

From confrontation to collaboration? CBDR and the EU ETS aviation dispute with developing countries

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I Introduction²

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 article 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 United Nations Framework Convention on Climate Change (UNFCCC).³ 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.

II The ETS aviation dispute

II.1 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’, ie 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 estimated⁴ that the scheme will cover around 60 per cent of international aviation emissions.

II.2 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 press accounts which follow.

[T]he 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

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3 References to Article 3.1 are generally meant to be references to the principle of CBDR/RC as referred to in United Nations Framework Convention on Climate Change (UNFCCC) 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.’

4 Joanne Scott and Lavanya Rajamani ‘EU Climate Change Unilateralism: International Aviation in the European Emissions Trading Scheme’ (2011) http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1952554, 1.

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 2009.⁵

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 non-compliance 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 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.⁶

This article considers some of the concerns and objections that have been put forward by developing countries with the aim of gaining a better understanding of them and suggesting practical options for compromise.

II.3 The Indian submission

In October 2011, the Government of India submitted a number of proposals to the Conference of Parties (COP) of the UNFCCC which included a very clear and succinct statement of some of its objections to the treatment of international aviation in the ETS, under the heading 'Unilateral Trade Measures'.

The inclusion of international aviation in 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'.⁷ The submission lists two distinct reasons for this.

5 Raz Godelnik 'European Carbon Regulation for Airlines Takes Off' *Triple Pundit* (4 January 2012) www.triplepundit.com/2012/01/european-carbon-regulation-after-overcoming-worldwide-resistance/comment-page-1/.

6 James Kanter 'Europe Stands Firm on Airline Emissions, Raising Fears of a Trade Conflict' *New York Times* (5 January 2012) www.nytimes.com/2012/01/06/business/global/eu-toughens-stance-in-airline-carbon-dispute.html?_r=2.

7 Proposals by India for inclusion of additional agenda items in the provisional agenda of the seventeenth session of the Conference of the Parties FCCC/CP/2011/INF.2/Add.1 (7 October 2011) 6.

[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 CBDR 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.⁸

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 governments⁹ and will be the focus of the following discussion.

III CBDR/RC compatibility

UNFCCC Article 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 component¹⁰ 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 Article 3.1 because it only exempts some (a limited number), but not all¹¹ developing country carriers.

8 *ibid.*

9 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).

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

11 [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,

III.1 The scope of Article 3.1

The issue of whether the inclusion of aviation is compatible with the Article 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’.¹²

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:

- [Q1] Are (unilateral) decisions by UNFCCC Parties subject to CBDR/RC (as formulated in Article 3.1)?
- [Q2] Does (Article 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 [Q1], 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”’.¹³ It would hence not seem unreasonable to see this as an implicit acknowledgment on the part of the EU that the Article 3.1 version of CBDR does indeed cover its ETS aviation decision. More recently, in a presentation to the Council of the International Civil Aviation Organization (ICAO), 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.

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 per cent, Africa 71 per cent (sub-Saharan Africa 80 per cent), FCCC 51 per cent, Annex I 3 per cent, non-Annex I 63 per cent, G77+China 68 per cent (see also the Technical Appendix).

¹² Scott and Rajamani ‘EU Climate Change’ (n 4) 13.

¹³ *ibid* 19.

- Conclusion: The inclusion of aviation under the ETS is consistent with CBDR.¹⁴

As mentioned above, there can be no doubt that Article 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 Article 3.1 CBDR, thus answering [Q1] in the affirmative. Indeed, the thrust of the syllogism is not about [Q1], but about [Q2]: it is not meant to demonstrate that Article 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 the article.¹⁵

With regard to [Q1], 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 Article 3.1*. While I believe this to be a reasonable view¹⁶ 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.

