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UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

Subsidiary Body for Scientific and Technological Advice
Thirty-eighth session
Bonn, 3–14 June 2013

Item 10(e) of the provisional agenda
Methodological issues under the Convention
Emissions from fuel used for international aviation and maritime transport

Information relevant to emissions from fuel used for international aviation and maritime transport

Submissions from international organizations

1. The Subsidiary Body for Scientific and Technological Advice, at its thirty-seventh session, invited the secretariats of the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) to continue to report, at its future sessions, on relevant work in relation to addressing emissions from fuel used for international aviation and maritime transport.[1]

2. The secretariat has received one submission from ICAO and one submission from IMO containing information on emissions from fuel used for international aviation and maritime transport. In accordance with the procedure for miscellaneous documents, these submissions are attached and reproduced* in the language in which they were received and without formal editing.[2]

[1] FCCC/SBSTA/2012/5, paragraph 96.

* These submissions have been electronically imported in order to make them available on electronic systems, including the World Wide Web. The secretariat has made every effort to ensure the correct reproduction of the texts as submitted.

[2] Also available at <unfccc.int/3714>.

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UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

The Thirty-eighth Session of the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA38)
(3 to 14 June 2013 – Bonn, Germany)

Agenda Item 10 (e)
Emissions from fuel used for international aviation and maritime transport

(Submission by the International Civil Aviation Organization (ICAO))

Executive Summary

ICAO and its Member States are taking concrete steps for coordinated and comprehensive actions to address CO_2 emissions from international aviation, in order to reach our ultimate goal of ensuring the sustainable future of international aviation.

Following the adoption of Resolution A37-19 by the 37th Session of the ICAO Assembly, which invited ICAO Member States to voluntarily submit of action plans on CO_2 emissions reduction activities, since 2011, the Organization has undertaken intense capacity-building activities facilitating, within just a few years, the preparation and submission of States' action plans that represent approximately 80 per cent of global air traffic, and this coverage is expected to reach 90 per cent by the end of 2013.

ICAO has continued to develop policies, Standards, guidance and tools to facilitate the implementation of "a basket of measures", from which Member States select in their action plans. Progress has been achieved in all the elements of the basket, including technical Standards, operational measures, sustainable alternative fuels and market-based measures. Each element of the basket can be used to achieve ICAO's collective global aspirational goals of improving annual fuel efficiency by 2 per cent and stabilizing global CO_2 emissions at 2020 levels.

The Organization is also focusing on how to best support Member States that need assistance for the implementation of measures identified in their action plans. ICAO has been exploring partnerships with other international organizations, with a view to establishing processes that can facilitate finance to Member States that need such assistance.

The achievement of global aspirational goals for the international aviation sector require adequate financial resources within the sector itself. In this regard, the ICAO Council in March 2013 agreed that ICAO and its Member States need to express a clear concern, in particular through the UNFCCC process, to ensure that international aviation would not be targeted as a source of mobilizing revenue for long-term climate finance in a disproportionate manner.

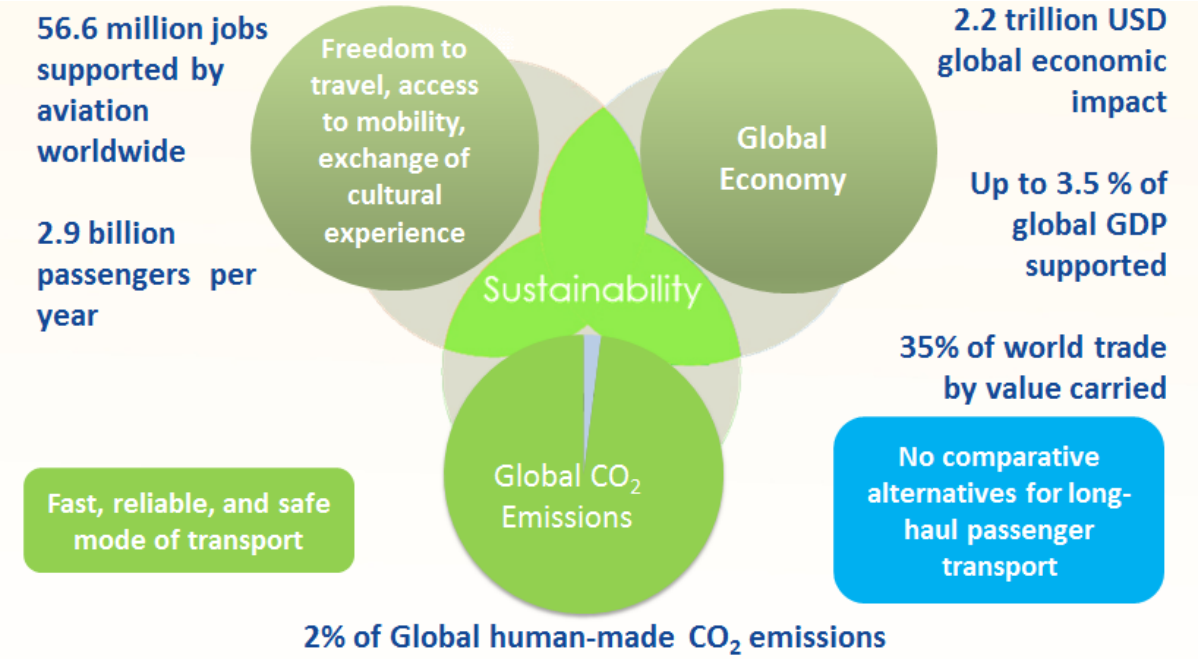
Significant progress has been achieved since the last Assembly, which was shared during the ICAO Symposium held in May 2013 (http://www.icao.int/Meetings/Green), to facilitate well-informed decision-making at the upcoming 38th ICAO Assembly in September 2013. ICAO is working with its Member States and relevant international organizations in moving forward on a global solution to address emissions from international aviation, aiming at achieving further progress at the 38th Assembly, bringing ICAO one step closer to the ultimate goal of a sustainable future of international aviation.

