



for a living planet®

Bunker Finance: a briefing for the High-Level Advisory Group on Climate Change Financing

22 June 2010

Summary

'Bunker finance' – revenues from the international aviation and maritime sectors – attracted considerable attention at COP 15 in Copenhagen as a potential new source of climate change finance.

This paper explains the different options for bunker finance, outlines the status of discussions in other fora, then assesses the options against the criteria published in the terms of reference for the AGF.

It finds that bunker finance could be a valuable, reliable and equitable source of finance, and that a recommendation from the AGF would give a boost to discussions elsewhere, potentially securing a double dividend by also unlocking mitigation packages in two sectors that have so far escaped greenhouse gas regulation.

Options

Aviation

There are three main options – a ticket levy, a fuel tax (or emissions levy) and an Emissions Trading Scheme (ETS), ideally global or near-global, with revenues from auctioned permits used as climate change finance. The International Civil Aviation Organisation has also examined an emissions levy in the past (CAEP 5 and 6, 1998-2001 and 2001-2004 respectively).

Ticket Levy: this idea was proposed by the Maldives on behalf of the group of Least Developed Countries at COP14 in Poznan¹, to raise revenue specifically for adaptation. The proposal was for a levy of \$6 on an economy-class ticket, and \$62 on a premium ticket, raising \$8-10 billion annually in total. The levy would be applied universally, and one reason for choosing this level was that it would not materially affect demand. This ensures there is a minimal impact on tourism-dependent economies. However, little or no mitigation of aviation emissions is achieved.

¹ http://unfccc.int/files/kyoto_protocol/application/pdf/maldivesadaptation131208.pdf

Fuel tax / Emissions levy: this option has attracted relatively little attention to date, since there are perceived legal difficulties associated with it: it is functionally equivalent to a fuel tax, and most bi-lateral air service agreements prohibit the taxation of fuel used on international flights. However, there is no reason such agreements could not be re-negotiated over time, and indeed the EU is currently doing exactly that, with updated agreements (eg EU-US 'Open Skies agreement) not prohibiting a fuel tax but stating that it can only be applied with the mutual consent of both Parties to the agreement. That said, ICAO's current guidance calls for a moratorium on emissions charges.

ETS: a sectoral cap on international aviation emissions would be established, most likely by the UNFCCC or ICAO. Either body would then generate carbon credits up to the cap, and distribute them to airlines via an auction. Airlines would have to monitor and report actual emissions, and at the end of a reckoning period (eg a year) surrender carbon credits to cover their emissions. Where they were not able to obtain sufficient emissions via the initial auction, they would be allowed to use credits from other carbon trading systems (eg EU ETS), and potentially CDM credits, to comply with the scheme. Revenues from the auction would be used for climate finance.

This option is supported by a number of industrialised countries, notably the EU, which from 2012 will operate a similar scheme for all flights arriving and departing from European airports - although only 15% of allowances are auctioned, and revenues accrue to EU Member States. A global ETS is supported by the Aviation Global Deal group of airlines, who have published a detailed proposal² (again, only limited auctioning is envisaged).

Shipping

Again, there are two main proposals – a levy on marine bunker fuel, and a global ETS. The International Maritime Organisation (IMO) has established a group to assess a number of proposals, most of which are variants of these two (although there is a third option proposed by the United States for trading of efficiency credits that would not raise any revenue).

Fuel levy – all ships engaged in international transport would pay a climate change contribution, set at a pre-determined level by IMO. The levy would be collected at point of sale and transferred by fuel suppliers to an International GHG Fund. Under current proposals, the Fund would use this revenue to buy CDM or other offset credits such that net emissions from international shipping were no higher than a pre-agreed cap. This option is proposed by Denmark and supported by Nigeria, Cyprus and the Marshall Islands.³

² http://www.agdgroup.org/pdfs/090609_AGD_Discussion_Note_2.0.pdf

³ http://www.rina.org.uk/c2/uploads/mepc%2060_4_8.pdf

ETS – This would function in a similar way to an ETS for aviation, with ship operators responsible for surrendering credits, to UNFCCC or IMO, in order to cover their emissions. This option is supported by Norway, Germany, France and the UK⁴, and also the national shipping associations of the UK, Norway, Sweden, Belgium and Australia, who have published a very detailed proposal⁵.

Discussions to date

UNFCCC

'Bunker fuels' is one of the longest-standing agenda items of the Subsidiary Body on Scientific and Technical Advice (SBSTA), which for many years has looked at the question of allocation – how to attribute emissions in international space to individual countries. Despite drawing up a list of options, and then a shortlist, SBSTA has never resolved this question.

