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## CEEW Policy Brief

# Can India's Developmental Flight Take Off?

What the ICAO Global  
Market Based Scheme  
means for India

MANU AGGARWAL, KARTHIK GANESAN,  
KANIKA CHAWLA, AND SHIKHA BHASIN



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A policy brief ‘Can India’s developmental flight take off? What the ICAO Global Market Based Scheme means for India’.

Disclaimer: The views expressed in this report are those of the authors and do not necessarily reflect the views and policies of CEEW.

Editor: Dr Arunabha Ghosh

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**Council on Energy, Environment and Water**

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# About CEEW

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dia's green industrial policy; the \$125 million India-U.S. Joint Clean Energy R&D Centers; developing the strategy for and supporting activities related to the International Solar Alliance; modelling long-term energy scenarios; energy subsidies reform; decentralised energy in India; energy storage technologies; India's 2030 renewable energy roadmap; solar roadmap for Indian Railways; clean energy subsidies (for the Rio+20 Summit); and renewable energy jobs, finance and skills.

CEEW's major projects on climate, environment and resource security include advising and contributing to climate negotiations (COP-21) in Paris; assessing global climate risks; assessing India's adaptation gap; low-carbon rural development; environmental clearances; modelling HFC emissions; business case for phasing down HFCs; assessing India's critical mineral resources; geoengineering governance; climate finance; nuclear power and low-carbon pathways; electric rail transport; monitoring air quality; business case for energy efficiency and emissions reductions; India's first report on global governance, submitted to the National Security Adviser; foreign policy implications for resource security; India's power sector reforms; resource nexus, and strategic industries and technologies for India's National Security Advisory Board; Maharashtra-Guangdong partnership on sustainability; and building Sustainable Cities.

CEEW's major projects on water governance and security include the 584-page National Water Resources Framework Study for India's 12th Five Year Plan; irrigation reform for Bihar; Swachh Bharat; supporting India's National Water Mission; collective action for water security; mapping India's traditional water bodies; modelling water-energy nexus; circular economy of water; and multi-stakeholder initiatives for urban water management.



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Manu Aggarwal is a Research Analyst at the Council on Energy, Environment and Water (CEEW), India. His research interests lie on the intersection of development policy, finance and institutions. He has a keen interest in primacy of global coordination and cooperation in bringing country level changes. He has varied experience of more than four years in business consulting, energy derivatives markets and international development.

Prior to CEEW, he has worked with Mu-Sigma in advising clients on designing their marketing campaigns briefly followed by trading in international oil & gas markets at Futures First in Bangalore. He has also worked with Seva Mandir, a grass-roots development organisation in Udaipur, where he coordinated the efforts of the Natural resources management programme, especially in maintaining the Commons dealing with government and community level tribal groups. He looked into the gaps in implementation of MGNREGA Act and Forests Rights Act on the grassroots level at Seva Mandir.

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## KARTHIK GANESAN

Karthik Ganesan is a Research Fellow at the Council on Energy, Environment and Water (CEEW), India. As a member of the team at CEEW his research focus includes the development of long-term energy scenarios for India (based on an in-house cost-optimisation model) and energy efficiency improvements in the industrial sector in India. Linked to his work in industrial efficiency is his role as the principal investigator in an effort to identify critical mineral resources required for India's manufacturing sector. In addition, he supports on-going work in the areas of energy access indicators for rural Indian households and carried out a first-of-a-kind evaluation of the impact of industrial policies on the RE sector in India.

Prior to his association with CEEW he has worked on an array of projects in collaboration with various international institutions, with a focus on low-carbon development and energy security. His published (and under review) works include Rethink India's Energy Strategy (Nature, Comment) the Co-location opportunities for renewable energy and agriculture in North-western India: Trade-offs and Synergies (American Geophysical Union), Valuation of health impact of air pollution from thermal power plants (ADB), Technical feasibility of metropolitan siting of nuclear power plants (NUS), Prospects for Carbon Capture and Storage in SE Asia (ADB). His role as a research assistant at a graduate level focused on the linkages between electricity consumption and sectoral economic growth using a time-series approach.

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She has researched policy issues in developing countries around the world with a specific focus on renewable energy, energy access, and climate change. She has previously also worked with GIZ on sustainability reporting standards for industry. Kanika holds an M.Sc in Economics and Development Economics from the University of Nottingham and an undergraduate honours degree in Economics from Miranda House, University of Delhi. She is fluent in English and Hindi and speaks basic French.

## SHIKHA BHASIN

Shikha Bhasin is an Associate Fellow at the Council of Energy, Environment and Water (CEEW) in New Delhi; a researcher at University of Nijmegen, The Netherlands; as well as an Advisory Board member of the Climate Technology Centre in Denmark, instituted by the UNFCCC. Her research focusses on climate change mitigation policies. Her key area of interest is innovation systems of low-carbon technologies. She is a graduate of the London School of Economics and Politics.



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# 1 Background

Aviation is one of the fastest growing sources of greenhouse gas (GHG) emissions and the most climate intensive forms of transport. Its CO<sub>2</sub> and non-CO<sub>2</sub> impacts are responsible for between 4% and 9% of anthropogenic global warming.<sup>1</sup> Given aviation's climatic impact, it is imperative that effective measures are taken at global and national levels to reduce these emissions. Worldwide, emissions from international aviation grew by over 76% between 1990 and 2012; almost double the average emissions growth from all the other sectors of the global economy.<sup>2</sup> While the UN Framework Convention on Climate Change (UNFCCC) does not govern emissions from international aviation, failure to effectively manage these emissions would undermine the pledge of keeping temperature to well below 2 degrees celsius, as made in the Paris Agreement in December 2015. The International Civil Aviation Organization (ICAO), a UN specialised agency entrusted to codify the principle and techniques of international air navigation, is looking into the emissions due to international aviation.

ICAO operates under the terms laid down in the Convention on International Civil Aviation, more commonly referred to as the Chicago Convention. The two basic principles adopted in the Chicago Convention, in developing the mechanisms to mitigate GHG emissions from international aviation are: *special circumstances and respective capabilities of states, and non-discrimination between aircraft operators*.

The focus is now on the ICAO to deliver the necessary contribution and emission reductions from international aviation by creating a scheme, which tackles the future CO<sub>2</sub> emissions from international aviation. Failure to arrive at a consensus this year could trigger emissions control requirements under the EU's Emission Trading Scheme (ETS) starting from 2017. In the face of opposition from many countries, the EU had suspended these requirements for all international flights from and to the European Economic Area (EEA) in late 2012. But if reintroduced in 2017, this unilateral action will also undermine the credibility of ICAO in driving multilateral consensus on emissions mitigation from international aviation.

In December 2015, the President of ICAO submitted a Draft Policy Proposal on a global market-based measures (GMBM) to offset international civil aviation emissions. GMBMs, as a potential means for limiting or reducing CO<sub>2</sub> emissions from international aviation, have been under consideration at the ICAO for several years. At the 38th Session of the ICAO Assembly, in September 2013, a decision had been taken to develop a GMBM scheme to limit CO<sub>2</sub> emissions in the international aviation sector. In the same year, ICAO had established a working group for developing a GMBM to offset international civil aviation emissions. This working group recommended that the GMBM should be adopted in 2016 and come into force in 2020.<sup>3</sup> The main design elements of the GMBM are being discussed by the ICAO's Environmental Advisory Group (EAG) and by the Global Market-Based Measure Task Force (GMTF), established to provide assistance on establishing the rules for monitoring, reporting and verification (MRV) of CO<sub>2</sub> emissions and quality and eligibility criteria for offset units.

