plane, and ticket class – as opposed to country-wide historic emissions or national population size and GDP, which according to the OCP study are the relevant parameters for Art. 3.1 differentiations of Parties.

Note, incidentally, that even if one looks at individual responsibilities/capabilities for what the OCP study investigated, namely average global temperature rise, they do not automatically translate into country responsibilities/capabilities, and *vice versa* – particularly if one is talking about ‘historic’ responsibilities: countries tend to have different lifespans than their citizens (or airlines, for that matter).

ⁱ [4:59]

ⁱⁱ [5]

As concerns [Q.2], the conclusion must therefore be that while it is possible to differentiate carriers on grounds of differentiated responsibilities and respective capabilities, it has to be *their* responsibilities and *their* capabilities, and not those of their countries of origin. (Indeed, the ‘*de minimis*’ exemptions under the ETSⁱ scheme could be interpreted as such an ***airline specific differentiation with reference to respective capabilities***, and airlines could even insist that their past performance should be taken into account in order to reflect their differentiated responsibilities.)

Differentiation between Parties, between airlines, or between passengers must be carried out with respect to the responsibilities and capabilities of Parties, airlines, or passengers, respectively, and cannot automatically be transferred from one category to the other. In particular, the fact that a Party is exempt from taking on any additional burdens because of its (limited) responsibility and capability does not imply that this sort of differentiated treatment must also apply to its citizens or airlines. That is to say, ***the fact that a country should have ‘no net incidence’ does not imply that the same applies automatically to its sub-national actors*** (carriers, passengers, etc.).

However, the argument cuts both ways. ***Even if the differentiation between carriers as applied in the ETS fully conforms to their respective responsibilities and capabilities, our hypothetical ETS draft decision could still be inconsistent with Art. 3.1.*** As it happens, an issue has been raised in the IAPAL debate which may help to illustrate this point further.

It has been argued that the introduction of IAPAL could reduce long-haul tourism and disproportionately jeopardize the economies of poor tourist economies. If, as proposed, the scheme is introduced by the COPⁱⁱ then, it was argued, this burden would be incompatible with Art. 3.1, regardless of the scheme’s compatibility with the ‘in-flight’ version of CBDR/RC. Of course it could be argued that such ‘impacts of response measures’ are not actually covered by Art. 3.1, i.e. that it ***only applies to the ‘direct’ cost of mitigation burden/effort sharing measures*** (and possibly to ***adaptation costs***ⁱⁱⁱ). But there could be other, more ‘direct’ costs to Parties which are disproportionate to their responsibilities/capabilities. The point here was simply to illustrate that conformity with some version of CBDR/RC in a sub-national context does not automatically guarantee conformity of the scheme in question with Art. 3.1.

Similarly, to return to the case at hand, the *de minimis* exemption of carriers under the ETS does not automatically guarantee that Parties would not be facing costs imposed by the (hypothetical) ETS draft decision which are disproportionate to their responsibilities/capabilities, and thus is no guarantee that the scheme is Art. 3.1 compatible.

In short, ***CBDR/RC differentiations do not automatically transfer from the national to the sub-national level, and vice versa.***

b. Art. 3.1 CBDR/CR Compatibility

The problems in establishing whether a decision (to protect the climate system) is compatible with the Art. 3.1 CBDR/RC recommendation^{iv} are first and foremost due to ***the failure of the Article to specify***

ⁱ See the Technical Appendix

ⁱⁱ If, however, the levy is introduced by the airlines themselves, possibly on a voluntary basis (akin to the existing carbon offset schemes, which after all should now be redundant for flights to and from Europe), then this is their and their passengers’ commercial decision which is clearly not bound by the Convention and its articles.

ⁱⁱⁱ By virtue of the Art. 3.1. reference to ‘adverse effects of climate change’.

^{iv} *The Parties should protect the climate system ..., in accordance with their common but differentiated responsibilities and respective capabilities.* Note that because this is only a recommendation (‘*should*’) it cannot

what exactly the recommendation means. While it is true that it contains the *conclusion* that *developed country Parties should take the lead*, this must not be mistaken for an operationalization of the recommendation: developed countries ‘taking the lead’ is taken to imply help in *getting to* a climate system protected in accordance with the CBDR/RC of Parties, but it says nothing about what exactly it means to *be there*. All that is clear is that the protection of the climate system may warrant differentiated treatments of Parties (in some way or other).

(i) *The class exemption approach*

One approach to operationalizing Art. 3.1 for such differentiated treatments has been to divide Parties into *dichotomous classes* (introducing a ‘firewall’): *those that are exempted from something, and those that are not*. The class distinctions used in this context have been drawn up either in terms of ‘developed/developing country Parties’ or with reference to lists of Parties (Annex I/non-Annex I, Annex II/non-Annex II, Annex B/non-Annex B). Various issues have been treated in terms of this class-exemption model, ranging from whether Parties should take on (legally binding) obligations, to who should bear economic burdens.ⁱ

There are types of issues – such as whether (legally binding) obligation should be taken or not – that do not lend themselves (easily) to anything other than such binary differentiations. However, if the issue is the distribution of a divisible good/bad, such as the sharing of certain (economic) benefits/costs, a more fine-grained differentiation is, as alluded to above, possible. And it may well be *necessary to consider such additional, more fine-grained, Art. 3.1 operationalizations* – given the clear objections by many developed countries, not least the US,ⁱⁱ to such firewall interpretations during the recent Durban Platform negotiations – if one wishes to establish *an Art. 3.1 compatible architecture on the Durban Platform*.ⁱⁱⁱ

(ii) *The Aristotelian ‘polluter pays’ model*

Given the possibility of quantifying not only levels of (Party) responsibilities for, but also levels of economic capability (both in an absolute and relative sense^{iv}) to deal with, climate change and its impacts, we can operationalize Art 3.1 CBD/RC on the basis of the *polluter pays* idea and Aristotle’s definition of distributive justice,^v by requiring that the *relevant burden should be shared among*

really be read as an obligation, which is why it is more appropriate to talk of ‘compatibility’ as opposed to ‘compliance’.

ⁱ Probably the best known application of this firewall operationalization of Art. 3.1 CBDR/RC is in the Berlin Mandate (Decision 1/CP.1) that launched the Kyoto Protocol negotiations, where it was stipulated that in light of Art. 3.1, the negotiations will *not introduce any new commitments for Parties not included in Annex I*.

ⁱⁱ QUESTION: *A number of participants have said that they heard you say, ... ‘If equity’s in, we’re out’ and I wanted to confirm that that is, in fact, what you said. ... MR. STERN: I don’t remember my exact words in that huddle, but our general orientation was, not load up this short Durban platform agreement with terms or phrases that would be likely read by others to perpetuate that firewall ... [Todd Stern, Post Durban Press Briefing, 13 December 2011]*

ⁱⁱⁱ It is important to keep in mind the non-binding character of Art. 3.1 (Parties *should* protect the climate system in accordance with CBDR/RC), which means that Parties are not legally obliged to ensure CBDR/RC compatibility of the Decisions that will come out of the Durban Platform. If the ‘firewall’ remains the only operationalization on the table, then we will either have a Durban Platform architecture without CBDR/RC, or no agreed outcome at all, both of which in my view undesirable outcomes.