III.1.1 A hypothetical ‘Article 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 ICAO¹⁷ “in the form of a draft decision (ETS draft decision), and is to be assessed as to its compatibility with Article 3.1 CBDR/RC.”¹⁸ This allows us

¹⁴ Artur Runge-Metzger European Commission – DG-CLIMA ‘Aviation and Emissions Trading’ (ICAO Council Briefing 29 September 2011) http://ec.europa.eu/clima/policies/transport/aviation/documentation_en.htm. The argument is taken from slide 40 which, while not explicitly stating this conclusion, is headed ‘Why is EU ETS consistent with CBDR?’.

¹⁵ 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’.

¹⁶ 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* “ie without reference to COP decisions.

¹⁷ 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 recognises 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’. Jos Delbeke Keynote Speech on ‘Getting global aviation climate measures off the ground’ (7 February 2012) http://ec.europa.eu/clima/news/articles/news_2012020801_en.htm, 6.

to bracket/side-step a number of contentious issues “ not only the applicability of Article 3.1, but also issues arising from the ‘unilateral’ nature of the actual EU directive (eg the question of extra-territoriality).

This, in turn, permits us to turn our focus on the issue raised in [Q2], namely whether Article 3.1 requires an exemption of *all* developing country 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 Least Developed Countries (LDCs) Group to COP 14 in 2008.¹⁹

III.1.2 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 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 \$8 bn and \$10 bn 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.²⁰

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 whether passengers from developing countries should be exempted from paying the levy because of CBDR/RC?

18 As mentioned earlier, there is no dispute that the articles of the Convention apply to COP Decisions.

19 Maldives on Behalf of the Least Developed Countries ‘International air passenger adaptation levy’ (submission received 13 December 2008) in ‘Ideas and proposals on the elements contained in paragraph 1 of the Bali Action Plan: submissions from Parties’ (FCCC/AWGLCA/2009/MISC.1) 59–61.

20 *ibid* 59. Emphasis in original.

111.1.3 ‘Article 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 Oxford Climate Policy (OCP) study entitled ‘Differentiating (Historic) Responsibilities for Climate Change’.²¹ The motivation for this study was to flesh out the idea of CBDR, as used in Article 3.1, with a view to gaining concrete insights into *how the 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 – ie responsibilities of states/regional economic integration organisations. 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 citizen 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’, operationalised 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 Article 3.1 differentiations of Parties.

Note, incidentally, that even if one looks at individual responsibilities/capabilities for what the OCP study looked at, namely average global temperature rise, these 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 to their citizens (or airlines, for that matter).

As concerns [Q2], the conclusion must therefore be that while it is possible to differentiate carriers on grounds

21 Benito Müller, Niklas Höhne and Christian Ellermann ‘Differentiating (Historic) Responsibilities for Climate Change: Summary Report’ (OCP October 2007) <http://www.oxfordclimatepolicy.org/publications/documents/DifferentiatingResponsibility.pdf>.

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 ETS²² 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 Article 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 jeopardise the economies of poor tourist economies. If, as proposed, the scheme is introduced by the COP²³ then, it is argued, this burden would be incompatible with Article 3.1, regardless of the scheme’s compatibility with the ‘in-flight’ version of CBDR/RC. To be sure, it could be argued that such ‘impacts of response measures’ are not actually covered by Article 3.1, ie that it *only applies to the ‘direct’ cost of mitigation burden/effort sharing measures* (and possibly to *adaptation costs*²⁴). However, 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 Article 3.1.

22 See Technical Appendix.

23 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.

24 By virtue of the art 3.1 reference to ‘adverse effects of climate change’.

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 Article 3.1 compatible.

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

III.2 Article 3.1 CBDR/RC compatibility

The problems in establishing whether a decision (to protect the climate system) is compatible with the Article 3.1 CBDR/RC recommendation²⁵ are first and foremost due to *the failure of the article to specify 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 operationalisation 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).