In the last year, the topic has been discussed in the Ad-Hoc Working Group on Long-Term Co-operative Action (LCA). In effect, Parties have agreed that emissions cannot be attributed to particular countries, and so are pursuing a sectoral approach, whereby aviation and shipping would be treated as if they were countries in their own right. The latest text that was discussed at COP15 took the form of a COP decision that encouraged ICAO and IMO to pursue policies to reduce emissions. It included guidance on the level of ambition, and the need to take account of developing countries' interests; it also included a paragraph that called on ICAO and IMO

“To ensure that revenue from the implementation of such policy approaches and measures shall be made available to support climate change adaptation and mitigation in developing countries”

The revised text prepared by the LCA chair at the June UNFCCC session to facilitate ongoing negotiations⁶ contains the core of this text, but not the reference to use of revenues (despite requests from a number of developing countries to include it).

IMO

IMO has debated 'market-based measures' (MBMs) at meetings of its Marine Environmental Protection (MEPC) committee for a number of years. At the most recent meeting in March, an Expert Group was established to analyse a number of options, including a fuel levy and an ETS, for their environmental effectiveness and impact on

⁴ See for example http://www.rina.org.uk/c2/uploads/mepc%2060_4_43.pdf

⁵ http://www.british-shipping.org/uploaded_files/cap-and-trade.pdf

⁶ http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/awg-lca_advance_draft_of_a_revised_text.pdf

developing countries. The assessment criteria also include 'potential to mobilize climate change finance for mitigation and adaptation actions'. The group will report to the next session of MEPC in October. MEPC has a workplan for development of MBMs that culminates with recommendations to the IMO Assembly at the end of 2011.

ICAO

ICAO has also debated MBMs over a number of years, although talks on GHG charges concluded in 2004 with a moratorium on their introduction for international aviation. Last year a high-level Group on International Aviation and Climate Change (GIACC) met several times, and although it agreed some indicative efficiency goals, it did not endorse any particular measures. An extraordinary Friends of the President meeting in March, called to prepare the ground for a resolution at ICAO's Assembly in October, has agreed to look further at more ambitious targets and a framework for market-based measures but seem likely to encounter many of the same political divergences that prevented GIACC from progressing any further. One possible alternative to a global approach, could be a 'coalition of the willing' that may be able to move forward on MBMs more easily with a partial scheme than by seeking consensus over a global scheme. (The problem of carbon leakage is less severe in aviation than in shipping, since tankering is very much more expensive and difficult for aircraft than for ships.)

The effect of an endorsement from AGF

In all the discussions referred to above, the major sticking point has been how to apply the principle of Common But Differentiated Responsibilities to the two sectors. By and large, industrialised countries maintain that the sectors are intrinsically global and therefore demand a global response. They also point to the ICAO and IMO principles of non-discrimination and flag neutrality, which call for equal treatment of operators of all nationalities. Developing countries, on the other hand, point out that this is a climate change issue, and any policy must adhere to the principles of the UNFCCC. They are resistant to participating in any measure on an equal footing with developed countries, both for fear of the economic impacts (which have not been extensively studied) and because they fear it would set a precedent for the wider climate change negotiations.

Using the revenues from such policies to fund climate change measures in developing countries is one way to break this impasse. In return for their participation, developing countries would unlock climate finance. Since the majority of activity in both sectors is in the developed world, consumers in rich countries would ultimately bear the majority of costs, but developing countries would receive all the revenues. The schemes would therefore represent a transfer of wealth from the developed to the developing world. (Equity issues are discussed in greater depth in the following section.)

A number of developing countries already support this idea. Many more, however, remain unconvinced that the revenue from such policies would actually reach them – with good reason, since only a handful of developed countries have unambiguously

committed to using any revenues as climate finance. A clarification by the AGF of how such financing could work in practice, and an endorsement of bunkers as a source of revenue, would act as a spur to debates in ICAO, IMO and UNFCCC, because it would give developing countries a better-defined stake in the outcome.

Performance against AGF criteria

Revenue: The European Commission estimates that measures to tackle bunker emissions could raise revenues of \$25-37 billion per annum by 2020. Partial coverage, or partial auctioning of permits, would reduce this figure. Because this figure relates to capped schemes, and to cover emissions above the cap operators would be required to purchase carbon credits, such measures would also generate additional demand for CDM credits.

An aviation ticket levy could in principle be set at any level. At the level proposed by the LDC group (\$6 economy, \$60 premium) it would raise around \$10 billion annually.

IATA forecasts that the aviation industry will burn around 1.7 billion barrels (approx 266 billion litres) of fuel in 2010, at a cost of \$132 billion. As an indication, a fuel levy of 4 cents per litre (approx \$6/barrel) would, if applied globally, raise a little over the \$10bn proposed by the ticket levy, increasing airlines' fuel costs by around 8% - well within the fuel price volatility experienced in the past few years.⁷

A fuel tax levied on fuel sold in Annex I countries would capture a substantial proportion of this revenue. 67% of fuel is uplifted in Europe and North America alone.⁸ However, there may be difficulties in taxing fuel for flights from Annex I to non-Annex I countries, where there is no mutual consent to do so.