^{iv} The distinction between ‘absolute’ and ‘relative’ levels of capability here is essentially that between absolute economic size (measured in terms of ‘capable’ GDP), and relative wealth (GDP per capita).

^v ‘This, then, is what the just is – the proportional; the unjust is what violates the proportion.’ *Nicomachean Ethics*, Book V

Parties in proportion to their responsibility/capability shares,ⁱ which then become the ‘fair share’ to be shouldered by a Party in light of its responsibility and (absolute) capability.

As a corollary – analogous to the above-mentioned leadership conclusion – one can then adopt the criterion that **a (COP) decision of Parties is compatible with Art. 3.1** if the relevant (economic) burdens of the decision are shared in proportion to Parties’ responsibilities/capabilities, or rather **if no one is expected to take on more than their fair share of the burdens as defined by their responsibilities/capabilities shares** (so as not to exclude the voluntary shouldering of additional burdens).

How would our hypothetical draft ETS decision fare under this approach? To discuss this, we need to have some idea of how the relevant costs would be distributed among Parties. This is not easy, but there is data available which could be used as a reasonable proxy: a September 2011 presentation by the European Commission to the ICAO Council contains a figureⁱⁱ depicting the distribution of the aviation emissions that are covered by the ETS, differentiated in terms of the ‘nationality of the operators’ (shown here as Figure 1).

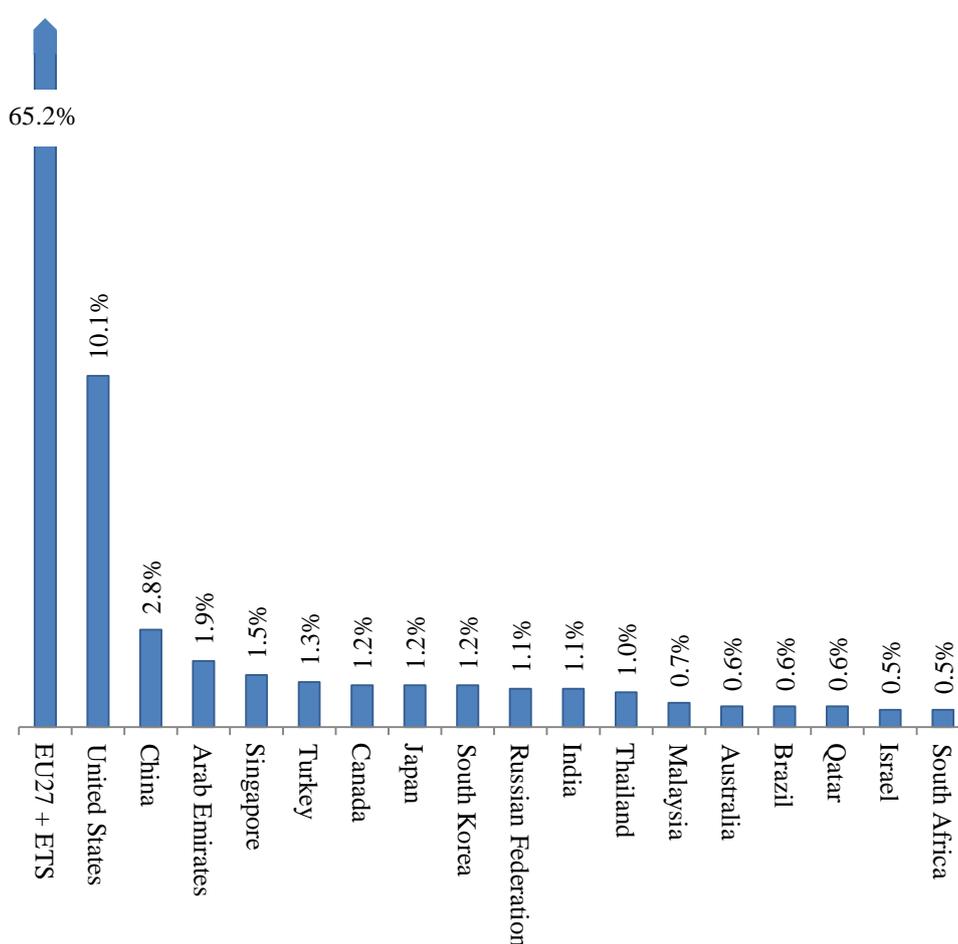


Figure 1. Aviation Emissions covered by the EU ETS by Nationality of Operator

ⁱ In order to use a single scale of reference, one might wish to use (geometric) means of the relevant capability and responsibility shares for that purpose.

ⁱⁱ [3:41]

By far the largest share of aviation emissions covered by the scheme is produced by member states' carriers (65.2 per cent), followed by American (10.1 per cent), and Chinese (2.8 per cent) carriers. The smallest share depicted in the Figure is that of South African carriers (0.5 per cent).ⁱ Given that the scheme being assessed involves a flat percentage reduction of these emissions, *these shares can be used as a reasonable proxy for the (shares in the overall) burden/effort* that Parties would be asked to cover under our hypothetical decision.

	(A) <i>E/B</i>	(B) <i>DR</i>	(C) <i>RC</i>	(D) <i>DR/RC</i>	(E) <i>BR</i>	(F) <i>Relevant Incidence</i>	
						(F.1)	(F.2)
EU27 ETS +	65.2%	20.1%	24.1%	22.0%	2.0	-43.2%	n/a
US	10.1%	25.6%	22.2%	23.9%	-2.4	+	n/a
China	2.8%	6.4%	14.0%	9.5%	-3.4	+	+
UAE	1.9%	0.3%	0.2%	0.2%	7.1	-1.7%	n/a
Singapore	1.5%	0.1%	0.3%	0.1%	10.4	-1.4%	n/a
Turkey	1.3%	0.5%	1.0%	0.7%	0.7	-0.6%	-0.6%
Canada	1.2%	2.9%	1.9%	2.4%	-2.0	+	n/a
Japan	1.2%	2.8%	7.0%	4.5%	-3.7	+	n/a
South Korea	1.2%	0.6%	1.9%	1.1%	0.1	-0.1%	n/a
Russia	1.1%	7.3%	2.7%	4.4%	-4.0	+	+
India	1.1%	0.3%	3.3%	1.0%	0.1	-0.1%	-1.1%
Thailand	1.0%	0.8%	0.9%	0.9%	0.2	-0.1%	-0.1%
Switzerland	0.8%	0.1%	0.5%	0.3%	2.1	-0.5%	n/a
Malaysia	0.7%	1.2%	0.5%	0.8%	-1.1	+	+
Australia	0.6%	2.0%	1.2%	1.6%	-2.6	+	n/a
Brazil	0.6%	5.2%	2.7%	3.7%	-6.2	+	+
Qatar	0.6%	0.1%	0.1%	0.1%	6.8	-0.5%	n/a
Israel	0.5%	0.1%	0.3%	0.2%	1.6	-0.3%	n/a
South Africa	0.5%	0.9%	0.9%	0.9%	-1.8	+	+