111.2.1 The class exemption approach

One approach to operationalising Article 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.²⁶

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

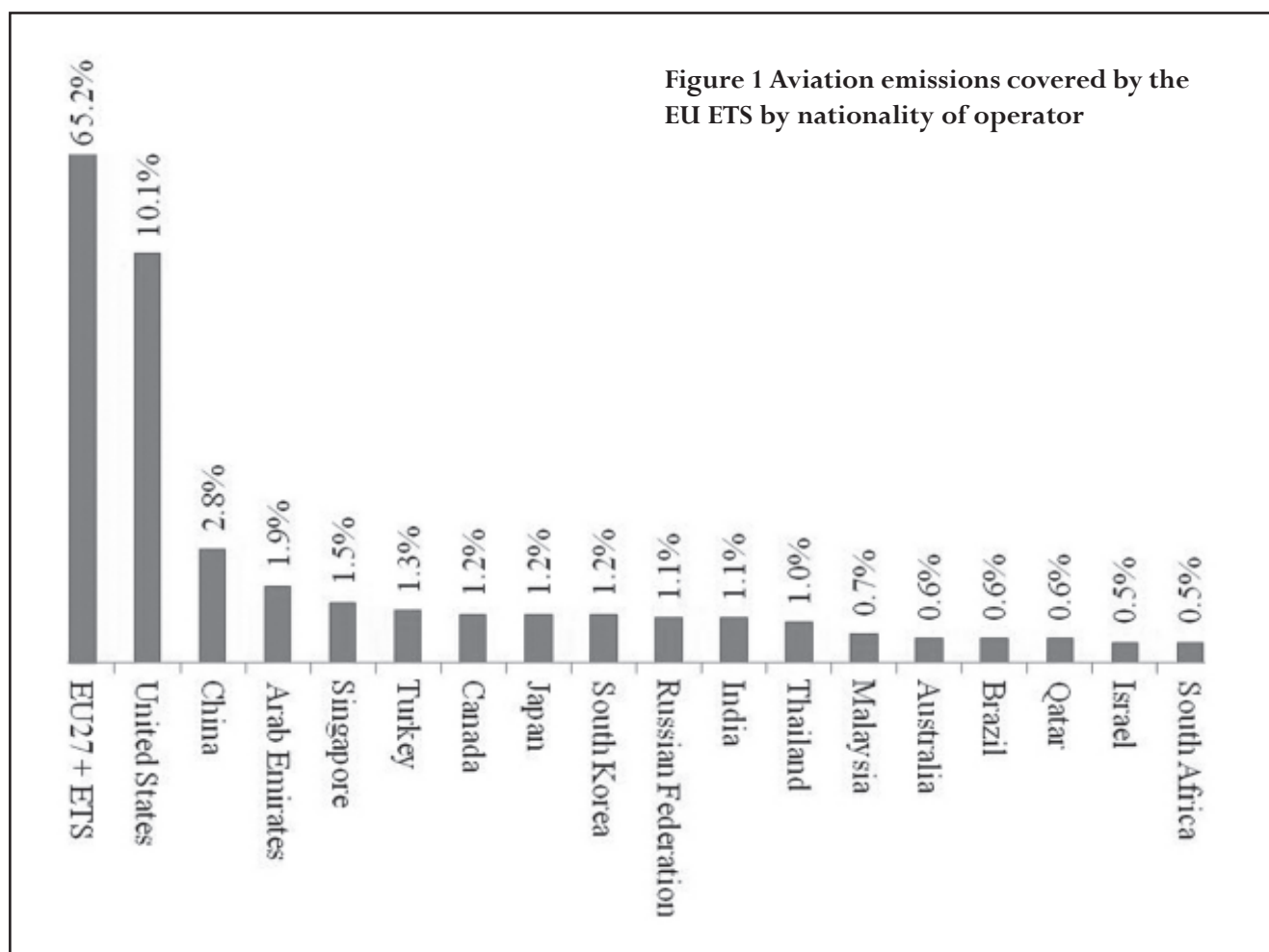
25 ‘The Parties should protect the climate system ..., in accordance with their common but differentiated responsibilities and respective capabilities.’ Note that because this is only a recommendation (*should*) it cannot really be read as an obligation, which is why it is more appropriate to talk of ‘compatibility’ as opposed to ‘compliance’.