1 Lee et al, Aviation and global climate change in the 21st Century, Atmospheric Environment, Science Direct, April 2009

2 <http://unfccc.int/resource/docs/2014/sbi/eng/20.pdf>

3 <http://www.icao.int/Meetings/GLADs-2016/Documents/Draft%20Assembly%20Resolution%20text%20on%20GMBM%20for%202016%20GLADs.pdf>

ICAO will be holding its 39<sup>th</sup> Triennial General Assembly in Montreal in September 2016. Over the course of two weeks starting in the last week of September, the Assembly will be taking up various issues related to international aviation ranging from public health to safety standards to the impact on the environment. The environment aspect is expected to rank very high on the Assembly's agenda, in view of the momentum generated by the successful negotiation of the Paris Agreement, to combat climate change through domestic actions. While a consensus on global CO<sub>2</sub> standard (for aviation emissions) was achieved earlier this year in February, when the Committee on Aviation Environmental Protection (CAEP) unanimously recommended a new aircraft CO<sub>2</sub> standard<sup>4</sup>, there is still lot of ground to cover on the GMBM scheme and this will be the primary focus of the General Assembly next month.

In this discussion paper, we first highlight some important aspects of the GMBM and how they will shape international aviation for those intending to travel to or from India and for the carriers involved. The paper further highlights the critical issue of how the GMBM proposal must be seen in relation to the Paris Agreement (under the UNFCCC). We lay stress on the principles of equity and common but differentiated responsibilities and respective capabilities (CBDR-RC), as these are the most important aspects of such top-down carbon mitigation measures.

Following this we showcase some of the key points in the various alternative proposals that other countries have tabled, and we identify specific inputs from these, which might also be important to safeguard India's strategic interests. We investigate the basic foundation of the GMBM proposal – Revenue tonne-kilometres (RTK) – and whether it is the right metric upon which to base the GMBM. The paper also analyses the potential effect of the GMBM on the implementation of the just announced National Civil Aviation Policy in India and the Regional Connectivity Scheme. It also sheds light on the elements of the new MBMs featured in the Paris Agreement and highlights some of the differences between the proposed GMBM and MBMs in the Paris Agreement. Within this section, it will also touch upon the International Emissions Trading Association's (IETA) proposal on GMBM and pinpoint the relevant points for India going forward.

In the concluding section we summarise our key findings, which could become cornerstones for India's negotiating position. While much of the focus will be on MBMs, there is greater need to emphasise non-market based measures such as access to sustainable fuels, operational improvements, an improved aircraft CO<sub>2</sub> standard etc. These are crucial not only to achieve a true carbon neutral growth (CNG) post-2020, but also to achieve the more ambitious goal of halving emissions reduction by 2050 compared to 2005 levels, which the International Air Transport Association (IATA) adopted in 2013.<sup>5</sup>

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4 <http://www.icao.int/Newsroom/Pages/New-ICAO-Aircraft-CO2-Standard-One-Step-Closer-To-Final-Adoption.aspx>

5 <http://www.iata.org/pressroom/pr/Pages/2013-06-03-05.aspx>

## 2 Elements of the GMBM scheme in the current draft<sup>6</sup>

### 2.1 Complementarity with non-market-based measures (non-MBM)

The importance of non-market-based measures, such as improvement in aircraft technologies, operational improvements, sustainable alternative fuels etc., is highlighted in the proposal scheme. Recommendations to boost aircraft efficiency are seen as an important pre-cursor to the development of Global Market Based Measures to offset CO<sub>2</sub> emissions from international aviation. The proposal also recognises the complementary role of GMBM to other basket of measures, especially non-MBM. GMBM is clearly stated in point 3 of the ICAO Draft Assembly Resolution to serve as a temporary instrument and not a permanent measure to achieve CNG post-2020.<sup>7</sup>

### 2.2 Criteria for a phased implementation

Countries are going to be included in the GMBM in two phases. Two criteria are to be used to decide which country would be included in the first and second phase. The first criterion is Revenue tonne-kilometres (RTK). This metric is generally used to observe the trends in the freight category in the aviation market. However, for the purposes of ICAO's proposal, RTKs are calculated for passengers as well as freight. Mathematically, RTKs are the weight of revenue passengers and freight multiplied by the kilometres flown. The suitability of RTKs as a criterion is further discussed in Section 6. The additional criterion for attributing emissions is yet to be finalised. Using GNI per capita as a means to differentiate the emission attribution between countries had been considered and discarded based on opposition from certain countries.<sup>8</sup> A final decision on the implementation criteria will be discussed during the General Assembly in September. Since a consensus on these criteria was looking unlikely, a special meeting (hosted by the President of ICAO) has been called for all parties in August. The possible options for the phasing out could include classification of countries into developed and developing baskets, ICAO Scales of Assessment (ICAO's internal metric), etc.

### 2.3 Phased-in implementation

Based on the criteria mentioned in section 2.2, a two-phase implementation will happen as follows:

- The first implementation phase, which begins in 2021 will apply to States that either have an individual share of international aviation activities in RTKs in year 2018 above 1.0% of total RTKs, or whose cumulative share in the list of States from the highest to the lowest amount of RTKs reaches 80% of total RTKs;
- The second implementation phase applies from 2026 to States that either have an individual share of international aviation activities in RTKs in year 2018 above 0.5% of total RTKs, or

6 [http://www.icao.int/Meetings/HLM-MBM/Documents/HLM\\_GMBM\\_Flimsy\\_1.pdf](http://www.icao.int/Meetings/HLM-MBM/Documents/HLM_GMBM_Flimsy_1.pdf)

7 *ibid*

8 The countries opposing the GNI per capita indicator includes Cook Islands, Fiji, Guyana, Jordan, Kiribati, Marshall Islands, Micronesia (Federal States of), Nauru, Palau, Papua New Guinea, Samoa, Seychelles, Singapore, Solomon Islands, Suriname, Tonga, Trinidad and Tobago, and Vanuatu

whose cumulative share in the list of States from the highest to the lowest amount of RTKs reaches 95% of total RTKs;

## 2.4 Exemptions

There are many exemptions laid down in the current GMBM draft in line with the CBDR-RC principle. GMBM does not apply to States, which are classified as Least Developed Countries (LDCs), Small Island Developing States (SIDS) or Landlocked Developing Countries (LLDCs), unless these states fulfil the criteria laid down in Section 2.3. But this exemption looks futile for above-mentioned states as they would anyway be included if they fulfilled the above criteria. There are also a few technical exemptions to the GMBM scheme. It does not apply to aircraft operators emitting less than 10,000 metric tonnes of CO<sub>2</sub> emissions from international aviation per year; aircraft with less than 5,700 kg of Maximum Take Off Mass (MTOM); or humanitarian, medical and firefighting operations.

New entrants are also exempted from the scheme for three years or until the year in which their annual emissions exceed 0.1% of total emissions in 2020, whichever occurs earlier. A new entrant is defined as any aircraft operator that commences an aviation activity falling within the scope of the scheme on or after its entry into force and whose activity is not in whole or in part a continuation of an aviation activity previously performed by another aircraft operator. This exemption of new entrants can create a situation where an existing operator (from a State included in the scheme) with less than 0.1% of total emissions, would end up being discriminated against a new entrant with a similar emissions profile. Moreover, the inclusion of other operators/ states is based on their RTKs but any new entrant will be included based on their emissions. While basing the inclusion of new entrants on emissions is a good step (emissions are a better and direct measure than using a proxy measure such as RTK), this ambiguity needs to be resolved. Exempted States are further encouraged to voluntarily determine how they would participate in the scheme in future.