Legend:		Columns	
Relative Capability Bands			
	High	<i>E/B</i> = Effort/Burden	<i>BR</i> = Burden Ratio
	Mid	<i>DR</i> = Differentiated Responsibility	
	Low	<i>RC</i> = Respective (absolute) Capability	

Table 1. Differentiated Responsibility (DR), Respective Capability (CR), and Burden/Effort Shares

Table 1 lists these burden/effort shares of Parties in column (A), together with their strict responsibility (B), and absolute capability (C) shares – as calculated by the above-mentioned methodologies. The (geometric) mean of these strict responsibility and absolute capability figures (D) can then be used as normative ('fair') responsibility/capability shares in assessing Art. 3.1 compatibility by comparing them to the relevant burden/effort shares (A).

ⁱ Note that there are other countries with carriers covered by the scheme, in particular those listed in Table 2, but their share is smaller than 0.5 per cent.

Not surprisingly, the EU27+ members of the scheme would carry more (approximately twice again) of the burden/effort than would be required under a strict CBDR/RC distribution. As indicated in column (F.1), three of the Parties listed, namely India, Thailand, and South Korea, would carry just

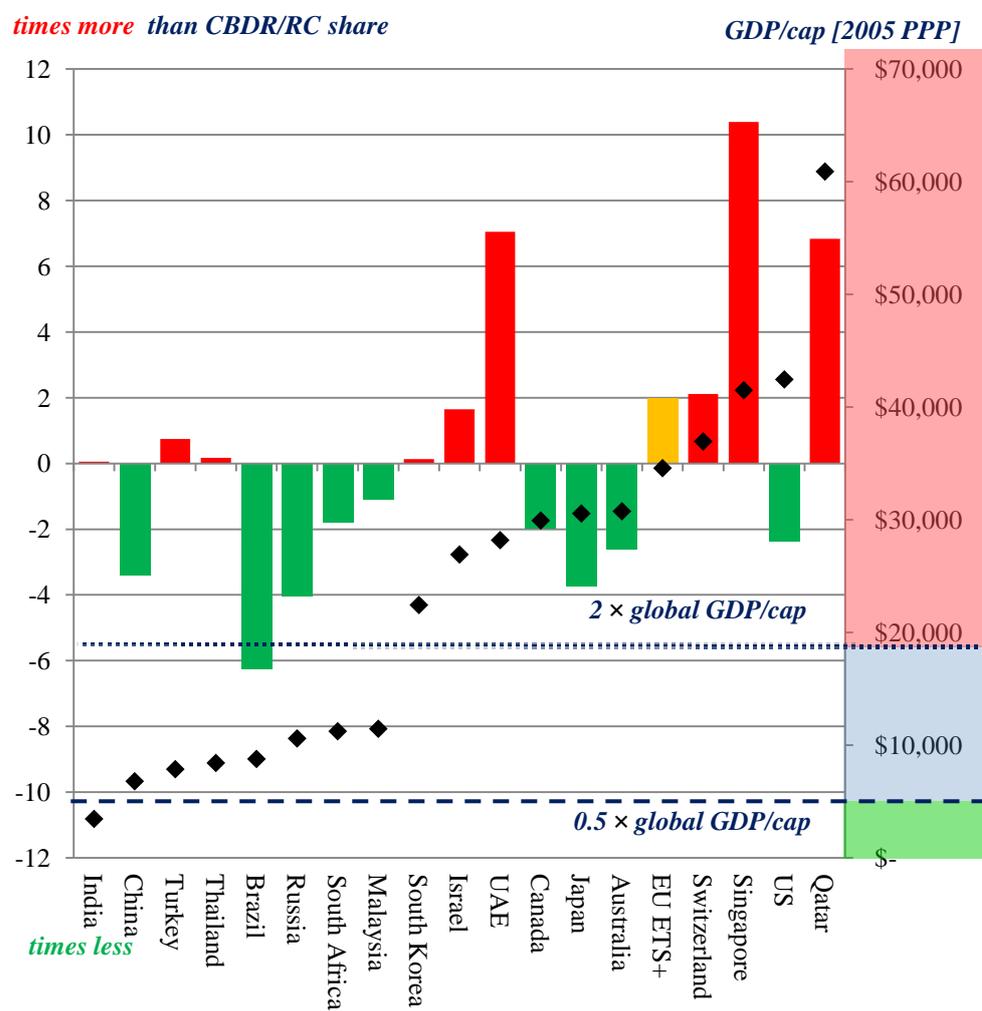


Figure 2. Burden Ratios

about their fair Art. 3.1 share. The majority (9) of them would have a positive incidence ('+'), i.e. would be asked to cover less than their fair share – indeed most of them more than two-times less, including Chinaⁱ and the US. A number of Parties (6), however, would be asked to carry more than their fair share, some of them up to 10 times more, which would have to be addressed to assure Art. 3.1 compatibility.

Figure 2 illustrates these 'burden ratios', that is, how much more (red bars) or less (green bars) the Parties in question are asked to do than what would be their fair CBDR/RC share.ⁱⁱ Graphically, the above-mentioned Art. 3.1 criterion equates compatibility with the absence of red bars. In other words, given the assumptions about relevant imposed economic costs, the hypothetical ETS decision would *strictly speaking not be compatible* with Art. 3.1 under this Aristotelian polluter pays interpretation.

ⁱ China's CBDR/RC share is 9.5 per cent, its share of the emissions covered by the scheme is 2.8 per cent, i.e. 3.4 times less.

ⁱⁱ Formally, these burden ratios (E) are defined as follows (with reference to the columns of Table 1): if $A \geq D$, then $E = (A : D) - 1$; if $A < D$, then $E = D : A$.