26 Probably the best known application of this firewall operationalisation 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 ‘[n]ot introduce any new commitments for Parties not included in Annex I’.

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. In fact, it may well be *necessary to consider such additional more fine-grained Article 3.1 operationalisations* “ given the clear objections by many developed countries, not least the US,²⁷ to such fire-wall interpretations during the recent Durban Platform negotiations “if one wishes to establish an Article 3.1 compatible architecture on the Durban Platform.”²⁸

III.2.2 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 sense²⁹) to deal with, climate change and its impacts, we can operationalise Article 3.1 CBDR/RC on the basis of the ‘polluter pays’ idea and Aristotle’s definition of distributive justice,³⁰ by requiring that the *relevant burden should be shared among Parties in proportion to their responsibility/capability shares*,³¹ which then become the ‘fair share’ to be shouldered by a Party in



27 ‘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 I will tell you what our general orientation was, which is 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, US Special Envoy for Climate Change, Post Durban Press Briefing (13 December 2011).

28 It is important to keep in mind the non-binding character of art 3.1 (ie 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 operationalisation 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.

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 Article 3.1 if the relevant (economic) burdens of the decision are shared

29 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).

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

31 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.

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).



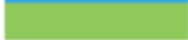
How would our hypothetical draft ETS decision fare under this approach? To discuss this, we need to have some idea of how the relevant costs would be distributed among Parties. This is not easy, but there is data available which could be used as a reasonable proxy: a September 2011 presentation by the European Commission to the ICAO Council contains a figure³² depicting the distribution of the aviation emissions that are covered by the ETS, differentiated in terms of the 'nationality of the operators' (shown here in Figure 1 page 204).

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).³³ 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.

Table 1 below 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

Table 1 Differentiated responsibility (DR), respective capability (CR) and burden/effort shares

	(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		<i>E/B</i> = effort/burden	
	High	<i>DR</i> = differentiated responsibility	<i>BR</i> = burden ratio
	Mid		
	Low		
		<i>RC</i> = respective (absolute) capability	

32 Runge-Metzger (n 14) slide 41.

33 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.