Also, if any one node of the flight is in a State excluded from GMBM, then emissions due to this flight will not be attributed towards any of the two nodes (States) of the flight. But this phased-in implementation and exemption of states raises questions on the coverage of the scheme. *The emissions that are not covered under the scheme, as the result of the phased implementation and exemptions, are not required to be offset currently. This would effectively create a hole in the narrative of carbon neutral growth post 2020.*

## 2.5 A single sectoral growth factor & offset mechanism

A single sectoral growth factor will be calculated for the entire international aviation industry and will apply on all the operators, irrespective of fast growers or early movers. It is again important to note that exempted emissions will not be included in the calculations of the growth factor. The amount of CO<sub>2</sub> emissions required to be offset by an aircraft operator in a given year from 2021 is calculated every year as follows:

- Amount of offsets = an operator's emissions covered by the scheme in a given year × sector's growth factor in the given year.
- Sector's growth factor = (total emissions covered by scheme in the given year – total emissions covered by scheme at the 2020 levels) / total emissions covered by scheme in the given year.

## 2.6 Definition of international aviation

The United States had raised some concerns on the definition of international aviation, namely whether it should be on the basis of the Air Operator's Certificate (AOC) or the simple rule that any flight starting in one country and landing in another would qualify as International aviation. According to the International Air Transport Association's (IATA) analysis, using the AOC approach would reduce the coverage of GMBM from 80% to 69% in phase 1 and from 93% to 88% in phase 2.<sup>9</sup> The current draft clearly eliminated this ambiguity by mentioning that the international aviation means civil aviation flights that depart in one country and arrive in a different country. This definition would increase the coverage of the scheme over and above the AOC method.

## 2.7 Cost safeguard and compliance cycle

The cost safeguard provision provides for dismantling the scheme if the cost of carbon increases substantially in future. It is put in place to safeguard the industry from disproportionate economic burden. The ICAO Council will decide the basis and criteria for the same, if its need arises.

There will be three-year compliance cycle, starting with the first cycle from 2021 to 2023, within which aircraft operators reconcile their offsetting requirements under the scheme, while they report the required data to a single state authority every year.

## 2.8 Triennial review

A periodic review of the scheme is undertaken every three years from 2022 to ensure the sustainable development of the international aviation sector and effectiveness of the GMBM. A special review of any extension or termination of the scheme beyond 2035 will be undertaken in 2032.

## 2.9 MRV, EUC, and Registries

The Council will develop related guidance material on implementation of the Monitoring, Reporting and Verification (MRV) framework by 1 June 2017. Pilots will start from 1 January 2018 followed by full implementation from 1 January 2020.

The Council will also develop related guidance material for Emissions Unit Criteria (EUC) by the end of 2018 and decide on eligible emission units for use by the scheme. It will constitute a technical advisory body for the same. It will take into account the relevant developments in the UNFCCC process and other international organisations to decide the EUC criteria. It will also include the use of emissions units generated from the Clean Development Mechanism (CDM), new market mechanisms or other programmes under the UNFCCC and encourage States to develop domestic aviation-related projects. The Council will also develop related guidance material to support the establishment of Registries by the end of 2018 and a consolidated central registry under the auspices of ICAO, for operationalisation no later than 1 January 2021. States can have their own registries or group registries shared with other States.

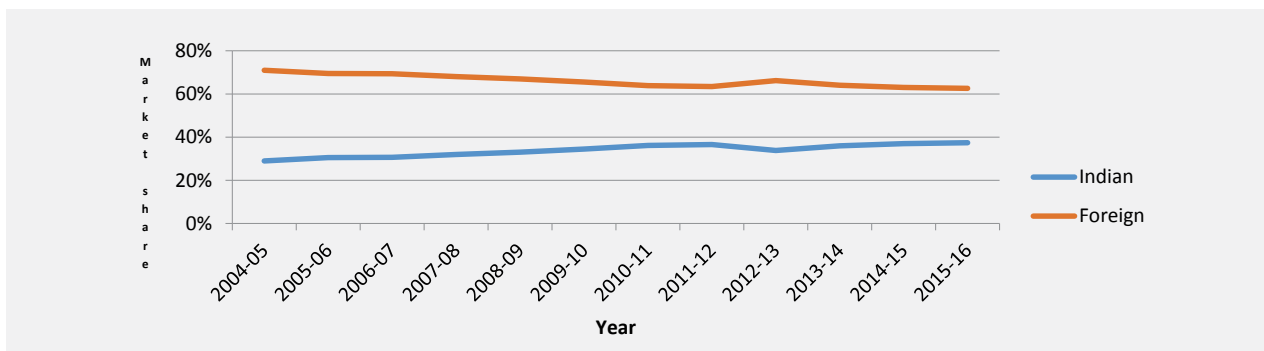
All the work on MRV, EUC and Registries will be done with the aid of CAEP. All the Member States, especially developing countries, would be provided assistance and capacity building to establish and implement MRV and registries frameworks in their own jurisdictions, starting from 2017. *India is well placed to adopt these frameworks, especially MRV in the aviation sector vis-à-vis other sectors in the economy, as aviation is comparatively more organised than other sectors of the economy, such as the industrial sector. Operators already report a lot of information to regulators such as the DGCA, which in turn reports to ICAO.*

### 3 India's status and developmental needs in aviation sector

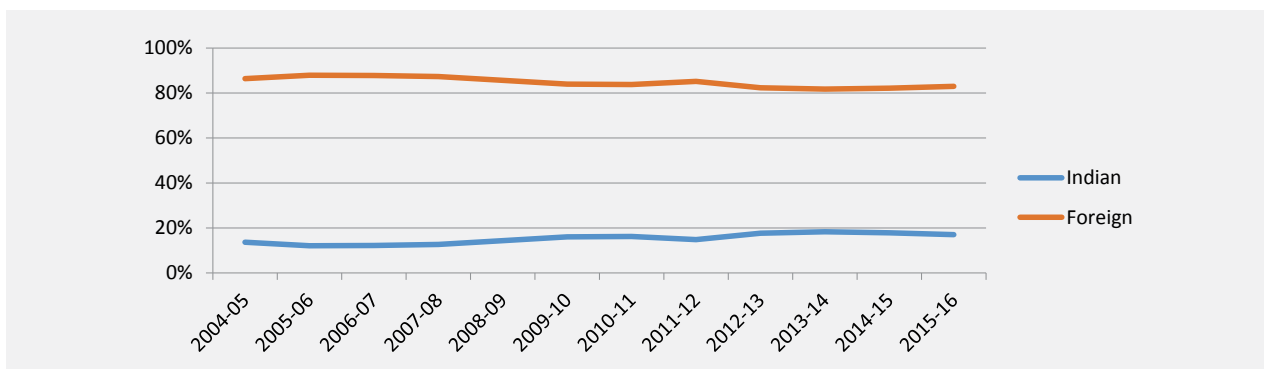
India, with a GDP per capita (in PPP terms) of less than USD 6,000 sits squarely within the group of countries classified as being in the lower middle-income group. With a population of nearly 1.3 billion, the total number of international departures from India stood at 16 million in the year 2014 and the number of tourist arrivals in India was 7.6 million. The total tourist arrivals in India are a mere 0.6% of the overall global tourist numbers. The total revenue tonne-kilometres (RTKs) attributed to arrivals and departures to and from India is 6.5 billion. This is ~1.2% of overall global RTKs.