It should be noted that none of the estimates of aviation revenues take account of the significant non-CO₂ warming effects from aviation. Although some uncertainty remains over the exact quantification of these effects, one recent, authoritative discussion in the scientific literature has proposed a GWP (100) of 1.9-2.0 for aviation's total climate impact⁹. In this case the climate change externality, and hence potential revenues from the aviation sector, would double. At the very least the non-CO₂ impacts are a justification for setting a ticket tax higher than the assumed carbon externality alone.

⁷ Calculated from IATA data at <http://www.iata.org/whatwedo/Documents/economics/IndustryOutlookMar10.pdf>

⁸ http://www.iata.org/whatwedo/economics/fuel_monitor/Pages/price_analysis.aspx

⁹ See *Transport impacts on atmosphere and climate: Aviation*, Lee et al 2009 in 'Atmospheric Environment', Table 13 on p.38.

Efficiency: transaction costs are thought to be low for most options. Levies on both maritime fuel and air tickets/fuel could be collected via existing sales systems, and compliance monitored via existing enforcement mechanisms for environmental and safety regulation. The administration of an ETS would be somewhat more complex, as it would require an entity or entities to generate and distribute allowances, to collect emissions data and ensure compliance. Under the EU ETS for aviation, these functions are shared between the European Commission and Member States. The Impact Assessment that accompanied the proposed Directive contains a discussion of administrative costs (as well as other economic impacts).¹⁰

Incidence: the costs of an aviation ETS or fuel tax would be passed through by airlines to passengers, while a ticket tax would be levied directly on the passenger. The majority of international air passengers are from the developed world, and as the proponents of the ticket levy note, those from the developing world are from the wealthiest sections of their societies and in their view a passenger levy therefore respects the principle of CBDR 'at the level of the individual'. Thus aviation can be considered a progressive source of revenue.

The costs of any shipping measure are also likely to be passed through to consumers of shipped goods. The implications of this are discussed further below.

Equity: for aviation, as discussed above, any cost increase would fall on globally wealthy individuals. The authors of the ticket levy proposal talk about a principle of 'respective personal capabilities' and responsibilities, and denote the measure as a 'solidarity levy'.

Nonetheless, concerns have been raised about the impact on the most air- or tourism-dependent countries, especially Small Island Developing States (SIDS) and Least Developed Countries (LDCs). To address these concerns, it would be possible simply to exempt routes to these countries, which are not major air hubs and would therefore be unlikely to serve as stop-off points for aircraft seeking to avoid any charge. Alternatively, aircraft on certain routes could be exempted via a *de minimis* threshold – for instance a route could be exempted so long as a certain volume of traffic was not exceeded. In this way, if airlines did seek to use such routes for evasion, they would exceed the threshold and thereby destroy the benefit they sought.

For shipping, the equity issues are somewhat different. Globalisation has made huge numbers of people, rich and poor alike, into consumers of shipping services. While an international flight can be considered a luxury, many basic goods, including staple foods, are transported by ship. On the other hand, shipping is such an efficient mode of transport in terms of CO₂ emissions per tonne-km that imposing a CO₂ cost will have very little effect on the final price of goods. A recent study for the German

¹⁰ http://ec.europa.eu/environment/climat/aviation/pdf/sec_2006_1684_en.pdf; discussion of administrative costs in section 5.3.9 on page 47ff.

Government¹¹ suggests that price rises would be well below 1% for goods on almost all routes. The exception is routes to some SIDS, where increases rise to around 1%. As with aviation, routes to such countries (as well as to LDCs) could be exempted via *de minimis* thresholds with only minor distortion effects.

Distributional effects of increasing the cost of shipping have received less study. Latin American countries, in particular, have expressed concerns that their agricultural exports would be disadvantaged where they compete for market share with producers in or close to developed country markets. This effect will be addressed in greater depth by the IMO expert group, but it is worth noting that one Danish academic study which looked at trade in coffee, found this effect to be small – as would be expected given the very small overall impact on prices.¹²

Practicality: the practicality of an airline ticket tax has been demonstrated by France, which since 2006 has imposed just such 'solidarity levy' in order to fund the fight against AIDS. This unilateral measure clearly demonstrates that it would not be necessary to wait for consensus before implementing a ticket tax.

Implementation of an ETS for aviation would be more complicated, but the provisions for inclusion the EU ETS provide a fully-realised precedent for how it could be achieved. (Note that a whole layer of complexity, related to benchmarking airlines to determine their quantity of free allowances, could be stripped away if all allowances were auctioned.)

Although a ticket tax is simpler, an ETS is more desirable because it can deliver both mitigation and finance. One option would be to introduce a quickly-implementable ticket levy, which would be revoked once an ETS was established.