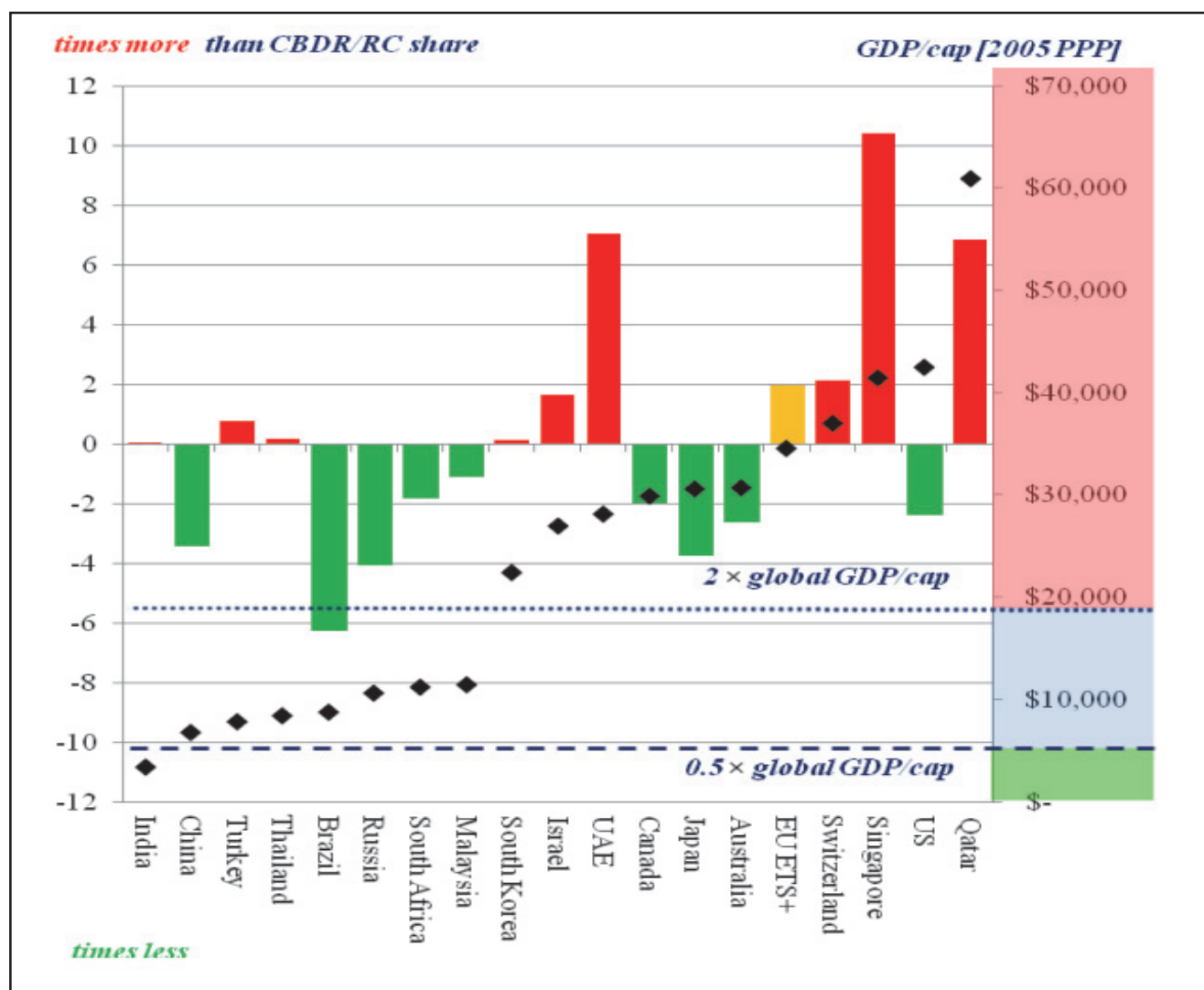
(D) can then be used as normative (fair) responsibility/capability shares in assessing Article 3.1 compatibility by comparing them with the relevant burden/effort shares (A).

Not surprisingly, the EU27+ members of the scheme would carry more (approximately twice as much again) of the burden/effort than would be required under a strict CBDR/RC distribution. As indicated in column (F1), three of the Parties listed, namely India, Thailand and South Korea, would carry just about their fair Article 3.1 share. The majority (9) of them would have a positive incidence (+), ie would be asked to cover less than their fair share “ indeed most of them more than twice less, including China³⁴ and the US. A number of Parties (six), 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 Article 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.³⁵ Graphically, the above-mentioned Article 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 Article 3.1 under this Aristotelian polluter pays interpretation. However, it would *not be far off* (if one ignores the disproportionate effort/burden of the EU as ‘sponsor’ of the scheme³⁶): it turns out that all it would take to eliminate

Figure 2 Burden ratios



34 China’s CBDR/RC share is 9.5 per cent, its share of the emissions covered by the scheme is 2.8 per cent, ie 3.4 times less.

35 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 $E = D : A$.

36 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!

all the red bars is a shifting of 5.3 per cent of the total effort/burden.³⁷

111.2.3 An enhanced operationalisation of Article 3.1

CDDR/RC: combining class exemption with proportionality

The Aristotelian model proposed in the preceding subsection reflects *absolute capability* levels “determined by poverty figures (ie the number of people with less than \$2 per day) and the overall size of the economy (GDP)³⁸” but it does not take into account *relative capabilities*, ie 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 operationalisations of Article 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:

- (i) 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
- (ii) 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 Article 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 Parties such as Israel, UAE, Switzerland, Singapore and Qatar in the high-capability (red, Figure 2) band is not pertinent to the question of Article 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 per cent (Table 1).³⁹ This would have to be rectified for the ETS draft decision to be Article 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 per cent of the effort/burden (Table 1).