The Indian aviation sector is in an intensive growth phase as a result of economic growth in the last decade and a large middle class base of around 300 million. Indian airline operators have performed relatively well over the last few years in catering to the international travel needs to and from India. As shown in Figure 1<sup>10</sup> and Figure 2<sup>11</sup>, *the market share of Indian operators has increased from ~29 % to ~38% in the international passenger segment. However, the share of freight transported by Indian carriers has remained stagnant at levels lower than 20% over the last decade.*

**Figure 1: Gradual improvement in the market share of Indian operators in the passengers segment of international aviation**



**Figure 2: Stagnated share of Indian operators in the freight segment of international aviation**



10 <http://dgca.nic.in/reports/stat-ind.htm>, CEEW analysis

11 Ibid.



These shares further decrease for the Indian operators if the metric used is RTK instead of tonnes (for cargo) or pax numbers (for passengers). This is because most operations by Indian carriers are on short-hauls (to West Asia and South East Asia), barring some long-haul operations of Air India and Jet Airways (to Europe and the Americas).

Over the years, India's aviation policies have given foreign airlines a head start in serving India's international travel demand. For example, foreign airlines have nearly 60% seat share on the routes between India and the UAE and this has been consistently so over the last five years. On the routes between India and Germany, the foreign airline share is as high as 90% and even to major South East Asian hubs like Singapore, the share of foreign airlines is as high as 60%. Given the low share of Indian operators in international aviation, it is obvious that the major impact of GMBM (if implemented) would be on foreign operators. However, one issue that has been of constant concern is the state support that many of the West Asian carriers get for their operations and their ability to undercut competitors and make operations unviable for them.<sup>12</sup> In such a scenario, if India is part of the GMBM, there is every chance that some of these airlines would not pass on the costs to the consumers, thereby offering discounted prices and further undermining the competitiveness of Indian carriers. Thus, *GMBM poses a threat to the profitability of Indian carriers*, as much as it will increase the cost of travel for passengers across the world and not just in India.

In our analysis of the factors driving the RTKs of nearly 140 countries across the world, we find four important factors: *in-bound tourism/ arrivals for economic activity, out-bound tourism/ departures for other economic activity, per capita income*, and the *presence of an aviation hub* within the countries. In taking a position on the GMBM and non-market-based measures, it is important to understand the potential trajectory that these indicators will take in the short and medium term and secure a position for Indian carriers and passengers alike. A brief analysis of the trajectory of these four explanatory variables provides a sense of the growth that India's international aviation is likely to witness.

We first consider the per capita income metric. Currently, it stands at less than USD6,000 (PPP) per capita and the median value of income in the upper middle-income group is at USD18,000 (PPP). China currently is at ~ USD13,000 (PPP). A growth of per capita incomes in India to USD18,000 (PPP) in the medium- to long-term is very much a desirable outcome and with it will bring all the challenges of catering to the needs of a relatively richer population.

With economic growth and increase in per capita incomes, the demand for international travel from Indians – both for leisure and business – will increase significantly. At a per capita income that is a little more than double that of India, China's international departures are nearly six times that of India. A useful metric to indicate the propensity for outbound international travel is the ratio of departures to population. In most countries in the middle-income group, this ratio ranges from 5% to 8%. This ratio currently stands at a mere 1.2% for India. Even assuming that India were to hit the lower threshold of this ratio in the years ahead, *the overall outbound departures could rise to a level above 40 million in the medium term*. When it comes to in-bound tourism India has 35 UNESCO world heritage sites within its geographic boundary. In addition, India is one of the 18 mega-diverse (in biodiversity terms) countries in the world and home to three biodiversity hotspots. The geographic endowments encompass those of multiple countries in other parts of the world, which individually experience a much larger tourist footfall than India. Add to this, the cultural and ethnic diversity of the country and India lends itself to being potentially a

12 <http://www.openandfairskies.com/press-releases/in-case-you-missed-it-air-france-klm-filing-urges-immediate-action-by-u-s-government-in-response-to-gulf-carrier-subsidization/>, <http://www.usatoday.com/story/travel/flights/todayinthesky/2015/10/29/delta-dumps-dubai-blames-subsidized-capacity-gulf-rivals/74794584/>

top tourist destination with the ability to offer an unmatched experience for tourists. As per the plans of the current administration India hopes to increase its share of the overall global tourist base to 1% and this is a relatively conservative estimate. *A tourist footfall of 20 million a year* is well within the realm of possibility in the near future, given the aggressive promotion of the “Incredible India” brand.

Finally, we factor in the potential for India to become an aviation hub. As discussed earlier, past and extant policies have not favoured the growth of national carriers in the international arena. The current growth trajectory of foreign airlines operating to India also indicates that they will maintain the hegemony over the Indian international aviation market. More importantly, the ability of Indian airports to handle such large increase in traffic and the timelines associated with the creation of new infrastructure indicates that this is an unlikely event. *It can be safely assumed that India will not serve as an aviation hub in the short-to medium-short term.*

We developed a regression model to estimate the contribution of these factors to the overall observed RTKs for the various countries. All the factors were significant with a high relevance being indicated for the overall model itself. With the growth in incomes, departures and arrivals (as argued above), it is likely that *India’s RTKs would grow from the current level of 6.5 billion to a level of 19.3 billion in the medium-term.* While the time period over which this increase is likely to happen is not estimated, the income threshold *would be achieved by 2030*, assuming the current planned growth rates in GDP (between 6% and 8%). The current rate of growth of RTKs stands at ~9%. *At this rate, we would only be at 10 billion RTKs by 2020*, the year at which the RTK cap will be decided and beyond which incremental RTKs have to be on a carbon neutral basis. Given the medium-term expectation of ~20 billion RTKs, India will have to bear the *burden of offsetting nearly 10 billion RTKs annually* (by 2030) should the GMBM scheme be implemented as envisaged.

## 4 Synergies and divergences between international aviation and major climate agreements

The Paris Agreement commits parties to take on increasingly ambitious targets aimed at peaking and then sharply reducing GHG emissions to keep the average global temperature rise well below 2 degrees Celsius and preferably limit it to a 1.5 degrees Celsius rise above pre-industrial levels. The Agreement aims to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases since the second half of the 20th century. Not only would this transpire on the basis of equity and climate justice, but in the context of sustainable development. As aviation emissions, both international and domestic, are entirely anthropogenic, they are subsumed in the ambition and requirements of the Paris Agreement. However, the Conference of Parties (at the Kyoto meeting) had requested Parties to work through the International Civil Aviation Organization (ICAO) to reduce emissions from international aviation, as the UNFCCC did not include these emissions within national inventories. Despite the absence of any explicit reference to international aviation emissions in the Paris Agreement, the ambitious and legally binding long-term global goal would require goals to scale down emissions from all sectors of the economy. If international aviation emissions were excluded from the sectoral emission reductions, these emissions could be responsible for 22% of global CO<sub>2</sub> emissions by 2050, under a 2 degrees scenario.<sup>13</sup>

The draft measures recommended by ICAO and the shaping of the GMBM scheme will have considerable implications for international civil aviation. Draft recommendations to boost aircraft efficiency are seen as an important precursor to the development of GMBMs to offset CO<sub>2</sub> emissions from international aviation. The establishment of CO<sub>2</sub> standards for aircrafts could save 650 million tonnes of carbon dioxide between 2020 and 2040.<sup>14</sup> This supplemented by a carbon emission offset mechanism through the GMBM scheme could be as definitive as, and complementary to, the Paris Agreement.