1. INTRODUCTION

1.1 ICAO and its Member States, in cooperation with the aviation industry, are engaged in various initiatives to meeting our responsibilities for the sustainable future of international aviation, maximizing its support for social benefits and economic development, while reducing its impact on the environment (Figure 1). Through the increased use of low-carbon technologies, environmentally friendly materials, new aircraft systems and sustainable energy sources, the air transport sector is also making significant advances across the environmental pillar of sustainable development.

1.2 Resolution A37-19[1] adopted by the 37th ICAO Assembly in 2010 was an important step towards a sustainable air transport future, and made international aviation the first sector with global aspirational goals of improving annual fuel efficiency by 2 per cent and stabilizing its global CO_2 emissions at 2020 levels.

1.3 Since the Assembly, ICAO and its Member States have been engaged in various initiatives and made important progress in the field of international aviation and climate change, focusing on: 1) technological and operational measures; 2) sustainable alternative fuels for aviation; 3) market-based measures; 4) States' action plans; 5) assistance to States; and 6) global aspirational goals, in order to move international aviation closer to a sustainable future.



Source: ICAO, Intergovernmental Panel on Climate Change (IPCC), Air Transport Action Group (ATAG)

Figure 1: Aviation's contributions to three pillars of sustainability[2].

2. ICAO PROGRESS AND NEXT STEPS

Technological and Operational Measures

[1] http://www.icao.int/environmental-protection/Pages/Assembly.aspx
[2] http://www.icao.int/Meetings/Green/Documents/day%201pdf/openning%20speeches/Opening-Hupe.pdf

2.1 A major area of activity in the field of international aviation and climate change is the development of a technical CO_2 certification Standard for aircraft, being undertaken by the ICAO Committee on Aviation Environmental Protection (CAEP). Significant efforts were directed to achieving the consensus agreement of certification requirements at the ninth CAEP meeting in February 2013, which allowed ICAO to move to the next stages on the analysis of an appropriate regulatory limit for the Standard.

2.2 Operational measures are also one of the elements in a basket of measures available to States to reduce aviation emissions. In order to provide States with the ability to assess the environmental benefits of operational measures, the ICAO Fuel Savings Estimation Tool (IFSET) and guidance for environmental assessment of operational improvements were developed. ICAO is also assessing environmental benefits of the first modules of the Aviation System Block Updates (ASBU) strategy, which is a major initiative under ICAO to improve global air navigation efficiency.

Sustainable Alternative Fuels for Aviation

2.3 Sustainable alternative fuels for aviation may offer one of the most promising opportunities for reducing the aviation sector's greenhouse gas (GHG) emissions. ICAO has been providing a forum for the exchange of information on the state of worldwide activities in this area. Today, the use of drop-in biofuels in aviation is a reality as they do not require changes to aircraft or fuel delivery infrastructure, and airlines are already using such fuels from a variety of feedstocks in their commercial flights. On the occasion of the United Nations Conference on Sustainable Development (UNCSD, Rio+20 Conference) in June 2012, ICAO organized, in close cooperation with the industry partners, a series of four connecting commercial flights from Montréal to Rio de Janeiro, which were all powered by sustainable alternative fuels. All the initiatives being undertaken worldwide are updated at the ICAO Global Framework for Aviation Alternative Fuels (GFAAF) web-based platform (See Figure 2).