However, it would *not be far off* (if one ignores the disproportionate effort/burden of the EU as ‘sponsor’ of the schemeⁱ): it turns out that all it would take to eliminate all the red bars is a shifting of 5.3 per cent of the total effort/burden.ⁱⁱ

(iii) *An Enhanced Operationalization of Art. 3.1 CBDR/RC: Combining class exemption with proportionality*

The Aristotelian model proposed in the preceding sub-section reflects *absolute capability* levels – determined by poverty figures (i.e. the number of people with less than \$2 per day) and the overall size of the economy (GDP)ⁱⁱⁱ – but it does not take into account *relative capabilities*, i.e. the relative wealth of Parties as determined, say, by per capita GDP (depicted by the diamond-shaped values in Figure 2). It stands to reason that both types of capabilities ought to be reflected in operationalizations of Art. 3.1. One way of doing so would be to modify the pure Aristotelian model by introducing *additional differentiations* with respect to (relative) *capability bands*, in order to modify the strict proportionality compatibility criterion introduced above. The idea of the enhancement proposed here is to introduce:

- (a) a *low-capability band* for countries with, say, less than half global GDP per capita, in which proportionality would be replaced by a no-net-incidence criterion.
- (b) a *high-* (relative) *capability band* of Parties with, say, more than twice the global per capita GDP, which would be expected to shoulder efforts/burdens even if they are larger than envisaged by the strict proportionality model.

Parties in the resulting *mid-capability band* would simply continue to use the Aristotelian proportionality model, and as such *would not be expected to take on more than their fair share of the burdens as defined by their responsibilities/capabilities shares*.

This would mean that for a (COP) decision to be Art. 3.1 compatible, *low-capability countries would have to be assured no-net-incidence*, and *mid-capability Parties that their burden/effort is not more than their responsibility/capability levels*, while the situation of *high-capability Parties would not be taken into account*.

Applied to our hypothetical ETS draft decision, this means that the situation of high-capability Parties such as Israel, UAE, Switzerland, Singapore, and Qatar in the high-capability (red, Figure 2) band is not pertinent to the question of Art. 3.1 compatibility. What would be pertinent, however, is the case of mid-capability Turkey which would be asked to shoulder a burden/effort 0.85 times (Figure 2) over and above its fair responsibility/capability share of 0.7% (Table 1).^{iv} This would have to be rectified for the ETS draft decision to be Art. 3.1 compatible, as would be the fact that low-capability countries covered by the scheme (Table 2) are not assured no-net-incidence: given the chosen capability band-widths, this includes India, which would have to shoulder 1.1% of the effort/burden (Table 1).

ⁱ If one includes the EU27+ share, the deviation from Art. 3.1 compatibility would be significant: it would take a transfer of almost half the burden/effort – 48.5 per cent, sum of column (F.1), Table 1 – to achieve compatibility!

ⁱⁱ The sum-total of the negative incidences (excluding the EU figure) listed in column (E.1).

ⁱⁱⁱ ‘Absolute capability’ is determined by GDP minus an ‘allowance’ proportional to the number of poor people.

^{iv} Burden Ratio = 1.3% [Effort proxy share; column (D), Table 1]: 0.7% [DR/RC share; (A)] = 1.85 – 1.

In other words, our hypothetical ETS draft decision would still not be completely compatible with Art. 3.1, but it would again be very close: of the relevant countries listed in Table 1 (mid- and low-capability) only three would need an adjustment of their effort/burden:ⁱ Turkey (−0.6 per cent), Thailand (−0.1 per cent), and India (−1.1 per cent). This means that – allowing for some additional adjustments for the low-capability countries covered by the ETS but not listed in Table 1 (see Table 2), *a shift of between 2 to 3 per cent of the total burden/effort would achieve Art. 3.1 compatibility.*

Angola	Indonesia	Pakistan
Cape Verde	Jordan	Sri Lanka
Egypt	Kenya	Syria
Ethiopia	Moldova	Tuvalu
Georgia	Morocco	Uzbekistan
India	Nigeria	Vietnam

Table 2. Low-income Countries with carriers covered by the ETS

The question is, of course, how such burden/effort shifts could be carried out, given that the burden/effort in question is determined not by an exogenous allocation, but by the activities of the relevant carriers. Given the chosen proxy for burden/effort shares,ⁱⁱ namely the size of emissions covered by the scheme, one way of achieving no-net-incidence for low-capability Parties would be to exempt their carriers from the scheme. However, this might be problematic, because *discriminating between operators on the basis of nationality would be incompatible with the Chicago Convention.*ⁱⁱⁱ Alternatively, one could envisage the use of some form of side-payments,^{iv} but they too are by no means unproblematic.

(iv) *What burden/effort?*

Conceptually, the ‘enhanced’ combination approach to operationalizing Art. 3.1 proposed in the preceding section incorporates the key elements of a just differentiation of efforts/burdens in terms of responsibilities and capabilities. Unlike the traditional ‘firewall’, it actually differentiates in terms of levels/degrees of responsibility/capability, while still providing exemptions based on relative wealth considerations.

However, there remains (at least) one serious obstacle for this enhanced methodology, namely the *identification of the relevant burden/effort*: Even if Parties could agree on the proposed responsibility and (absolute) capability measures, and on the two (relative) capability thresholds separating low-, mid-, and high-capability Parties, it is not self-evident what the relevant effort/burden of Parties should be, i.e. the burden/effort that would be evaluated with respect to Art. 3.1 compatibility in terms of this enhanced methodology.

One option that springs to mind is to identify this burden/effort as the *impact of the scheme on economies at large*, as measured by GDP. However, this would be problematic because it could be

ⁱ See Table 1, column (F.2)

ⁱⁱ Section 2.b.ii.

ⁱⁱⁱ [3:40]

^{iv} See, for example, [8:6].

argued, as mentioned earlier,ⁱ that Art. 3.1 only applies to the *'direct' costs of mitigation burden/effort* of the scheme in question. Moreover, even if one were to identify these total costs as the relevant burden/effort, it would be very difficult to quantify them.

One particular burden that *can* be directly related to the scheme is the *cost incurred by the carriers to achieve compliance*. Yet, while it may be possible to give a reasonably accurate estimate of how much, say, Indian registered carriers might spend in order to comply with the ETS,ⁱⁱ it may not be self-evident how the sum total of these expenditures could be interpreted as the (direct) cost of the scheme *to India*.

Having said this, there is at least one type of cost that *is* directly related to the scheme and which can be interpreted as being linked to governments, namely the amount of money spent by the carriers in purchasing (aviation) credits for the purpose of compliance with the scheme. As this is closely linked with the second of the Indian objections,ⁱⁱⁱ which is the topic of the next main section, let me elaborate on this option in that context and instead turn to give a summary of the current section.

c. CBDR/RC Compatibility: Conclusions

(i) The Scope of Art. 3.1

The focus of the scope analysis was on the issue of 'transferability' of Art. 3.1 differentiations, in particular on whether a general exemption of developing countries from taking on additional (economic) burdens based on Art. 3.1 should/could lead to a general exemption of developing country carriers from the ETS (having assumed, for the sake of argument, the applicability of Art. 3.1).