As discussed in Section 2, the proposed GMBM scheme will be implemented in the form of an offsetting mechanism, which requires participants to offset their CO<sub>2</sub> emissions above an agreed level by acquiring emissions permits from other parties or sources. The scheme will be based on an approach designed to be non-discriminatory, to prevent market distortion, treating all operators on the same routes the same way. An important element of the GMBM scheme is the use of a phased implementation process (as discussed in section 2.2 and 2.3) in order to accommodate the special circumstances and the differing development status of Member States. Other important elements such as exemptions etc. are already discussed in section 2 as well.

The ICAO proposal, while championing the same basic premise of emission reduction to limit temperature rise as the Paris Agreement, has several points of distinction on the principles on which it is built. The spine of the ICAO proposal is the GMBM to offset emissions, which (unlike the Paris Agreement) is not built on domestic action. The top-down allocations of RTKs, the exemptions, and the approval of the

13 [http://www.europarl.europa.eu/RegData/etudes/STUD/2015/569964/IPOL\\_STU\(2015\)569964\\_en.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2015/569964/IPOL_STU(2015)569964_en.pdf)

14 <https://www.whitehouse.gov/the-press-office/2016/02/08/fact-sheet-us-leadership-securing-first-ever-global-carbon-emissions>

offset credit purchases leave parties with little space to self-determine their actions to reduce emissions from international civil aviation. The allocation of emission reduction targets based on RTKs alone does not uphold the principle of common but differentiated responsibility and respective capabilities. Under ICAO a similar principle ‘Special circumstances and respective capabilities’ (SCRC) exists, which has to be balanced with the principle of non-discrimination. However, it is hard to reconcile the two principles, *as differentiated responsibility based on the development status of the Parties where the aircraft operator is based would result in market distortion; conversely standardised route-based obligations would be unable to uphold the principles of differentiated responsibility*. However, the ICAO’s deliberations on this matter have resulted in the clear stipulation that any differentiation in mitigation requirements should be route-based to minimise market distortion.

While the ICAO upholds market principles, and is cautious not to be unjust to some operators just because of the country in which they are registered, it does not uphold the principle of climate justice. The ICAO proposal makes no allowances for historical responsibility. This is especially crucial in the context of the rate of growth of the aviation sector. The largest proportion of international aviation RTKs today would be attributed to countries where the international aviation sector has been growing steadily through the years and their growth rate has either peaked or is close to peaking. Comparing these countries with parties where the aviation sector is still in its infancy clearly highlights the discriminatory aspect of the ICAO proposal. *The freeze date proposed in the ICAO proposal does not allow for any dynamic differentiation between parties allocated the highest and the lowest amount of 80% of the total RTKs, regardless of the development status and history of its aviation sector.*

Another significantly important set of negotiations currently underway is on the Montreal Protocol Amendment proposal, to agree to a phasedown pathway for hydrofluorocarbons (HFCs). HFCs are potent greenhouse gases, largely used as refrigerants in refrigerators and air-conditioning for homes, commercial buildings and vehicles, but with global warming potential of thousands of times as compared to carbon dioxide. Similar to international aviation emissions, HFCs are not governed by the UNFCCC or the Paris Agreement. However, an amendment to the Montreal Protocol for limiting existing and future production and consumption of HFCs has been described as one of the most significant steps, along with an agreement on the fate of civil aviation emissions, for mitigating climate change to build on the Paris Agreement. Recent meetings on the Montreal Protocol amendment in June 2016 made the key differences between the standpoints of parties evident.

There are four amendment proposals on the table: from the European Union, India, North America, and the Small Island States, are fairly similar in terms of the efforts for phasing down HFC consumption in non-developed countries. For developing countries, however, the Indian proposal differs significantly, with a higher baseline (2028-30 relative to a historical baseline) and a later freeze date (2031 relative to 2020-21) for HFC consumption and production. There are agreements on some issues like financing, but there is a clear lack of agreement on baseline and freeze year.<sup>15</sup> India has highlighted that its prime concern is timely availability of patent-free and cost-effective low global warming potential refrigerants. It argues that the grace period of five years (for all developing countries) might not be sufficient to address this concern. Without prejudicing the outcome of the HFC negotiations, it is worthwhile to keep a similar principle in mind for the ICAO negotiations as well. *While the ICAO GMBM proposal does not require technology upgradation, the principle of differentiated responsibility – which India is laying emphasis on in the Montreal Protocol amendment negotiations – should be upheld in the ICAO proposal negotiations as well.*

15 <http://scroll.in/article/812972/why-the-global-clampdown-on-hazardous-refrigerants-hasnt-been-effective>

India has argued that there are other climate negotiations where there are significant differences even among developing countries. For instance, while Chinese growth is already showing signs of waning, India is already in the initial stages of a high growth phase. Uncertainties around the costs to the economy need to be viewed within the context of these differences, not just in the Paris Agreement and the Montreal Protocol Amendment, but also in the ICAO proposal.

It is important to emphasise that India is different from all other parties in the sense that it is expected to grow significantly in the next 25 years, and this growth could be impacted under enforced climate phasedowns, be it under the Paris Agreement, Montreal Protocol, or the ICAO. Development concerns are paramount for India. An early phase-down is possible only if it is aligned with the development concerns for the country.

As has clearly been noted in a Joint Statement by Argentina, Brazil, China, India, Panama, Russian Federation and Saudi Arabia, the countries concede that there is an urgent need to tackle emissions from civil aviation. However, they consider the ICAO proposal to be one that would impose inappropriate economic burden on developing countries, where the international aviation market is still maturing. In this regard, these countries propose robust, integrated domestic action to reduce emissions by improving the civil aviation fuel efficiency, improving technology & operations, infrastructure modernisation, using sustainable jet biofuel, etc.<sup>16</sup> At the upcoming session of the ICAO assembly, the various means of international civil aviation emissions will be discussed – including the CO<sub>2</sub> standard for aircrafts and the GMBM scheme – but all Parties agree on the need for emission cuts from international civil aviation.

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16 [http://www.icao.int/Meetings/HLM-MBM/Documents/Joint\\_Statement\\_1.pdf](http://www.icao.int/Meetings/HLM-MBM/Documents/Joint_Statement_1.pdf)

## 5 Alternative proposals

There have been many changes since ICAO placed the draft document for the proposed GMBM scheme in the public domain. The most prominent among them is removing GNI per capita as the second required criterion at the High-level meeting on GMBM held in May 2016. A group of island-states, including Singapore and Seychelles, argued against the inclusion of this criterion to decide the phase-in schedule. These states argued that states with small populations are placed at a disadvantage and GNI per capita will not necessarily reflect the true picture of one state's economy among other reasons. Many such potential changes have been proposed by both states and non-state actors in the run up to the High-Level meeting on GMBM (HLM-GMBM). Some of these proposed changes could have a far-reaching impact on the fundamental structure of the GMBM if accepted in their current form. It is imperative for India to understand these proposed changes and aim to reconcile them with India's strategic interests. It is in this spirit that this section will look into the proposed changes. All the proposed changes listed here are Parties' stands on specific issues until the HLM-GMBM in May. Their positions may change in future. Note that only the points of difference and contentious issues between the proposed draft and States' proposals are covered in this section.