As discussed, an aviation fuel tax would require mutual consent of both the departure and destination country. This is already legally possible for many flights from the EU (including to the US); other routes would require re-negotiation of bilateral air service agreements.

The practicality of a fuel levy and an ETS for shipping has been demonstrated by the series of papers submitted to the IMO by Denmark¹³, and by Norway, Germany and France respectively.¹⁴

¹¹ http://assets.wwf.org.uk/downloads/mepc_60_4_54_de_impacts.pdf

¹² <http://www.sofartsstyrelsen.dk/SiteCollectionDocuments/Nyheder/2010/MEPC%2060-INF.7.pdf>

¹³ See most recently http://www.rina.org.uk/c2/uploads/mepc%2060_4_8.pdf

¹⁴ See most recently http://assets.wwf.org.uk/downloads/mepc_60_inf_8_fr_practical_aspects_of_ets.pdf

Reliability: if global policies are established where revenue is collected by an international body – either by UNFCCC itself, or by ICAO and IMO with funds transferred to UNFCCC – then the revenue would have an extremely high degree of reliability. The money would not be routed via national treasuries, and so would be beyond the vagaries of budget and electoral cycles. Although there are fluctuations in the volume of both aviation and shipping traffic, they are not extreme. (Even in the recent severe global downturn, the volume of air traffic only contracted by about 10% from its earlier all-time high.)

There is a strong logic to international collection of revenues from international aviation and shipping: since Governments do not wish to take individual responsibility for emissions, they should not seek to collect any revenues that accrue from those emissions. Unfortunately, a number of developed country Governments have been slow to acknowledge this point. The precedent in Europe is for aviation ETS revenues to be collected by national governments. Some governments, notably the US, object to 'international taxation' – although these objections are weaker where the measure is an ETS rather than a tax.

This objection, of course, is common to a number of innovative sources that could provide the most predictable flows of finance.

Additionality: any revenues from bunker policies would be fully additional to existing aid and climate finance flows. The exception might be the French solidarity levy, where there is a slight danger that a universal air passenger adaptation levy could reduce revenue currently used to fight AIDS. But there is no reason not to apply both levies simultaneously.

Acceptability: the two key issues that will need to be addressed for such measures to be acceptable to Parties have been discussed above: equity concerns for developing countries, and for developed countries, the perceived sovereignty issues around the central collection of funds.

Although practical equity issues have been discussed above, it may not be enough to demonstrate that likely impacts are small, or to propose limited exemptions for the most vulnerable countries. There also political principles at stake, and many developing countries oppose measures in which 'their' bunker emissions are subject to the same cap as those of developed countries.

One answer is to limit the scope of any aviation scheme. An ETS covering all flights departing from, or departing from and arriving at developed country airports would not result in major distortions, although it achieves less mitigation, and generates less revenue, than a global scheme. (Note that even such a partial scheme would have to apply to airlines of all nationalities, or substantial distortion *would* result.)

In shipping, however, the disadvantages of a partial scheme would be more severe, with greater carbon leakage and distortion of routes as ships sought to avoid any carbon costs. If differentiation is to be applied, the most promising solution seems to be to include all emissions for a fixed period (say, 60 days) before a ship calls at a port covered by the scheme. This would reduce the risk of evasion, as the scheme would apply to emissions en route to the covered port, regardless of any additional port calls.¹⁵

Perhaps a more workable proposal is to accept that shipping policies need to be global in scope, but to give a rebate directly to developing countries as compensation for their participation. Under this proposal (the International Maritime Emission Reduction Scheme, or IMERS¹⁶), the proceeds of any global policy would be returned to developing countries according to their share of global imports, on the basis that it is the importer who ultimately bears the costs. The revenue that relates to developed country imports is not rebated but used as climate finance.

To increase the acceptability to the two industries, a proportion of revenues could be used to develop clean technologies within the sectors and to improve the efficiency of developing country fleets and operations. Although not necessarily efficient from a pure economic point of view in sectors that have relatively high marginal abatement costs, this would increase the perceived fairness for many stakeholders involved in negotiating the measures. In addition, even quite modest investments of public money could leverage significant amounts of private capital in areas such as sustainable aviation biofuels.

WWF contact:

Peter Lockley
Head of Transport Policy, WWF-UK
Email: plockley@wwf.org.uk Phone: +44 7770 238068

¹⁵ See discussion of 'last trip' vs 'last period' geographical scope in Chapter 9 of "Integration of Marine Transport into the European Emissions Trading Scheme", Umweltbundesamt 2010. <http://www.umweltdaten.de/publikationen/fpdf-l/3942.pdf>

¹⁶ http://assets.wwf.org.uk/downloads/mepc_60_4_55_iucn.pdf