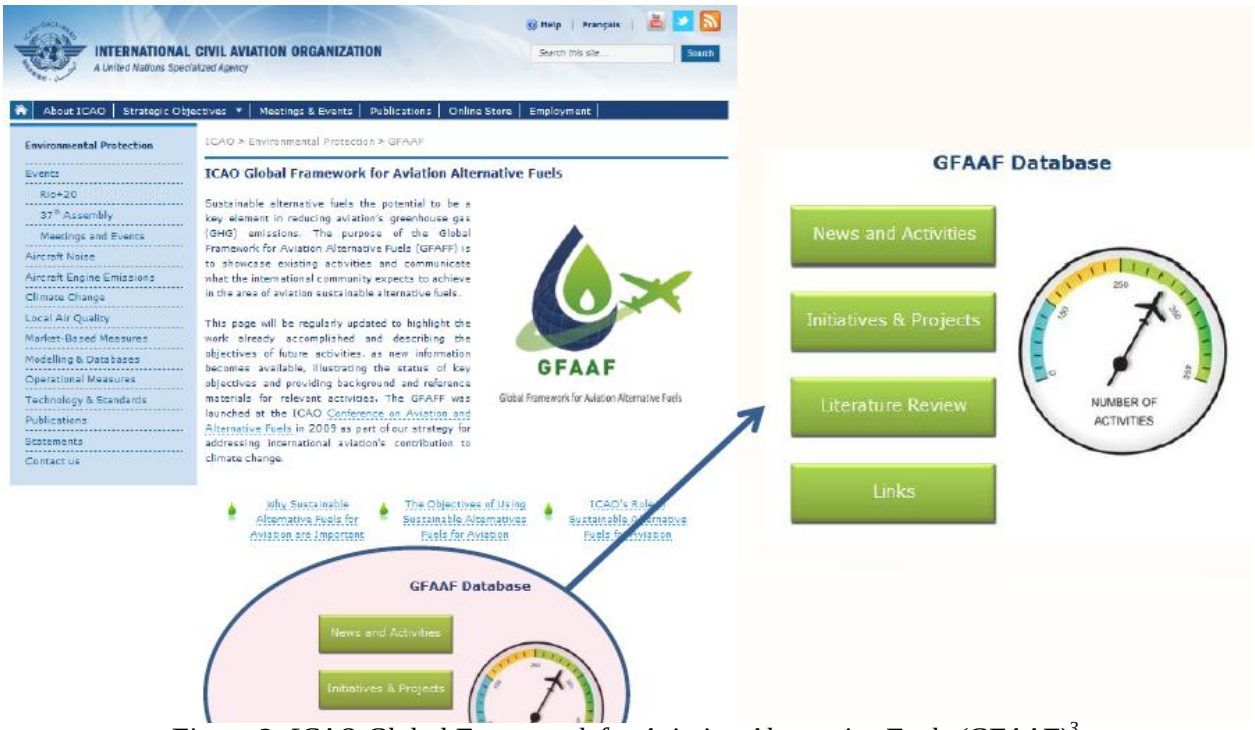


Figure 2: ICAO Global Framework for Aviation Alternative Fuels (GFAAF)[3].

[3] http://www.icao.int/environmental-protection/Pages/alternative-fuels.aspx

2.4 Technological aspects of alternative fuels for aviation have proven to be viable. The next challenge is to enable such fuels to be available in a timely and commercially viable manner with sufficient quantities for use in aviation. In 2012, building upon the existing policies and measures, and current initiatives and best practices undertaken by States and organizations, an ICAO expert group undertook work to develop a set of policy recommendations to promote and further facilitate the development and deployment of sustainable alternative fuels for aviation, which will be considered by the ICAO Council in June 2013.

Market-based Measures (MBMs)

2.5 The 37th ICAO Assembly agreed on the development of a framework for MBMs, and decided to explore a global MBM scheme for international aviation. In cooperation with experts nominated by Member States and international organizations, ICAO has been undertaking intensive work on the development of a framework to guide the application of national or regional MBMs for international aviation, as well as the feasibility of options for a global MBM scheme, including the consideration of practical means to accommodate special circumstances and respective capabilities of Member States, as well as quantitative assessment of the economic impacts of a global MBM scheme on international aviation.

2.6 In November 2012, the Council agreed on the establishment of a High-level Group that would focus on fundamental policy issues, including those related to MBMs. The High-level Group met three times, the outcome of which will be considered by the Council in June 2013, and a proposal of the Council will subsequently be considered by the 38th Assembly in September 2013.

States' Action Plans

2.7 In addition to the traditional "Standards and policies setting" role of ICAO related to international aviation and climate change, Resolution A37-19 transitioned the Organization's policy outlook to a more action-oriented "implementation mode". The action plans allow States to identify their basket of mitigation measures and assistance needs to implement such measures. In turn, the compilation of information contained in the States' action plans enables ICAO to assess the progress toward achieving the global aspirational goals, as well as identify the areas of implementation assistance needed towards the provision of such assistance to States.

2.8 To assist States to voluntarily submit action plans prior to June 2012, as set forth by the Assembly, ICAO developed a guidance document, template and web interface (Figure 3), as well as organized eight hands-on workshops, by which 91 Member States representing 93 per cent of global international air traffic were trained (Figure 4). Over 200 teleconferences have been organized thus far to directly contact national focal points and provide further support.

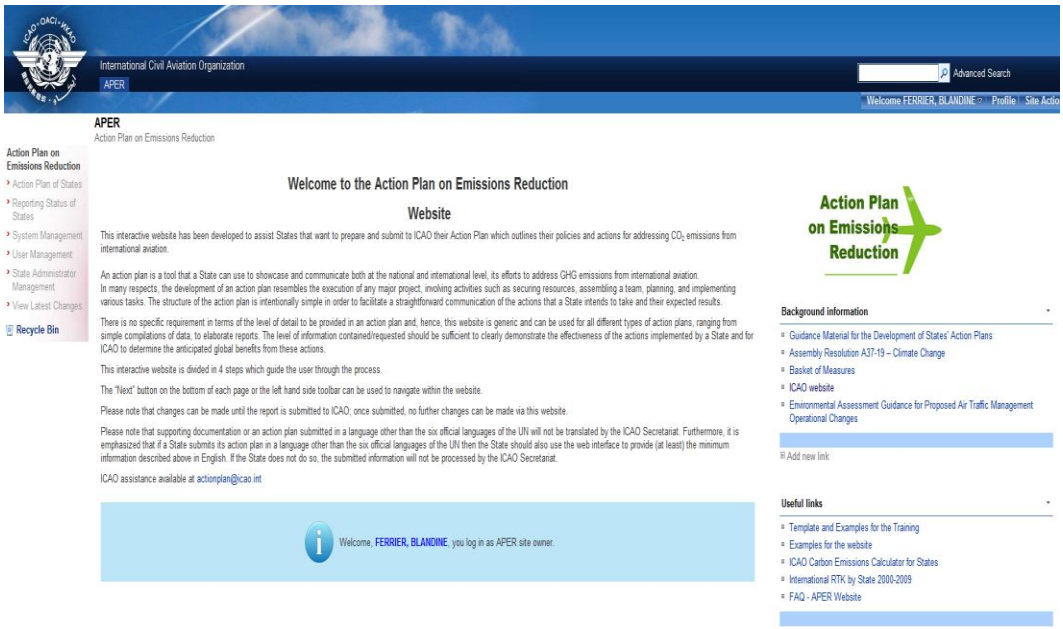


Figure 3: ICAO Web-Interface to assist preparation and submission of Member States' action plans[4].