### 5.1 Brazil<sup>17</sup>

Brazil's main point of contention is to do with structure, scope and administration of Emissions Unit Criteria (EUC). It demands more autonomy (sovereignty) for states to decide for further criteria on eligibility of units between routes, in order to enhance the environmental integrity of these units. It also states that any transfer of units from mitigation results achieved in Brazil should be subject to prior and informed consent of the Federal government. It will also not recognise the use of such or any other units if these units were not achieved through procedures laid down in one of the conventions accepted by Brazil. It has categorically not endorsed CAEP's work on EUC.

Brazil believes that all of these requirements are not in line with Article 6 of the Paris Agreement. It wants all the clauses of Article 17<sup>18</sup> and GMBM as a whole to be developed in line with the Paris agreement. The proposed draft on GMBM may have been drafted before the Paris Agreement, which could explain the points of differentiation between the two. It also wants developed nations to take lead in participating in the GMBM in the first phase with everything else remaining the same in Article 7.

All the issues raised by Brazil, whether on the EUC, the need for developed countries to take the lead, or the design of the GMBM in the light of Paris Agreement bode well for India and India should support Brazil on these specific issues.

### 5.2 EU (Member states of EU and European Civil Aviation Conference)<sup>19</sup>

As expected, the EU advocates strong climate action and stresses on various such points. It wants a discussion and a possible solution to fill the 'gap' created by various exclusions & exemptions of

17 [http://www.icao.int/Meetings/HLM-MBM/Documents/HLM\\_GMBM\\_Brazil\\_WP13\\_en.pdf](http://www.icao.int/Meetings/HLM-MBM/Documents/HLM_GMBM_Brazil_WP13_en.pdf)

18 Article in the following refers to the article of the ICAO proposal unless mentioned otherwise. It can be accessed via [http://www.icao.int/Meetings/HLM-MBM/Documents/HLM\\_GMBM\\_Flmsy\\_1.pdf](http://www.icao.int/Meetings/HLM-MBM/Documents/HLM_GMBM_Flmsy_1.pdf)

19 [http://www.icao.int/Meetings/HLM-MBM/Documents/HLM\\_GMBM\\_WP5\\_EU.pdf](http://www.icao.int/Meetings/HLM-MBM/Documents/HLM_GMBM_WP5_EU.pdf)

states during the two phases and afterwards. It also advocates doing away with cost safeguard provision (Article 15) and, instead, wants to include this provision in a periodic review. Although not included in the draft, the EU denounces the Nationally Determined Contribution (NDC) method (the concept that underlined the Paris Agreement) arguing that such an approach would not be able to achieve the required objective of carbon-neutral growth post 2020.

The EU also proposes to have a ratchet mechanism in the GMBM draft. It wants to include a clause for periodic reviews and improvements in the GMBM to ensure greater effectiveness over time. It also endorses CAEP's work on MRV and EUC.

While the EU's enthusiasm to mitigate aviation-related emissions is well known, for its own special circumstances India does not have the luxury to side with it. India can support the issue of the reduced coverage of the scheme or 'gap' created by not attributing exempted emissions to any of the parties, on a condition that these would only be offset by developed nations.

### 5.3 Group of islands including Singapore, Fiji, Seychelles etc.<sup>20</sup>

Singapore along with many island nations supports RTK as a valid basis for phased implementation. But this group denounced GNI per capita (as originally included in the first GMBM draft) as the basis for implementing the GMBM. GNI per capita has been dropped and this change has already been reflected in the draft submitted after the HLM-GMBM. Interestingly, their proposal also cites reliance of some states on trade and tourism to support their economy as one of the reasons for dropping GNI per capita. This argument could also be used by India, which is seeking manifold growth in its international tourism sector and needs the development space for the same (see details in Section 3).

This group further requests the ICAO Council to strengthen the voluntary component of the provision to allow for earlier phasing-in of States, which would otherwise be excluded from earlier participation.

### 5.4 Russia<sup>21</sup>

Russia is one of the few countries, which completely rejects the draft GMBM. It argues that the draft in its current form is antithetical to 13 of the 17 UN Sustainable Development Goals (SDG). It points towards the ineffectiveness of the GMBM on many grounds, questioning how it undermines the principle of CBDR as well as the likely administrative complexity to implement the scheme. It also raises the issue of associated rise in ICAO's budget due to the same and thus an increased burden on major paying member states. Alternatively, it proposes a 'Clean Development Mechanism for Aviation'. It presented a paper on the basic elements of the same mechanism at the 11<sup>th</sup> meeting of Environmental Advisory Group (EAG) in May 2014.

### 5.5 China<sup>22</sup>

China like many developing nations reiterates the need for developed states to take the lead in cutting emissions from international aviation after 2020. Similarly, it wants the GMBM to be aligned with the relevant provisions in the Paris Agreement. The Chinese also raise concerns on the use of international aviation sector as a potential source for the mobilisation of climate finance to other sectors of economy and wants some mechanism to regulate it.

20 [http://www.icao.int/Meetings/HLM-MBM/Documents/HLM\\_GMBM\\_WP8\\_Singapore\\_REV5.pdf](http://www.icao.int/Meetings/HLM-MBM/Documents/HLM_GMBM_WP8_Singapore_REV5.pdf)

21 [http://www.icao.int/Meetings/HLM-MBM/Documents/HLM\\_GMBM\\_WP09\\_Russ\\_Fed\\_EN.pdf](http://www.icao.int/Meetings/HLM-MBM/Documents/HLM_GMBM_WP09_Russ_Fed_EN.pdf)

22 [http://www.icao.int/Meetings/HLM-MBM/Documents/HLM\\_GMBM\\_WP10\\_China\\_EN.pdf](http://www.icao.int/Meetings/HLM-MBM/Documents/HLM_GMBM_WP10_China_EN.pdf)

China also proposes an alternative to the proposed phased implementation roadmap (Article 7) and offset methodology (Article 9). The alternative implementation roadmap postpones the phased implementation by five years for all the states. Instead, it introduces an NDC-type of mechanism for five years starting from 2020 and advocates learning from the experience of these five years, which could then be incorporated into the design of an improved GMBM. The NDC mechanism would include States having RTKs above 0.5% of total RTKs. Other states can also participate voluntarily. For the offset methodology, it proposes a higher percentage (for example, 1.2 times of global average growth factor) for developed nations and a lower factor for developing nations. This formula could also be reviewed after every five years.

China's proposal further touches upon the EUC criteria (Article 17). In line with Brazil, it advocates for more authority for States to decide on further criteria for credits. It also proposes constituting an advisory body, which would further review the GMBM and suggest improvements.

The Chinese suggestions – more obligations for developed nations; alignment with the Paris Agreement; an NDC-type mechanism for the first five years – are in principle consistent with India's concerns. But India may need even more manoeuvring room than what the Chinese proposal permits.