In other words, our hypothetical ETS draft decision would still not be completely compatible with Article 3.1, but it would again be very close: of the countries listed in Table 1 that are relevant (mid- and low-capability) only three would need an adjustment of their effort/burden:⁴⁰ 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 Article 3.1 compatibility*.

Table 2 ‘Low-capability’ countries with carriers in the ETS

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

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,⁴¹ 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.⁴² Alternatively, one could envisage the use of some form of side-payments,⁴³ but they too are no means unproblematic.

³⁷ The sum-total of the negative incidences (excluding the EU figure) listed in column (E 1).

³⁸ ‘Absolute capability’ is determined by GDP minus an ‘allowance’ proportional to the number of poor people.

³⁹ Burden Ratio = 1.3 per cent [Effort proxy share; column (D), Table 1]: 0.7 per cent [DR/RC share; (A)] = 1.85 “1”.

⁴⁰ Table 1, column (F 2).

⁴¹ Section III.2(ii).

⁴² Runge-Metzger (n 14) slide 40.

⁴³ For example, see Delbeke (n 17).

III.2.4 What burden/effort?

Conceptually, the ‘enhanced’ combination approach to operationalising Article 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, ie the burden/effort that would be evaluated with respect to Article 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 argued, as mentioned earlier,⁴⁴ that Article 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,⁴⁵ 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 sort of cost that is directly related to the scheme and which can be interpreted as 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 objections⁴⁶ 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.

⁴⁴ Section III.1(iii).

⁴⁵ Table 3 provides upper bounds of €10 million in 2012, rising to €41 million in 2020.

⁴⁶ See [Ind 2] in Section II.3.

III.3 CBDR/RC compatibility: conclusions

III.3.1. The scope of Article 3.1

The focus of the scope analysis was on the issue of ‘transferability’ of Article 3.1 differentiations, in particular on whether a general exemption of developing countries from taking on additional (economic) burdens based on Article 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 Article 3.1).

Article 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 Article 3.1 differentiation of the relevant ‘Parties of origin’, the conclusion was that Article 3.1 differentiations of Parties are not automatically transferrable to sub-national entities. In particular, a (no-net-incidence) Article 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 Article 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 Article 3.1 compatible.

III.3.2 Article 3.1 compatibility

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

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 Article 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 Article 3.1 compatible,⁴⁷ 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.⁴⁸

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!) to become fully Article 3.1 compatible (in the sense defined by the proposed enhanced operationalisation 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, or 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 II.3) about what happens to the money spent by developing country carriers

purchasing aviation permits auctioned by ETS members for the sake of compliance.

IV No net South–North flows

The second of the two objections to the inclusion of international aviation into the ETS considered in this article⁴⁹ is essentially about ‘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 – ie 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 (considerably⁵⁰) less than €10 million in 2012 and €41 million in 2020. The overall estimates for developing country carriers are €100 million and €414 million, respectively.

Now, these revenues being *government* revenues is of relevance to the discussion left unresolved in Section III.2(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 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

47 Still bracketing the issue whether the article is actually applicable or not.

48 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, 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 (in analogy to the exemption of low-capability Parties not being expected to shoulder their responsibility/capability shares.

49 See [Ind 2] in Section II.3.

50 See the Technical Appendix section on Maximum Cost and Flow Estimates.

51 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.