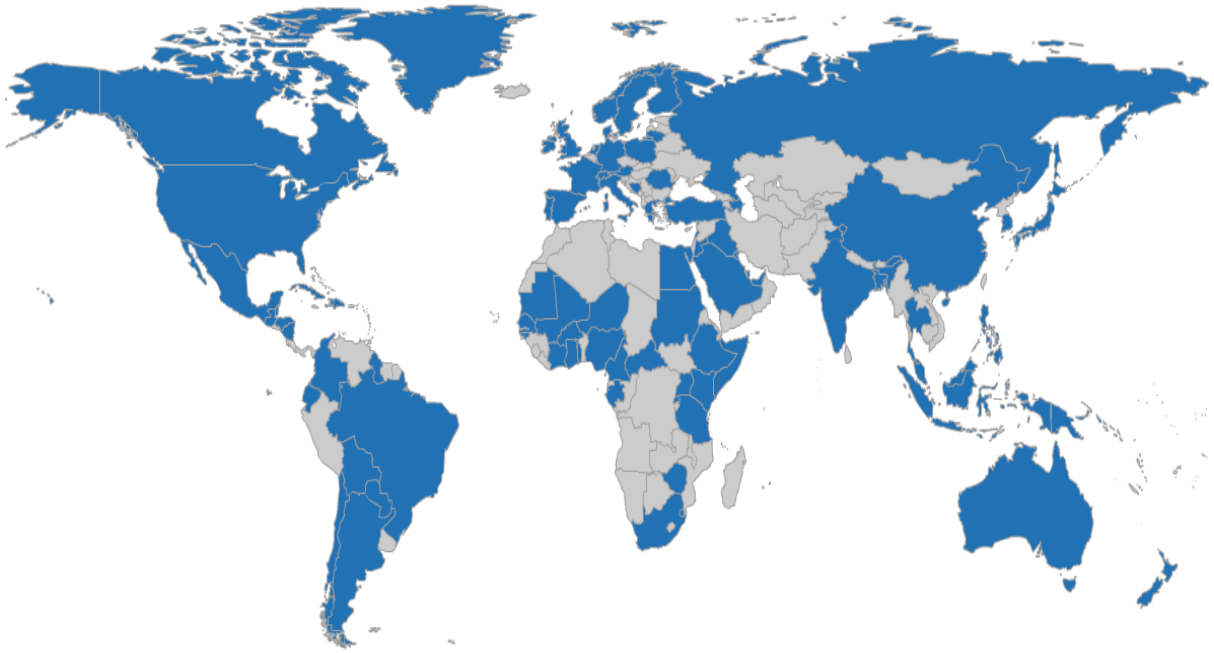


Figure 4: ICAO hands-on workshops trained 91 Member States, representing 93% of global traffic[5].

2.9 As of April 2013, Member States, representing more than 77 per cent of global international air traffic, prepared and submitted action plans to ICAO. It is expected that submission of additional action plans by the end of 2013 will bring the total coverage of global international air traffic to more than 90 per cent (Figure 5). Building upon the experience and following the review of information provided in action

[4] http://www.icao.int/environmental-protection/Pages/action-plan.aspx
[5] http://www.icao.int/Meetings/Green/Documents/DAY3/State%20Action%20Plan/7-Ferrier.pdf

plans submitted, ICAO is considering the means to enhance the quality of action plans, help harmonize the data contained therein, and further increase the number of action plans to be prepared and updated.

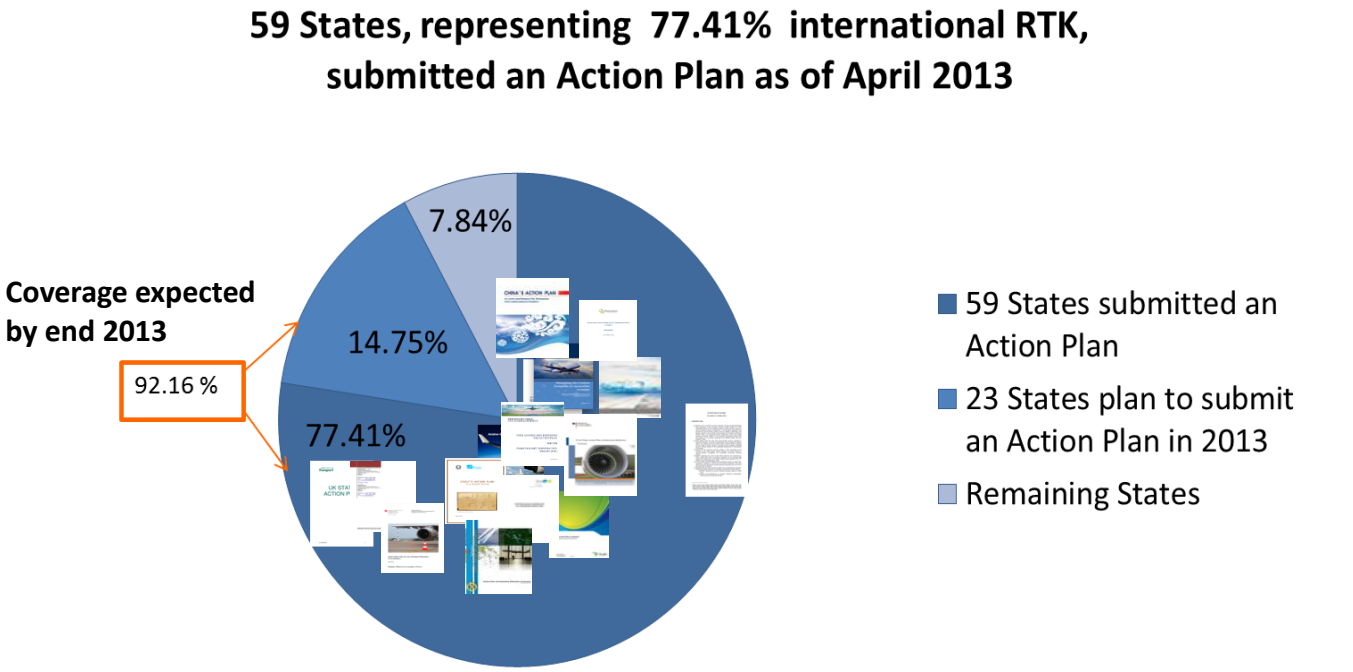


Figure 5: Status of submission of ICAO Member States' action plans.