Art. 3.1 is about differential treatment *of Parties*. In judging distributions of economic burdens/benefits, this means burdens/benefits of *Parties* assessed in terms of *Party* responsibilities/capabilities. While (variants of) CBDR/RC can be applied as a basis for differentiations between sub-national actors such as carriers, it was concluded that these differentiations would have to be in terms of the responsibilities/capabilities of the *carriers*, and *their* economic benefits/burdens. Given that the latter would not necessarily correspond to an Art. 3.1 differentiation of the relevant 'Parties of origin', the conclusion was that Art. 3.1 differentiations of Parties are not automatically transferrable to sub-national entities. In particular, a (no-net-incidence) Art. 3.1 exemption of a Party does not mean that all its sub-national actors should also be (no-net-incidence) exempt.

However, this *non-transferability of differentiations*, it was argued, cuts both ways: a CBDR/RC differentiation between the relevant (sub-national) actors does not itself imply Art. 3.1 compatibility of the scheme. In particular, the differentiation between carriers in the ETS directive, which can be interpreted as taking into account their differentiated capabilities, does not automatically ensure that the scheme would be Art. 3.1 compatible.

(ii) Art. 3.1 Compatibility

A major obstacle to carrying out Art. 3.1 compatibility assessments is the lack of an *agreed* operationalization of the enshrined CBDR/RC recommendation, i.e. the lack of agreed specific criteria on how to carry out such assessments.

ⁱ Section 2.a.iii.

ⁱⁱ Table 3 provides upper bounds of €10m in 2012, rising to €41m in 2020.

ⁱⁱⁱ See [Ind.2] in Section 1.c.

Having assumed that this is to be done with reference to certain relevant economic impacts (burdens/efforts) of the policies/actions under consideration, two options were taken into initial consideration in this section. On the one hand, an (Aristotelian) approach involving the notion of a ‘fair share’ defined in proportion to the relevant levels of responsibility/capability. On the other, the more usual ‘class exemption’ approach, under which a class of Parties is exempted from taking on a burden with reference to Art. 3.1.

In the end, a mixed ‘*enhanced*’ approach – featuring both *Aristotelian proportionality* and *class exemption involving relative capability bands* – was chosen to assess whether the ETS aviation scheme would be Art. 3.1 compatibleⁱ and, if not, to estimate what sort of burden/effort transfers would be required to render it so.

More specifically, the proposed enhanced approach involves a modification of the basic Aristotelian polluter pays model by way of a three-fold division of countries according to their relative capabilities (defined in terms of relative wealth, as measured in GDP per capita):

- *Low-capability* countries are *exempted from sharing the burden/effort*.
- *Mid-capability* countries are expected to shoulder *not more than their responsibility/capability share*.
- *High-capability* countries, finally, *may have to shoulder a share that is larger than their responsibility/capability*.ⁱⁱ

Using a number of simplifying assumptions – not least that the relevant (economic) burden/effort imposed by the scheme would be roughly proportional to the size of the ‘nationally attributed’ aviation emissions covered by the scheme – it was concluded that the scheme *would only require a small additional burden/effort transfer* (less than 3 per cent of the total burden/effort!) for the scheme to become *fully Art. 3.1 compatible* (in the sense defined by the proposed enhanced operationalization of the term).

However, there is one issue, key to this enhanced methodology, that was not addressed in this section, namely *what exactly one means by ‘relevant burden/effort’* (and how to quantify it). Two options were briefly considered: namely the impact of the scheme on the overall economy and the compliance cost to the relevant carriers, both of which turned out to be problematic. The discussion of this issue is taken up in the next part of this analysis, which will also deal with the second of the initially mentioned Indian objections (see [Ind.2], Section 1.c) in relation to what happens to the money spent by developing country carriers in purchasing aviation permits auctioned by ETS members for the sake of compliance.

ⁱ Still bracketing the issue whether the Article is actually applicable or not.

ⁱⁱ The point here is that in certain contexts, including the ETS aviation scheme, the relevant burdens/efforts are given endogenously and – unlike an exogenous allocation – cannot easily be modified. For example, the burden/effort of say Qatar or Switzerland is determined by the flight volume to and from the ETS aviation scheme’s area, and it is likely (see Figure 2) that this burden/effort is larger than the respective responsibility/capability. However, since the Parties in question are in the high-capability band, this fact would not disqualify the scheme from being Art. 3.1 compatible (analogous to the exemption of low-capability Parties from being expected to shoulder their responsibility/capability shares).

3. No Net South–North Flows

The second of the two objections to the inclusion of international aviation into the ETS considered in this Briefⁱ essentially relates to ‘developing country money’ being used to support the budgets of developed countries (the scheme’s member states). More precisely, it is the fact that developing country airlines will be contributing funds through the purchase of ETS permits to ETS member states’ budgets (without there being an obligation to use that revenue for climate change activities in developing countries).

What is the potential size of these flows? Given certain assumption about the ‘business as usual’ emission trends – i.e. assumptions on how the aviation emissions covered by the ETS would behave in the absence of the scheme – and assumptions about the evolution of the ETS permit price, it is possible to estimate maximum annual levels for these flows (see the Technical Appendix). In the case of Indian registered carriers, the flows are estimated to be (considerablyⁱⁱ) less than €10million in 2012 and €41million in 2020. The overall estimates for developing country carriers are €100million and €414million, respectively.

Now, these revenues being *government revenues* is of relevance to the discussion left unresolved in Section 2.b.iv regarding the need to identify relevant burdens of the scheme to UNFCCC Parties. By ending up in government coffers, these revenues clearly become *benefits* (‘negative costs’) *of Parties directly related to the ETS aviation scheme*. Moreover, in the case of low-capability countries – which according to the enhanced CBDR/RC methodology proposed in the preceding section should be *assured no-net incidence* – these revenues could be identified as being equivalent to the relevant cost of their burden/effort which would need to be covered to achieve no-net-incidence. Note that this approach to determining the level of the no-net-incidence costs is supported by the fact that according to the ETS aviation directive, (low-capability) Parties could eliminate the ETS member benefits in question by taking on ‘equivalent measures’ which – in principle – should provide the former with equivalent sums. In short, the ‘equivalent measures’ provision of the ETS directive suggests that ETS members should not see themselves as the owners, but as *the custodians of these auctioning revenues from (low-capability) Parties*.ⁱⁱⁱ

a. Re-routing/repatriation of revenue

India’s actual objection in this context is to the use of these funds *in developed countries*, namely the ETS member states, and the phrasing of the objection (see [Ind.2], Section 1.c) indicates that the issue could be resolved if there were an *obligation to spend the revenues* (on adaptation) in developing countries.

There are a number of ways in which this could happen. For one, the auction proceeds from developing country carriers could be *re-routed to funding agencies* for climate change activities in developing countries. In principle, these could be national agencies in the member states, or multilateral funding entities. However, apart from what has been called the ‘domestic revenue problem’,^{iv} this could have its own political pitfalls which would make it unacceptable to many developing countries, even if it were mandatory. The point is that the (developed country) ETS

ⁱ See [Ind.2] in Section 1.c.