‘equivalent measures’ provision of the ETS Directive suggests that the ETS members should not see themselves as the owners, but as the custodians of these auctioning revenues from (low-capability) Parties.⁵¹

IV.1 Re-routing/repatriation of revenue

India’s actual objection in this context is to the use of these funds *in developed countries*, viz the ETS Member States, and the phrasing of the objection (see [Ind 2], Section II.3) 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’,⁵² 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 members could be tempted to declare the revenue thus re-routed as being part of their contributions to the \$100 billion Cancún 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 Article 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, ie 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.⁵³

While there is again no guarantee that attempts would not be made to declare the funds thus repatriated as part of the Cancún 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 Article 3.1 operationalisation, such repatriations would *not* be required for high-capability countries.

IV.2 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 IAPAL was first presented at the 2009 European Capacity Building Initiative (ecbi) Oxford Fellowships,⁵⁴ 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, ie 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, but in the current context – avoiding net South–North flows of resources/assuring Article 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

⁵² 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.

⁵³ Note also that by not returning the auction proceeds to the carriers, the carbon price signal is not undermined.

⁵⁴ *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), 2.

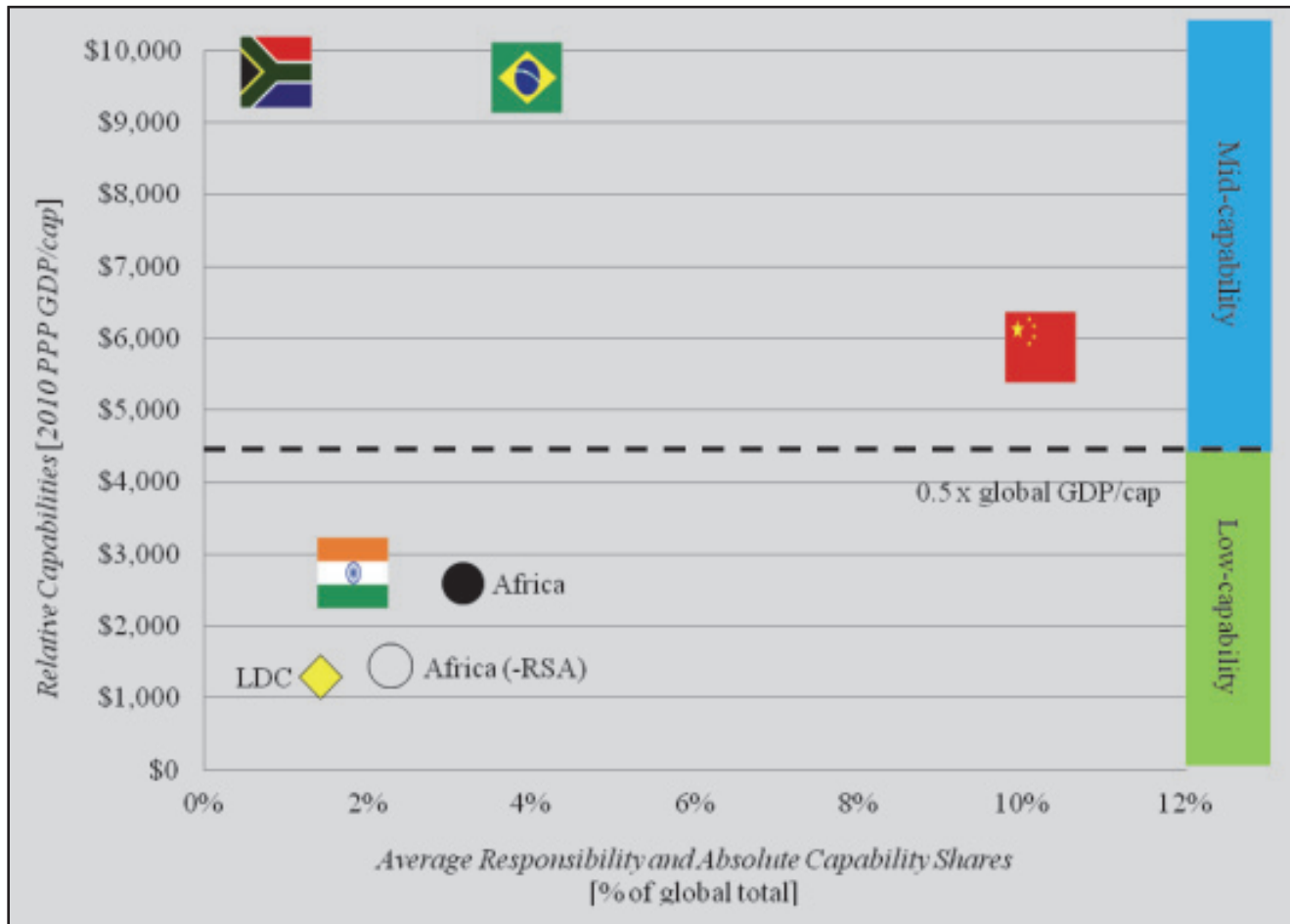
full ETS member countries. Apart from collecting auction revenue, such part-memberships would have the added advantage of providing hands-on practical experience of how to run an emissions trading scheme, which some developing countries might wish to establish at some point for domestic purposes. Moreover, 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 of 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 €60 million (€6 million for India) in 2012, to €123 million (€12 million for India) in 2020 for the top 10 developing countries.⁵⁵