Assistance to States

2.10 After the successful completion of the first phase of provision of assistance to States in the preparation and submission of their action plans, focus is now to support States that need assistance in implementing the CO_2 emissions reduction measures identified in action plans. In also responding to the request of the 37th Assembly to facilitate the provision of technical and financial assistance, as well as facilitate access to existing and new financial resources, technology transfer and capacity building to developing countries, the ICAO "Assistance for Action – Aviation and Climate Change" Seminar in October 2012 shared information and identified opportunities to support provision of assistance required (http://www.icao.int/meetings/acli/Pages/default.aspx).

2.11 ICAO has been exploring synergies and partnerships with the climate change mitigation activities of ICAO Member States, other international organizations and multilateral funding agencies, and constructively engaging with those that have funds earmarked and dedicated for climate change mitigation activities, so as to make different financing options available to Member States requesting assistance.

Global Aspirational Goals

2.12 In April 2013, CAEP finalized work to update the CO_2 trends assessment by estimating the contribution of various categories of mitigation measures to reduce aviation CO_2 emissions (technologies, operational improvements and alternative fuels) in order to measure current and estimate future progress toward the achievement of global aspirational goals (Figure 6).

2.13 Substantial input from Member States and Observer Organizations, including those representing airlines, airports, aircraft manufacturers, air navigation service providers, environmental NGOs

and academia, contributed to the development of the CO_2 trends, including through sophisticated models, databases and expertise[6]. They were reviewed by and reflect the consensus of CAEP. This ensures that decisions being taken by the ICAO Assembly are based on a single, agreed, set of trends. As the ICAO Member States are also represented as Parties to the UNFCCC, ICAO invites the UNFCCC to refer to ICAO's trends as the basis for all discussions related to international aviation emissions.

2.14 Work to measure the current global fuel consumption from international aviation will directly support the request of the 37th ICAO Assembly to regularly report CO_2 emissions from international aviation to the UNFCCC process. The updated CO_2 trends assessment for the period of 2010 to 2050, prepared by CAEP, will support the review of the global aspirational goals by the Council and subsequently by the 38th Assembly.

Environmental Tools[7]

2.15 The ICAO Fuel Savings Estimation Tool (IFSET) assists Member States and air navigation service providers in assessing expected fuel savings from implementation of various operational improvements. The IFSET will also support the preparation of States' action plans and facilitate the assessment of environmental benefits from the Aviation System Block Upgrades (ASBU) strategy.

2.16 The ICAO Carbon Emissions Calculator allows its users to estimate the emissions from air travel. The methodology applies the best publicly available data to account for various factors such as aircraft types, route specific data, passenger load factors and cargo carried, while it is simple to use and requires only a limited amount of information from the user. The Carbon Calculator was endorsed as an official tool to estimate the air travel portion of the UN greenhouse gas emissions inventories, as part of UN Climate Neutral initiative. ICAO's support to the UN system was further extended through the development of the ICAO Green Meetings Calculator (IGMC), a tool designed to support decision-making in reducing the carbon emissions from air travel to attend meetings.

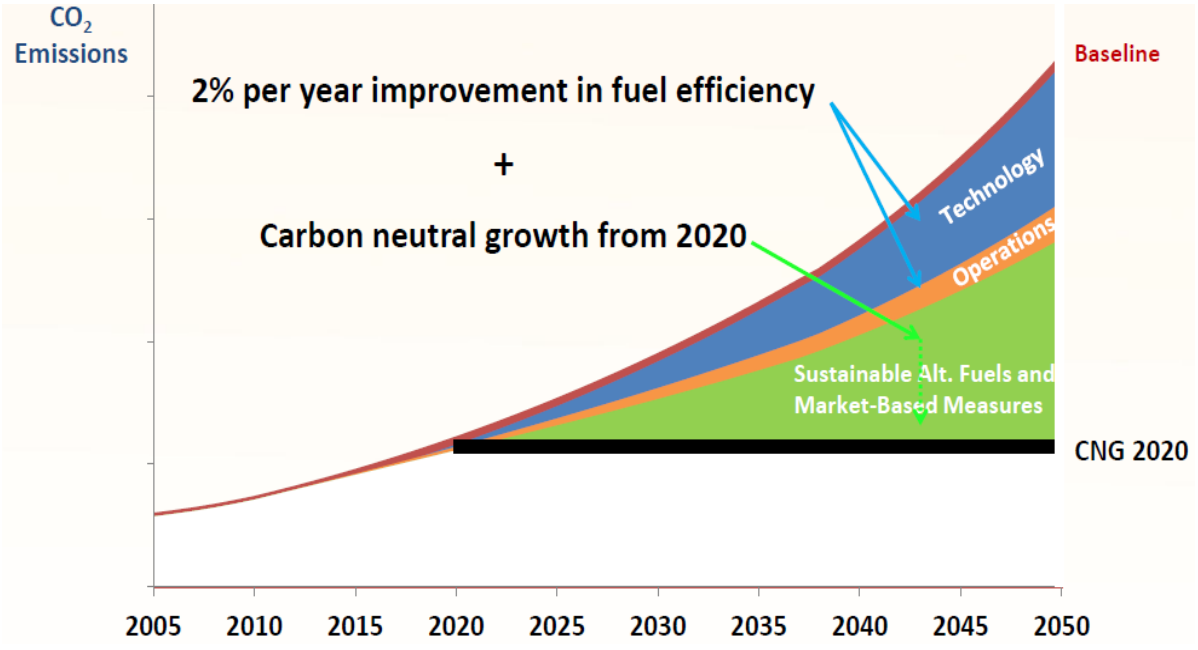


Figure 6: CAEP's work on CO_2 trends assessment (conceptual image)[8].