ⁱⁱ See the Technical Appendix section on Maximum Cost and Flow Estimates

ⁱⁱⁱ It is difficult to see in what sense someone can be seen to own something (in the common sense of the term) if they can rightfully be deprived of it (without consent or compensation) by someone else.

^{iv} The problem that any revenue that is collected by the national treasuries is perceived to be national property, and as such may be difficult to re-route anywhere.

members could be tempted to declare the revenue thus re-routed as being part of their contributions to the \$100 billion Cancun finance deal. Furthermore, it would be difficult to take this re-routing of auction revenue as a proxy for establishing the sort of no-net-incidence referred to in the earlier Art. 3.1 compatibility discussion.

As concerns this last point, a more promising option could be to simply '*repatriate*' the respective funds in question to the relevant countries, i.e. to return the auction proceeds from, say, Indian carriers to the Indian government, with the recommendation that the funds be used for climate change purposes. To be clear, the idea is not to return the funds to the developing country carriers, either directly, or via their governments. This is why I believe such repatriations would, in particular, not constitute an infringement of the Chicago Convention.ⁱ

While there is again no guarantee that attempts would not be made to declare the funds thus repatriated as part of the Cancun deal, the odds of success in this case would be slim, particularly if such declarations were to require certification by recipient countries.

However, such repatriations, when carried out without differentiation, could have political pitfalls within the ETS member states. Some of the top 10 developing countries involved in the scheme are actually rather wealthy, say when compared in terms of GDP per capita to the ETS members (see Figure 2). Thus it could, for example, be domestically difficult for a member state government to have funds transferred to, say, Singapore or Qatar, which are wealthier than the member state average, even if the sums in question are trifling (estimated to be significantly less than €30 million/yr). The problem is essentially again the 'domestic revenue problem' which makes it politically difficult to send abroad revenue collected through domestic agencies (regardless of the origin of the revenue). This is why it is important that under the proposed enhanced Art. 3.1 operationalization, such repatriations would *not* be required for high-capability countries.

b. Revenue Retention through Developing Country Auctions

The simplest way to overcome the domestic revenue problem faced by attempts to repatriate the auction revenues from developing country carriers is not to 'send them abroad' in the first place. When the International Air Passenger Adaptation Levy was first presented at the 2009 ecbi Oxford Fellowships,ⁱⁱ considerable concern was felt among a number of the developing country participants about having the levy apply to all passengers regardless of whether they were from developing or developed countries. However, one of the participants proposed a solution which was not only in line with what has been said above, but which also points towards what may well have been the main point of contention, namely a flow of money overseas from developing countries. The suggested solution was that the IAPAL revenue collected from ticket sales in developing countries – note that there was no reference as to the nationality of the purchasers – should be kept in-country for adaptation purposes, while the revenue collected in developed countries should be channelled to the Adaptation Fund.

The analogy in the context of the auctioning of aviation credits to developing country carriers would be to let developing country governments collect the revenue themselves, i.e. to have *developing* countries auction off the relevant ETS aviation credits. There does not seem to be a provision in the ETS directive which would prohibit developing countries from becoming full members of the scheme,

ⁱ Note also that by not returning the auction proceeds to the carriers, the carbon price signal is not undermined.

ⁱⁱ See page 2 in *Climate Change Finance: Proceedings of the 2009 Oxford Fellowship and Seminar*, [www.eurocapacity.org/downloads/2009_ecbi_Oxford_Fellowships_and_Seminar_Report_Final\[1\].pdf](http://www.eurocapacity.org/downloads/2009_ecbi_Oxford_Fellowships_and_Seminar_Report_Final[1].pdf)

but in the current context – avoiding net South–North flows of resources/assuring Art. 3.1 compatibility – there should also be the option of a ‘part-membership’ in the sense of covering only their flights to and from the full ETS member countries. Apart from collecting auction revenue, such part-memberships would have the added advantage of providing hands-on practical experience of how to run an emissions trading scheme, which some developing countries might wish to establish at some point for domestic purposes. Moreover, as (part-) members, developing countries should have at least some say in the governance of the scheme, the lack of which has clearly been one of the main underlying causes of resentment to the scheme.

How much revenue could developing countries expect to generate through such auctions? In the case of full ETS members, the total 32 MtCO₂ of aviation credits designated for auctioning is distributed in proportion to the members’ *attributed aviation emissions*, defined as emissions of departing flights and flights arriving from outside the full member countries. In the case of part-members, the equivalent should be the emissions of all the flights leaving with a destination in one of the full member countries. For the present purposes, a reasonable proxy for this is the total of all emissions associated with flights to and from the full member countries by the carriers registered in the developing country in question. This means 3.5 MtCO₂ per annum for the top 10 aviation emission developing countries, with India at 350 ktCO₂. The revenue that could be generated through the auctioning of these permits is estimated to be €60million (€6million for India) in 2012, to €123million (€12million for India) in 2020 for the top 10 developing countries.ⁱ