To be sure, given the projections of how many permits developing country carriers might need to purchase to achieve compliance,⁵⁶ 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.

Figure 3 Current responsibilities and relative capabilities



55 See Technical Appendix Table 4.

56 ibid Table 3.

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.

IV.3 No net South–North flows: conclusions

Given the relatively trifling amounts of money involved, the first thing that needs to be recognised 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 – ie money from developing country carriers being used to support developed country budgets.

- First, 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 to use the revenue for domestic climate change activities.
- Secondly, 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.
- Thirdly, 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 Article 3.1 does or does not apply to the EU aviation decision. Not being an expert on these matters, I would like to refer to a forthcoming article by Scott and Rajamani⁵⁷ in which this particular issue is analysed in considerable detail.

57 Joanne Scott and Lavanya Rajamani ‘EU climate change unilateralism’ (2012) 23 *European Journal of International Law* 2 (forthcoming).

Technical appendix: aviation in the ETS

A.1 Allocations⁵⁸

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.

A.2 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 two flights or fewer per day, or fewer than 10,000 tonnes of CO₂/year are exempted from the scheme.⁵⁹

A.3 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

58 Source: Runge-Metzger (n 14).

59 *ibid* slide 23. Also exempt: small aircraft of less than 5700 kg; state, military, rescue, emergency, VFR and training flights.

(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)',⁶⁰ beginning in 2012 with 53 MtCO₂ and rising 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 monetised with price assumption adopted in the 'Updated short term traded carbon values for UK public policy appraisal'⁶¹ (with an exchange rate of £1 = €1.20).

Given these assumptions the total *maximum* (gross) cost incurred by the carriers of these 10 developing countries would be €100 million in 2012, rising to €414 million 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 €20 billion over the 2012 to 2020 period).⁶²

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 II). 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).

Table 3 Estimates of maximum costs and 'South-North flows'

ETS		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 [€ millions]</i>										
		⁶³								
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

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

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

62 Runge-Metzger (n 14).

63 Share of aviation emissions covered by the scheme, by nationality of operator (see Table 1).

A.4 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.

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

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 €60 million in 2012 and €123 million in 2020).

A.5 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 MtCO₂,⁶⁵ thus leaving a potential shortfall of 8.5 MtCO₂ at a 2020 value of €300 million. In that context, it might be appropriate to allow for these shortfalls to be sourced in 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 €6 million in 2012 to €12 million in 2020), which would be a small amount relative to the CERs that are expected to be generated up to the end of 2012.⁶⁶

Table 4 Estimates of revenue from auctioning aviation permits

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]										
	⁶⁴									
China	2.8%	15	17	18	20	22	22	23	28	31
UAE	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

64 *ibid.*

65 11.2 per cent of the 2020 emission gap of 106 MtCO₂ (see Table 3).

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