[6] http://www.icao.int/environmental-protection/Pages/modelling-and-databases.aspx
[7] http://www.icao.int/environmental-protection/Pages/Tools.aspx

3. UNFCCC – CLIMATE FINANCE

3.1 The UNFCCC Doha Conference adopted a series of decisions which included the extension of the work programme on long-term climate finance for one year by the end of 2013, to further analyse options for the mobilization of USD 100 billion per year by 2020 from a wide variety of potential sources. Some Parties expressed concern with the proposals to use international aviation as a potential source for mobilizing such revenue. Such proposals are included in the report of the High-level Advisory Group on Climate Financing (AGF) in 2010 and the report of the World Bank (WB)/International Monetary Fund (IMF) under the G20 process in 2011. The WB/IMF report explored global carbon charges of USD 25 per tonne of CO_2 on international transport, which it suggests could raise USD 12 billion per year by 2020 from international aviation.

3.2 It should be highlighted that the global aspirational goals for the international aviation sector, adopted by the 37th ICAO Assembly, will require adequate financial resources within the sector itself, enabling it to effectively respond to the global climate change challenge. It is of utmost importance that the design and implementation of market-based measures for international aviation be treated as one element of a basket of mitigation measures to achieve the global aspirational goals, and not in isolation.

3.3 In this regard, the ICAO Council in March 2013 agreed that ICAO and its Member States need to express a clear concern, in particular through the UNFCCC process, to ensure that international aviation would not be targeted as a source of revenue for long-term climate finance in a disproportionate manner, including through the reflection of this concern in Resolution text on international aviation and climate change to be considered by the 38th ICAO Assembly.

4. COOPERATION WITH OTHER ORGANIZATIONS

4.1 In addition to providing the UNFCCC process with information and perspectives on matters related to international aviation, ICAO has also continued its cooperation with other international organizations, such as Intergovernmental Panel on Climate Change (IPCC), World Meteorological Organization (WMO), United Nations Environmental Programme (UNEP), United Nations Conference on Sustainable Development (UNCSD), International Maritime Organization (IMO), United Nations Development Programme (UNDP), Global Environment Facility (GEF) and World Tourism Organization (UNWTO), with a view to obtaining a better scientific understanding of aviation's impact on the environment as well as exploring possible synergies in policy-making and the implementation of measures to limit or reduce aviation emissions.

4.2 For example, ICAO and UNWTO signed a Joint Statement in March 2013, acknowledging the intention of the two UN agencies to begin cooperating more closely on areas of common interest, including the reduction of GHG emissions from aviation and tourism. In addition, on the occasion of the ICAO Symposium on Aviation and Climate Change held in May 2013[9], ICAO and the Air Transport Action Group (ATAG) signed a Joint Statement to strengthen collaboration to better promote and communicate to governments and the aviation industry on all developments and initiatives related to the sustainable development of global air transport.

[8] http://www.icao.int/Meetings/Green/Documents/day%201pdf/openning%20speeches/Opening-Hupe.pdf
[9] http://www.icao.int/Meetings/Green/Pages/default.aspx

5. CONCLUSIONS

5.1 With the increasing engagement of Members States, together with close cooperation with the aviation industry and other stakeholders, ICAO expects greater willingness of its Member States in moving forward to global solutions to address GHG emissions from international aviation, to be reached at the 38th ICAO Assembly, bringing ICAO one step closer to the ultimate goal of a sustainable future of international civil aviation.

5.2 ICAO expects the UNFCCC process to deliver an agreement that acknowledges ICAO's achievements as the specialized UN agency for international aviation in the area of climate change, and encourages its Member States to continue to work further through ICAO.

Paper no. 2: International Maritime Organization

Note by the International Maritime Organization to the thirty-eighth session of the Subsidiary Body for Scientific and Technological Advice (SBSTA 38)
Bonn, Germany, 3 to 14 June 2013

Agenda item 10(e)
Emissions from fuel used for international aviation and maritime transport

UPDATE ON IMO'S WORK TO ADDRESS EMISSIONS FROM FUEL USED FOR INTERNATIONAL SHIPPING

SUMMARY

IMO's Marine Environment Protection Committee has been considering as an important part of its agenda actions to address greenhouse gas (GHG) emission from ships engaged in international trade. It met for its 65th session from 13 to 17 May 2013 (MEPC 65), at IMO Headquarters in London and had the participation of more than 800 delegates 106 Member States, 4 United Nations bodies, 8 intergovernmental organizations and 48 non-governmental organizations.

MEPC 65 continued its work on further developing technical and operational measures relating to energy-efficiency measures for ships, following the entry into force, on 1 January 2013, of the new chapter 4 of MARPOL Annex VI, which includes requirements mandating the Energy Efficiency Design Index (EEDI), for new ships, and the Ship Energy Efficiency Management Plan (SEEMP), for all ships.

MEPC 65, in noting the importance of enhancing energy efficiency and reducing fuel consumption with subsequent reductions of CO_2 emissions and other pollutants emitted to air from ships, considered further measures. These include the use of a phased approach to implementation, with the focus of initial work being on data collection, as a basis for future technical work.

IMO is also focusing its efforts on technical co-operation and capacity building to ensure smooth and effective implementation and enforcement of the new regulations worldwide. In this regard, MEPC adopted an MEPC Resolution on *Promotion of Technical Co-operation and Transfer of Technology relating to the Improvement of Energy Efficiency of Ships*.