## 5.6 United States<sup>23</sup>

The United States raises concerns about the low coverage of the scheme. It alternatively proposes the 'opt-out' mechanism, contrary to the exemption and exclusion of certain states in the GMBM for certain periods. There would be certain criteria on which basis a state would be able to opt-out. It argues that this would give the states required flexibility to decide for them when to participate. It has also raised concerns about the definition of international aviation, which has been now clarified in ICAO's latest draft after the HLM-GMBM.

The United States further opposes a single, sectoral growth factor for all the operators. It proposes a dynamic approach, which would initially have only sectoral growth factor but would slowly transition into individual growth rates over time. It argues that such an approach would incentivise operators to actually reduce emissions in contrast to the present approach, which does not incentivise operators to cut down on emissions in anyway. It further endorses the work of CAEP in relation to EUC and MRV elements. It also favours the inclusion of other environmentally robust programmes that meet the EUC criteria other than mechanisms under the UNFCCC. It further proposes a process to review the GMBM and its elements regularly. India would suffer disproportionately from transitioning to an individual growth rate paradigm and should reject the US proposal.

## 5.7 International Coalition for Sustainable Aviation (ICSA)<sup>24</sup>

ICSA stresses on the complementary role of GMBM to be highlighted more prominently and asks states and ICAO to focus on non-market based measures, including a full CAEP review and strengthening of ambition of CO<sub>2</sub> standard. It raises questions about the ambition of the GMBM and finds it inadequate to contain temperature to 2 °C, let alone well below 2 °C. It looks at the GMBM as a floor and not a ceiling for actions, which States would have to undertake. It also raises concerns about non-CO<sub>2</sub> climate effects of the aviation sector. One such study says that the climate impact of the sector is underestimated by at least 50%.<sup>25</sup>

23 <http://www.icao.int/Meetings/HLM-MBM/Documents/HLM-GMBM.WP4-US.pdf>

24 <http://www.icao.int/Meetings/HLM-MBM/Documents/HLM-GMBM.WP6-ICSA.pdf>

25 <http://elib.dlr.de/59761/1/lee.pdf>



ICSA further questions the environmental integrity of the GMBM citing a hole in the coverage of GMBM due to the large exemption and exclusion of states. It wants a discussion on these exempted emissions and a way to plug this gap. It also proposes a regional route grouping approach where each region's share of offsets would be equal to its share in global traffic and every operator's offset obligation would be proportional to its share in that region. This ensures both differentiation and non-discrimination.

It advocates for including the use of alternative fuels as a means to offset carbon credits in the GMBM. This idea has already been included in the post HLM-GMBM draft. It points towards the CAEP already working on the methodology to quantify at least life cycle emissions due to the same and encourages the CAEP to complete the task by its next meeting. It also pointed towards damaging impacts of certain alternative fuels. It also encourages CAEP to come out with a sustainability framework for the use of alternative fuels in the GMBM, to address this problem.

The ICSA proposal makes all the right noises for India in its proposal. Its unwavering focus on non-GMBM (such as CO<sub>2</sub> standards or alternative fuels) to address the aviation sector's environmental issues is the kind of posture that India needs to develop at Montreal in September 2016.

## 6 Is RTK the right basis for the scheme?

Revenue tonne kilometers (RTK) being the single most important criterion for phased-in implementation warrants a detailed analysis. While the definition of RTKs has been dealt with in Section 2, the rationale for RTK being a close proxy for carbon emissions, as claimed by ICAO and many other States in their respective proposals, needs further examination. There has also been a lot of confusion on the standard weight of passengers that needs to go into the calculation of the RTKs. A standard weight for passengers needs to be assumed to make RTK calculations since all passengers weigh differently and it is almost impossible to weigh all of them in a cost-effective manner. Different agencies use different benchmarks. It is 100 kg<sup>26</sup> and 91 kg<sup>27</sup> according to DGCA guidelines and ICAO's 2007 standard. Further clarity is required on this aspect as RTK is the primary criteria governing phased-in implementation.

As far as the support for RTK goes, there seems to be a unanimous support for RTK as a criterion for identification of states in the phased implementation of the GMBM scheme (as shown in Section 5). Most of the states submitting their draft proposals for the GMBM either supported RTK by directly endorsing it (islands like Fiji, Seychelles, Singapore etc.) or by not mentioning the applicability of RTK as a criterion in their draft proposals (EU, US etc.). The latter shows that it has not been a point of contention for these states. Some countries (China, Brazil) also endorsed RTK by basing their alternative proposals on RTK. Most of the states have primarily argued in favour of RTK on two bases. This first is administrative simplicity (since all the states already report their RTKs to ICAO), which means lesser costs for implementation and transition. This observation is also in line with ICAO's mission of keeping GMBM administratively simple.

The second argument to favour RTKs – the assumption that they are directly proportional to emissions – is a bit contentious. This relationship can go wayward when an extremely fuel-efficient plane carries the same weight of passengers and freight compared to a less-efficient one. By the definition, both planes would produce equal RTKs but the more efficient one would have fewer emissions. IATA, a very important stakeholder in the aviation sector supported RTK as a criterion for phased-in implementation in one of its draft papers but also advocated for consideration of a more direct proxy (CO<sub>2</sub> emissions) in future. It further said that this type of data would be more readily available through the reporting requirements under the proposed GMBM. This observation becomes more important in the context of countries like India as its operators have relatively more modern fleets and would emit lesser emissions with equal RTKs. A move away from RTKs to actual emissions would also induct the proposed CO<sub>2</sub> standard into the GMBM and this would certainly be a favourable move for India.

26 <http://dgca.nic.in/cars/D10B-B1.pdf>

27 <http://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1097&context=jate>

## 7 Effect of GMBM on implementation of National Civil Aviation Policy and Regional Connectivity Scheme

The Regional Connectivity Scheme (RCS) is aimed at enhancing regional connectivity within India in an affordable manner. While it can certainly spur the domestic aviation market in a big way, its chances of affecting international aviation look bleak at this point of time. As a result, GMBM should not affect the implementation of RCS.

The National Civil Aviation Policy (NCAP) is more comprehensive in its mandate to spur both passenger and freight segments in the domestic as well as international aviation markets. The NCAP sets a target of 200 million passengers and 10 million tonnes of cargo by 2027. This target translates into annual growth of 13.82% and 19.64% in passenger and freight segments respectively for the next 11 years. This certainly looks ambitious if compared to the annual growth rate that the international aviation sector has recorded in the last 11 years, namely 9.77% and 5.91% in the passenger and freight segments, respectively.

The GMBM can affect implementation of the NCAP in two ways. First, it can reduce the demand of international air travel in India, as air travel will become expensive after the imposition of the GMBM. This would make growth rates upwards of 13% and 19% in the two segments much more difficult to achieve. Secondly, if the fears of West Asian carriers not passing on the complete cost of carbon (GMBM) to the passengers come true, it could hurt the Indian operators adversely and constraint their balance sheets enough that their fleet expansion plans would be hurt significantly. This scenario would make higher targeted growth rates almost impossible until the Indian government allows foreign operators to expand their presence in India. This move can bring immediate benefit to consumers in the form of low fares but it also poses a big risk of not having any major Indian operator able to compete in the global aviation market. The strategic risk posed by the loss of market share for Indian operators is significant, and needs to be addressed in the medium to long-term.

## 8 GMBM and other market based measures

Other than the voluntarily reduction of carbon emissions as outlined in Nationally Determined Contributions (NDCs), there are many other flexible mechanisms and instruments available in the Paris Agreement. One such mechanism is curtailing emissions through markets. According to the International Emissions Trading Association (IETA), Article 6 of the Paris Agreement ‘provides the opportunity to expand the reach of carbon pricing to enable full implementation of NDCs’<sup>28</sup>.