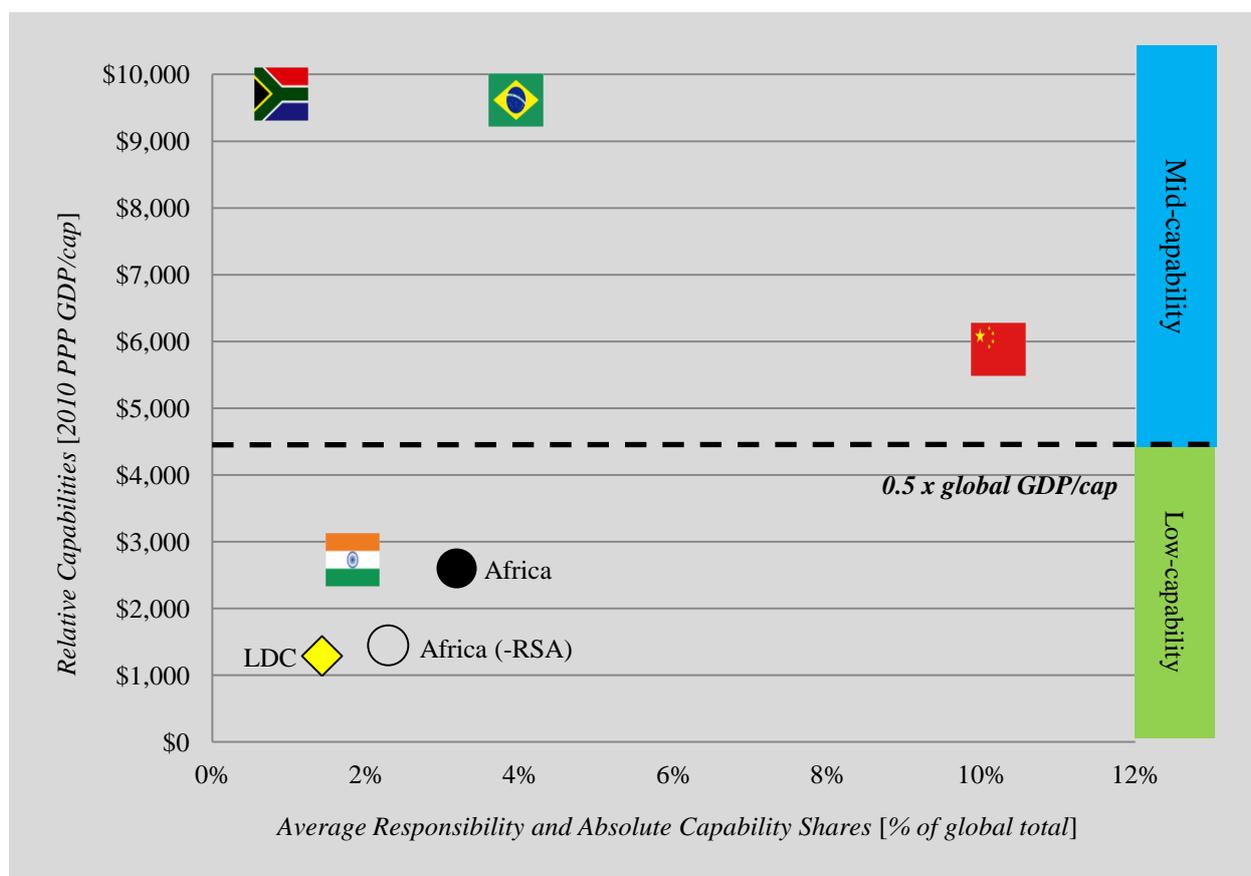


Figure 3. Current Responsibilities and Capabilities

ⁱ See Table 4, Technical Appendix.

To be sure, given the projections of how many permits developing country carriers might need to purchase to achieve compliance,ⁱ there is no guarantee that these auctions would assure no net incidence. Indian carriers, for example, may need purchase up to 1.2 MtCO₂ in 2020 to achieve compliance, over three times more than the permits allocated to India for auctioning. For this reason, it would be appropriate to level the ETS playing field regarding permits (CERs) generated in *low-capability developing countries* through the CDM, and to allow low-capability developing country carriers to use CERs generated in their home countries to count against compliance.

At present, the ETS directive allows the use of CERs post 2012 only from LDCs but given the pattern of current responsibilities and capabilities (see Figure 3) the proposed extension would seem to be not unreasonable, particularly given that it would only apply to the aviation sector.

c. No Net South–North Flows: Conclusions

Given the relatively trifling amounts of money involved, the first thing that needs to be recognized in the context of Indian opposition to the inclusion of international aviation in the ETS is that it is seen primarily in terms of *infringements of principles*, and *establishment of precedents*. It is not a coincidence that the Indian objections discussed here were submitted under the heading: ‘Unilateral Trade Measures’, and it stands to reason that the measures proposed here to address the two objections in question will not themselves suffice to allay the Indian concerns without some assurance about avoiding a setting of precedents.

Given this, there are a number of measures that could be employed in order to avoid ETS related ‘net South–North flows’ of funds – i.e. money from developing country carriers being used to support developed country budgets.

- For one, all (developing) countries with carriers under the ETS should be given the option of becoming part-members of the scheme, and be allocated the appropriate amount of aviation permits to be auctioned by them, with the recommendation that the revenue be used for domestic climate change activities.
- Second, low-capability countries (Table 2) which do not wish to participate in the ETS in this manner should be transferred the money spent by their carriers on purchasing aviation permits from the auctioning ETS member countries.
- Third, carriers from low-capability developing country should be permitted to use CERs generated in their home countries for ETS compliance, even after 2012.

As to the legal status of these conclusions, that obviously depends on the question which we have deliberately bracketed in this discussion, namely whether Art. 3.1 does or does not apply to the EU ETS aviation decision. Not being an expert on these matters, I would like to refer to a forthcoming articleⁱⁱ by Joanne Scott and Lavanya Rajamani in the *European Journal of International Law* in which this particular issue is analysed in considerable detail.

ⁱ See Table 3, Technical Appendix.

ⁱⁱ [9]

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Technical Appendix: Aviation in the ETS

a. Allocationsⁱ

The baseline for the aviation sector under the ETS is the average annual emissions for the period 2004–6 (221.4 MtCO₂). It is projected that under ‘business as usual’, the emissions would rise between 63 per cent and 88 per cent (over the baseline level) by 2020. For the period between 2012 and 2020, the scheme will move from one cap to another, tighter, cap:

- 2012 cap: 97 per cent of baseline = 215 MtCO₂
- 2013–20 cap: = 95 per cent of baseline = 210 MtCO₂/yr

The equivalent number of emission permits will be made available under the ETS, 85 per cent to be ‘grandfathered’ (allocated for free to the carriers in proportion to their baseline emissions) and 15 per cent to be put up for general ETS auction (32.2 Mt in 2012, 31.6 Mt 2013 to 2020). Aviation can use allowances from other sectors and international credits for compliance. It is suggested that the auction revenue is used for climate change mitigation and adaptation, and that some of it should be used in developing countries. However, this recommendation is non-binding.

b. Exemptions

Ninety-eight ICAO States have no commercial aircraft operators covered by the scheme: the majority of these (75) because they do not have commercial operators to the member states of the scheme, the remaining 23 because the carriers fall under a ‘*de minimis*’ exemption clause: *Commercial air transport operators with around 2 flights or less per day, or less than 10 000 tonnes of CO₂/year are exempted from the scheme.*ⁱⁱ

c. Maximum Cost and Flow Estimates

While it is very difficult, if not impossible, to estimate how much carriers will spend on complying with the ETS, it is possible to make some projections as to the maximum (gross) costs of compliance, because of the fact that compliance can be achieved solely by purchasing ETS permits. Table 3 lists the key parameters needed in such projections, for the scheme as a whole, as well as for certain developing country carrier aggregates. The first part of the Table is used to estimate the projected overall emission gap (EG) between the annual ETS aviation caps and some business as usual (BAU) projections, taken from the UK *Impact Assessment of Second Stage Transposition of EU Legislation to include Aviation in the European Union Emissions Trading System (EU ETS)*,ⁱⁱⁱ beginning in 2012 with 53 MtCO₂ and raising to 106 MtCO₂ in 2020. Based on the EC estimates of percentage shares of aviation emissions covered by the EU ETS by nationality of operator (see Figure 1 and Table 1 above), these total emission gaps are divided between the listed (top 10) developing countries, and monetized with price assumption adopted in the *Update short term traded carbon values for UK public policy appraisal*^{iv} (with an exchange rate of £1 = €1.20).

ⁱ Source: [3]

ⁱⁱ [3:23] Also exempt: Small aircraft of less than 5 700 kg; State, military, rescue, emergency, VFR, and training flights.