Introduction

1 International shipping plays a vital role in the facilitation of world trade as the most cost-effective and energy-efficient mode of mass transport, making a significant contribution to global prosperity in both developing and developed countries.

2 IMO was established by governments as a specialized agency under the United Nations to provide machinery for intergovernmental cooperation in the field of regulation of ships engaged in international trade. IMO is responsible for the global regulation of all facets pertaining to international shipping and has a key role in ensuring that lives at sea are not put at risk including

security of shipping and that the environment is not polluted by ships' operations – as summed up in IMO's mission statement: **Safe, Secure and Efficient Shipping on Clean Oceans**.

3 The global character of shipping has resulted in the adoption of global regulation that applies universally to all ships irrespective of the country of ship registration, in line with the basic principle of non-discrimination set out in IMO's constitutive Convention. The global nature of shipping is demonstrated with the following table which identifies the fleet statistics for annex 1 and non-annex 1 countries. In accordance with IHS Fairplay's database[12], as per 1 July 2013, the distribution by flag of the world merchant fleet of ships above 100GT was as follows:

	Number of ships	GT	DW
Annex I flag States	16,662 (30.2%)	262,453,006 (25.3%)	360,764,991 (23.1%)
Non-Annex I flag States	38,441 (69.8%)	773,990,084 (74.7%)	1,197,750,560 (76.9%)
Total	55,103	1,036,443,090	1,558,515,551

Work on control of GHG emissions from international shipping

4 Measures to improve energy efficiency of international shipping were adopted by Parties to Annex VI of the Convention on the Prevention of Pollution from Ships (MARPOL) at MEPC 62 in July 2011 and entered into force on 1 January 2013. The *Regulations for energy efficiency of ships*, apply to internationally trading ships of 400 gross tonnage and above, and make mandatory:

.1 the Energy Efficiency Design Index (EEDI) for new ships; and
.2 the Ship Energy Efficiency Management Plan *(*SEEMP) for all ships.

These mandatory measures address ship types responsible for 70% of GHG emissions from international shipping. For comprehensive information on the breakthrough adoption of mandatory technical and operational measures, please refer to IMO's submission to SBSTA 35 (FCCC/SBSTA/2011/MISC.9), as well as IMO's website: www.imo.org.

5 The EEDI is a non-prescriptive, performance-based mechanism that leaves the choice of technologies to use in a specific ship design to the industry. So long as the required energy-

[12] Calculating conditions:

- As a general rules, non-propelled ships, ships of less than 100 gross tonnage, pleasure craft, naval auxiliaries, the US Reserve Fleet, and ships restricted to harbour service or river/canal service are not included in the IHSF's world fleet statistics.

- Merchant fleets – cargo carrying ships, in the world fleet statistics published by IHSF were used in the above calculation. Cargo carrying ships include gas carriers, oil and chemical tankers, bulk carriers, general cargo ships, container ships, refrigerated cargo carriers, ro-ro cargo ships, and passenger ships.

- Merchant fleets – ships of miscellaneous activities, in the world fleet statistics published by IHSF were excluded. Ships of miscellaneous activities include fishing vessels, offshore supply vessels, research vessels, towing/pushing vessels, dredging vessels, and other miscellaneous purpose ships.

efficiency level is attained, ship designers and builders are free to use the most cost-efficient solutions for the ship to comply with the regulations.

6 All ships of 400 gross tonnes and above engaged in international trade are required to implement and maintain a SEEMP which establishes a mechanism for operators to improve the energy efficiency of ships. This should be achieved by monitoring the energy efficiency performance of a ship's transportation work and at regular intervals considering new technologies and practices to improve energy efficiency.

7 Four important guidelines intended to assist in the implementation of the mandatory regulations on Energy Efficiency for Ships in MARPOL Annex VI have been adopted as follows:

.1 *resolution MEPC.212(63) – 2012 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships*, as amended;

.2 *resolution MEPC.213(63) – 2012 Guidelines for the development of a Ship Energy Efficiency Management Plan (SEEMP)*;

.3 *resolution MEPC.214(63) – 2012 Guidelines on survey and certification of the Energy Efficiency Design Index (EEDI)*, as amended; and

.4 *resolution MEPC.215(63) – Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI)*, as amended.

8 At MEPC 65 several additional ship types were included in the EEDI framework, furthermore additional guidance was agreed or amended to support the uniform implementation of the energy efficiency regulations and action was taken as follows:

.1 approved draft amendments to MARPOL Annex VI, with a view to adoption at MEPC 66, to extend the application of EEDI to ro-ro cargo ships (vehicle carrier), LNG carriers, cruise passenger ships having non-conventional propulsion, ro-ro cargo ships and ro-ro passenger ships; and to exempt ships not propelled by mechanical means, and platforms including FPSOs and FSUs and drilling rigs, regardless of their propulsion; as well as cargo ships having ice-breaking capability;

.2 adopted amendments to update resolution MEPC.215(63) *Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI)*, including the addition of ro-ro cargo ships (vehicle carrier), ro-ro cargo ships and ro-ro passenger ships, and LNG Carriers;

.3 noted, with a view to adoption at MEPC 66, the finalized amendments to resolution MEPC.212(63) *2012 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships*;

.4 approved amendments to unified interpretation MEPC.1/Circ.795, to update the circular with regards to requirements for SEEMP, to exclude platforms (including FPSOs and FSUs) and drilling rigs, regardless of their propulsion, and any other ship without means of propulsion;

.5 adopted the *2013 Interim Guidelines for determining minimum propulsion power to maintain the manoeuvrability of ships in adverse conditions*, which are intended to assist Administrations and recognized organizations in verifying that ships, complying with the EEDI requirements set out in regulation 21.5 of MARPOL Annex VI, have sufficient installed propulsion power to maintain the manoeuvrability in adverse conditions;