Although the Agreement does not use the term ‘markets’, it elaborates on the use of Internationally Transferred Mitigation Outcomes (ITMOs), for exchanging carbon units such that they contribute to meeting NDCs and promote sustainable development while ensuring that no double counting occurs<sup>29</sup>. Moreover, it has established a mechanism for emission mitigation that aims to support sustainable development simultaneously. This mechanism is meant to contribute mitigating emissions such that NDCs are fulfilled within the host nation, or through other Parties, along with assured development co-benefits.

The largest difference that the Paris Agreement has brought to the table compared to any previous or ongoing carbon trading market regime is that notional or real reduction in emissions in other sectors, which are not part of the trading system, could be bought to offset emissions, and be added to the available allowance pool to be bought for offsetting emissions from sectors within the trading group. However, as the Paris Agreement seeks to cover all GHG emissions globally and curtail these emissions, the previous norm of only certain countries and sectors having emission reduction goals is no longer valid. In line with this, it is crucial to note that the current regime encourages these mechanisms to include wider policies and measures, and establishes that they are meant to facilitate “overall mitigation” in global emissions as opposed to the Clean Development Mechanism’s project-based offsetting systems<sup>30</sup>.

These trading clauses are open to developed and developing countries, public and private entities. However, it is important to note that only a handful of nations are proponents of using market-based trading methods to meet NDCs (including Canada, New Zealand, and Japan).<sup>31</sup> The rules for these clauses in the Paris Agreement – ranging from developing a robust accounting methodology, avoiding double-counting, ensuring ‘additionality’ or development benefits, environmental integrity and governance mechanisms – would only be negotiated and decided in the coming years. These would also affect how the global climate change regime interacts with other market mechanisms or even sectors not within its purview, for example the proposed ICAO GMBM for emissions arising from international aviation.

In comparison to the clauses and the negotiations behind the Paris Agreement, ICAO’s GMBM lacks a

28 IETA (2016) A Vision for the Market Provisions of the Paris Agreement, Geneva: International Emissions Trading Association

29 United Nations (2015) “Paris Agreement”, Article 6, paragraph 2-4. Available at [http://unfccc.int/paris\\_agreement/items/9485.php](http://unfccc.int/paris_agreement/items/9485.php); accessed 16 August 2016

30 Szabo, Mike (2015) “Paris Agreement rings in new era of international carbon trading”, Carbon Pulse, 12 December. Available at <http://carbon-pulse.com/13339/>; accessed 12 August 2016.

31 Lake, Katharin (2015) “How will carbon markets help the Paris climate agreement?”, The Conversation, 14 December. Available at <http://theconversation.com/how-will-carbon-markets-help-the-paris-climate-agreement-52211>; accessed 16 August 2016.

certain degree of commitment to environmental and social safeguards. Aspects such as robust accounting, transparency, and overall emission reduction are not clearly reflected in the current GMBM proposal. GMBM needs clear mechanisms and clauses to ensure that environmentally sound criteria are used to account for GHG projects that are recognised within the GMBM.

IETA, in its recommendations to the GMBM design, suggests using EUC as a mandate as opposed to the current language that only promotes its use. Moreover, it should clearly establish that the emissions reduced in the framework of the Paris Agreement to meet a country's NDC targets cannot be used in the GMBM through double-counting. "Fundamentally, the integrity of the global MBM requires that offsets are real, permanent, quantifiable, verifiable, and additional. We support the proposed recommendations for offset programs, although more consideration may be needed to clearly define the criteria for "safeguarding systems to address environmental and social risks" and for "sustainable development criteria" for the offset program. It would suggest a careful approach in defining the meaning of "no net harm". A definition that is ambiguous and overly broad could ultimately hinder the creation of credible offsets that provide robust co-benefits."<sup>32</sup>

Below we have outlined some of the other points that the IETA has suggested for the current GMBM design, which are relevant for India's concerns:

- 8.1** A centralised registry to harmonise reporting processes, ownership units, encourage trading between account holders, and negate double counting.
- 8.2** Provisions to allow airlines to "accumulate" offsets before the first compliance period to enable:
  - Better understanding between airlines about engaging with the carbon markets
  - Governments to establish accounting systems for emissions reductions used by the aviation sector, alongside their NDCs.
- 8.3** Use of REDD+ and forest-related activities for sourcing emissions reductions.
- 8.4** Establish systems of transparency such that market information is available in a fair manner, and the MRV system "builds confidence among market participants".

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32 <http://www.icao.int/Meetings/HLM-MBM/Documents/HLM-GMBM.WP7-IETA.pdf>

# 9 Recommendations for India

- 9.1** India needs to push for a more comprehensive criterion beyond RTK as a basis for the phased implementation. While RTK is a good proxy, actual emissions would be the most efficient metric, which would allocate responsibility for mitigation across carriers and countries. IATA also proposes for emissions to become the basis and argues that when the GMBM comes into effect, data on emissions would also become much more readily available.
- 9.2** Indian carriers possess a more efficient fleet as they are relatively newer purchases and, as a result, will contribute to a lower share of the emissions on various routes (*ceteris paribus*). India needs to emphasize more on a stringent global CO<sub>2</sub> standard. Although it is one of the non-market based measures, it is not part of the GMBM scheme at this point. One plausible route is through the inclusion of a two-part accounting system wherein departures are “taxed” based on the equipment/fleet that is used for a particular scheduled flight. This way the twin goals of incentivising the use of efficient aircraft as well as effective use of capacity on aircrafts to limit unnecessary departures (in high frequency markets) and to encourage seat-sharing and code-sharing on long-haul flights. The process of coming up with the tax rates must be worked out based on the impact on operating costs. India stands to gain most from this, on account of the more efficient fleet of the Indian carriers (the present ones and any new that are likely to form).
- 9.3** India must stress on the need for differentiation between developing and developed nations. This is being deliberated as the additional criterion (for inclusion of countries) in the draft. Developed countries must find automatic inclusion irrespective of whether they meet the 1% RTK criterion. This provision would ensure that countries such as Belgium, Finland etc. are participants in the first phase, which would otherwise have been excluded. Their non-participation would also lead to a market distortion as new hubs could be established in these excluded countries giving an opportunity to service routes (through this hub) where the start and end points are in countries, which are otherwise included in the GMBM. Exempted emissions are currently not included in the overall emissions that will be used to establish the sectoral growth rate. India can alternatively push for exempted emissions to be only offset by developed nations. This will be conditional on the acceptance of the distinction between developed and developing countries in the draft (as proposed in 9.3), similar to the Paris Agreement.
- 9.4** Finally, in light of the expected growth of India’s RTKs to a level of 10 billion by 2020 and the expectation that RTKs in the medium term have the potential to grow to as high as 20 billion (based on reasonable projections of economic growth, outbound and inbound tourism growth), it would be prudent to push for a delayed implementation of Phase I for developing countries. This would certainly help in reducing the burden on routes between India and the rest of the world and ensuring that the cost of travel does not rise significantly for travelers to and from India. While some elements of the Chinese proposal do allow for some room to expand India’s RTK base (and not being locked into a low cap at 2020), India’s RTKs are at significantly low levels, given the demand for travel and the latent potential for inbound tourism.







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