ⁱⁱⁱ www.decc.gov.uk/assets/decc/Consultations/euetsaviationsecondstage/909-ia-second-stage-transposition-euets.pdf

^{iv} www.decc.gov.uk/assets/decc/11/cutting-emissions/carbon-valuation/3137-update-short-term-traded-carbon-values-uk.pdf

Given these assumptions the total *maximum* (gross) cost incurred by the carriers of these 10 developing countries would be €100m in 2012, raising to €414m in 2020. It is important to keep in mind that these figures are maxima, because carriers may find cheaper ways to comply than exclusively through the purchase of permits. They are also gross costs. Indeed the EC projects that there will be no net cost increases to airlines – as costs of allowances that are not distributed for free will be passed on to customers: with full pass through, the EC estimates a potential increase in total airline revenue (up to €20bn over the 2012 to 2020 period).ⁱ

		2012	2013	2014	2015	2016	2017	2018	2019	2020
<i>Total Annual Emission Gaps: EG = BAU – Free Allocations</i>										
Aviation cap	MtCO ₂	214	210	210	210	210	210	210	210	210
Free allocation	MtCO ₂	182	179	179	179	179	179	179	179	179
BAU emissions	MtCO ₂	235	241	248	253	258	264	271	277	285
Total EG	MtCO ₂	53	63	69	74	80	85	92	99	106
EGs T10 DCs	MtCO₂	5.9	7.0	7.7	8.3	8.9	9.6	10.3	11.1	11.9
<i>Max permit purchase costs/potential aviation auction expenditures</i>										
<i>Total scheme</i>	€ billion	0.9	1.2	1.4	1.7	2.0	2.2	2.4	3.1	3.7
<i>Top 10 Developing Countries</i> [€ millions]										
China	2.8%	25	34	39	47	56	60	68	86	103
UAE	1.9%	17	23	27	32	38	41	46	58	70
Singapore	1.5%	13	18	21	25	30	32	36	46	55
India	1.1%	10	13	16	19	22	24	27	34	41
Thailand	1.0%	9	12	14	17	20	22	24	31	37
Malaysia	0.7%	6	8	10	12	14	15	17	22	26
Brazil	0.6%	5	7	8	10	12	13	15	18	22
Qatar	0.6%	5	7	8	10	12	13	15	18	22
Israel	0.5%	4	6	7	8	10	11	12	15	18
South Africa	0.5%	4	6	7	8	10	11	12	15	18
Top 10 DCs	11.2%	100	135	158	189	224	241	271	345	414

Table 3. Estimates of Maximum Costs and ‘South–North Flows’

However, the main reason for including these developing country figures in this discussion is that they are also caps on the flows from developing country airlines to ETS member state budgets, objected to in [Ind.2] (see Section 1). Again, it is worth noting that these flows are likely to be (considerably) less, not only because carriers may decide to involve measures other than purchasing ETS permits, but also because if they purchase, they may decide to do so not through the aviation permit auctions, but from other sources (such as CDM projects).

d. Auction Potentials

The allocation of the aviation permits to member countries for auctioning is proportional to the member countries’ ‘attributed aviation emissions’ which are the emissions from all non-exempted flights *which depart from an aerodrome situated in the territory of a Member State and those which arrive in such an aerodrome from a third country.*

ⁱ [3]

The first part of Table 4 lists the maximum total annual amount of auctioning revenue for the duration of the scheme (with the same monetizing assumption as for the figures in Table 3), namely €0.5billion in 2012, raising to €1.1billion in 2020.

ETS		2012	2013	2014	2015	2016	2017	2018	2019	2020
Aviation cap	MtCO ₂	214	210	210	210	210	210	210	210	210
Total auctionable aviation permits	MtCO ₂	32	32	32	32	32	32	32	32	32
Aviation Auction Revenue										
Total scheme	€ billion	0.5	0.6	0.6	0.7	0.8	0.8	0.8	1.0	1.1
Top 10 Developing Countries [€ millions]										
	<i>i</i>									
China	2.8%	15	17	18	20	22	22	23	28	31
Arab Emirates	1.9%	10	12	12	14	15	15	16	19	21
Singapore	1.5%	8	9	10	11	12	12	12	15	16
India	1.1%	6	7	7	8	9	9	9	11	12
Thailand	1.0%	5	6	6	7	8	8	8	10	11
Malaysia	0.7%	4	4	5	5	6	6	6	7	8
Brazil	0.6%	3	4	4	4	5	5	5	6	7
Qatar	0.6%	3	4	4	4	5	5	5	6	7
Israel	0.5%	3	3	3	4	4	4	4	5	5
South Africa	0.5%	3	3	3	4	4	4	4	5	5
Top 10 DCs	11.2%	60	68	72	81	89	89	93	110	123

Table 4. Estimates of Revenue from Auctioning Aviation Permits

If developing countries were to participate as ‘part-members’ in the scheme, then they would have to be allocated an equivalent amount of permits for auctioning, and it would seem reasonable in that context to take into consideration only the flights to and from the full ETS members. In other words, the *emissions attributed to, say, India* would be the *emissions of all the flights departing from India to any of the full members of the scheme*. Note that this would include not only the flights by Indian registered carriers, but also foreign registered flights from India into the full-member ETS. Assuming that there is, roughly, parity between the relevant Indian and foreign flights allows us to once more take the figures calculated for the national carrier shares (Figure 1 above) as the shares of relevant aviation emissions attributed to part-members. This means the ‘top 10’ developing country part-members would collectively receive around 11 per cent of the auctionable aviation based permits, that is around 3.5 MtCO₂/yr (amounting, under the assumed conditions, to around €60m in 2020 and €123million in 2020).

e. The Permit Gap

The problem with this approach to redressing the net-flow problem is, of course, that it may not redress it completely, since the total number of permits needed by the carriers of these countries to comply could be as high as 12 MtCO₂,ⁱ thus leaving a potential shortfall of 8.5 MtCO₂ at a 2020 value of €300million. In that context, it might be appropriate to allow for these shortfalls to be sourced in

ⁱ 11.2% of the 2020 emission gap of 106 MtCO₂ (see Table 3).

the developing countries in question. To be more precise, in order to promote the no-net-incidence aspect of this scheme, a revision of the current restrictive ETS practice of admitting CERs only from LDCs should be introduced. This would allow developing country carriers, also, to use CERs generated in their countries of origin against ETS compliance. In the case of India, this could mean up to 350 ktCO₂ of Indian CERs generated annually (with an estimated value ranging from €6million in 2012 to €12million in 2020), which would be a small amount relative to the CERs that are expected to be generated up to the end of 2012.ⁱ

ⁱ Volume of CERs until 2012: 410 685 kCERs. Source: <http://cdmpipeline.org/cdm-projects-region.htm>