.6 approved the *2013 Guidance on treatment of innovative energy efficiency technologies for calculation and verification of the attained EEDI*, which are intended to assist manufacturers, shipbuilders, shipowners, verifiers and other interested parties related to the EEDI of ships to treat innovative energy efficiency technologies for calculation and verification of the attained EEDI, addressing systems such as air lubrication, wind propulsion systems; high temperature waste heat recovery systems; and photovoltaic power generation system;

.7 adopted the *2013 Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI) for cruise passenger ships having non-conventional propulsion*; and

.8 adopted amendments to resolution MEPC.214(63) *2012 Guidelines on survey and certification of the energy efficiency design index (EEDI)*, to add references to measuring sea conditions in accordance with ITTC Recommended Procedure 7.5-04-01-01.1 Speed and Power Trials Part 1; 2012 revision 1 or ISO 15016:2002.

9 MEPC 65 also endorsed a work plan to continue the work on development of the EEDI framework for ship types and sizes, and propulsion systems not covered by the current EEDI requirements and to consider guidelines on propulsion power needed to maintain the manoeuvrability of the ship under adverse conditions.

Further measures to enhance the energy efficiency of ships

10 MEPC 65 considered the importance of enhancing energy efficiency and reducing fuel consumption with subsequent reductions of CO_2 emissions and other pollutants emitted to air and noted the need to discuss further relevant proposals submitted to the session. In this regard, the MEPC considered the use of a phased approach to implementation, with the focus of its initial work being on data collection, as a basis for future technical work.

11 MEPC agreed to establish a sub-agenda item under the MEPC's agenda item 4 (Air pollution and energy efficiency), for discussion of further technical and operational measures for enhancing energy efficiency for international shipping, and to establish a working group under this sub-agenda item at MEPC 66. The MEPC invited further submissions to its next session.

Update of the GHG emissions estimate for international shipping

12 MEPC 65 approved the Terms of Reference and agreed to initiate a study for an updated GHG emissions' estimate for international shipping. This decision by MEPC 65 followed discussion in an Expert Workshop, which took place at IMO Headquarters from 26 February to 1 March 2013. The Expert Workshop, endorsed by MEPC 64 in October 2012

which had agreed, in principle, the outline for an update of the GHG emissions estimate (for further information please refer to IMO's submission to SBSTA 37 (FCCC/SBSTA/2012/MISC.20)), considered and made recommendations for the methodology and assumptions to be used in the Update Study.

13 The new study will focus on updating key figures in the current (second) IMO GHG Study (2009), which estimated that international shipping emitted 870 million tonnes, or about 2.7%, of the global man-made emissions of CO_2 in 2007.

14 The update of the study is considered necessary, in general, to provide a better foundation for future work by IMO to address GHG emissions from international shipping. Sea transport is fuel-efficient and without updated figures it will be difficult to provide a meaningful baseline to illustrate the steadily on-going improvement in fuel efficiency due to improved hull design, more effective diesel engines and propulsion systems and more effective utilization of individual ships resulting from the introduction of mandatory technical and operational measures, including other operational measures employed by ships as a consequence of the economic downturn.

15 The outcome of the Update Study is expected to be presented to MEPC 66 in March 2014.

16 With regard to the work on Market-Based Measures (MBMs) for international shipping, MEPC 65, in noting several submissions on this matter, agreed to suspend discussions on Market-Based Measures and related issues to a future session.

Technical co-operation and transfer of technology

17 Regulation 23 of chapter 4 of MARPOL Annex VI on *Promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships* requires Administrations, in co-operation with the Organization and other international bodies, to promote and provide, as appropriate, support directly or through IMO to Member States, especially developing States that request technical assistance. It also requires the Administration of a Party to MARPOL Annex VI to co-operate actively with other Parties, subject to its national laws, regulations and policies, to promote the development and transfer of technology and exchange of information to States which request technical assistance, particularly developing States.

18 Linked to the implementation of energy efficiency measures, MEPC 65 adopted an MEPC resolution on *Promotion of Technical Co-operation and Transfer of Technology relating to the Improvement of Energy Efficiency of Ships*, which, among other things, requests the IMO, through its various programmes, to provide technical assistance to Member States to enable cooperation in the transfer of energy efficient technologies to developing countries in particular; and further assist in the sourcing of funding for capacity building and support to States, in particular developing States, which have requested technology transfer.

19 A comprehensive portfolio of training material for capacity building activities on energy efficiency for shipping has been produced under a recently concluded agreement between IMO's technical cooperation programme (ITCP) and the Korean International Cooperation Agency (KOICA) for implementation of a project on "Building Capacities in East Asian countries to address GHG emissions from Ships". A series of capacity building workshops and training courses have been implemented in countries including Bulgaria, Indonesia, Malaysia, Philippines, Republic of Korea, Thailand, Uruguay, and Vietnam and IMO is seeking additional funding from various sources including from the Global Environment Facility (GEF) to scale up these activities.

Summary

20 Although international maritime transport is the most energy efficient mode of mass transport and only a modest contributor to worldwide CO_2 emissions (2.7% in 2007), a global approach for further improvements in energy efficiency and emission reduction is considered necessary as sea transport is predicted to continue growing significantly in pace with expected future growth in world trade.

21 IMO has developed and adopted a framework of technical and operational measures that now serves as mandatory performance standards for increased energy efficiency in international shipping. The framework builds on IMO’s enforcement and control provisions (flag and port State controls) and includes also ship management aspects such as monitoring, verification and reporting, as well as guidelines for effective implementation.

22 IMO, as the global regulator of international shipping, will continue its endeavours to reduce environmental impacts from international maritime transport, a vital industry to world trade and sustainable development, and keep relevant bodies of the UNFCCC informed of its progress.

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