

Chapter 8



ACT >>>
GLOBAL

**UNITING AVIATION
ON CLIMATE CHANGE**

ICAO
ENVIRONMENTAL
REPORT 2010

Act Global

By *ICAO Secretariat*

International aviation, as a global sector that connects people and businesses across the world, has traditionally relied on the development of global solutions to deal with the challenges it has encountered. To facilitate this, ICAO is the recognized and accepted forum for dealing with all international aviation matters, including environment related issues.

As discussed in various parts of this report, any solution to address international aviation's greenhouse gas emissions will need to include technological innovations, operational improvements, and market-based measures, as well as innovative new solutions such as alternative fuels. The trans-boundary nature of climate change and international aviation calls for worldwide cooperation of governments, industry and society to come up with the most appropriate approaches to all of these solutions in order to effectively address the global challenges of mitigating climate change and adapting to its effects.

ICAO does not act alone in its work. As part of the broader United Nations family, it actively seeks to cooperate with all other relevant agencies and bodies (e.g. United Nations Framework Convention on Climate Change (UNFCCC), Intergovernmental Panel on Climate Change (IPCC), United Nations Environmental Programme (UNEP), and the International Maritime Organization (IMO), to name a few) that address work areas that are important for accomplishing the objectives of the Organization. Furthermore, as an active member of the UN Chief Executives Board (CEB), ICAO is committed to ensuring that the UN "delivers as one" through coherent and coordinated efforts in the area of international aviation and climate change. It is also committed to reducing the carbon footprint of the operations of the Organization itself and is currently taking concrete steps toward estimating its contribution to greenhouse gas emissions and is initiating measures to reduce them.

As governments move closer toward the development of a new global agreement to address climate change under the UNFCCC, ICAO has already demonstrated its readiness to contribute to those efforts. Through the first ever agreement by a sector on its greenhouse gas emissions and by setting up a framework for further elaborating targets and approaches, ICAO is leading the way toward the sustainable growth of aviation.

This chapter of the report provides information on: the ongoing efforts of the UN to deliver on climate change as one unified body; the work of the UNFCCC toward the development of a future global agreement on climate change; and the work of the UN and ICAO to lead by example by reducing the environmental impact of their internal operations and moving toward climate neutrality. ■

Liaison With Other UN Bodies

UN System Delivering As One

By *ICAO Secretariat*

Within the United Nations, climate change has been recognized as a development issue, as well as an environmental one, particularly because it can have a significant impact on the economic growth and poverty alleviation efforts of countries, and the achievement of the United Nations Millennium Development Goals.

The cross-cutting character of climate change underlines the importance of a system-wide response. Addressing climate change has been a major priority of the UN Secretary-General Ban Ki-moon since the beginning of his tenure. Through his efforts, and with the assistance of the United Nations System Chief Executives Board for Coordination (CEB), acting on climate change has become one of the key issues on which the UN delivers a united response.

Since 2007, the CEB has embarked on a major effort to align the strengths of the UN system organizations to achieve a coordinated, action-oriented approach to the global and multifaceted challenge of climate change. In December 2008, the CEB Climate Change Action Framework was presented during the 14th Conference of the Parties (COP14) to the United Nations Framework Convention on Climate Change (UNFCCC) in Poznan, Poland with the publication “Acting on Climate Change: The UN System Delivering as One.” The Framework includes five focus points and four cross-cutting areas for collaborative UN system action, reflecting the issues that are being discussed in the UNFCCC setting, with corresponding convening agencies. In addition, information sharing has been enhanced through the facilitation of online knowledge-sharing and the provision of public information tools. More recently, at COP15 in December 2009 held in Copenhagen, Denmark, the CEB reaffirmed the strengths of a joint UN system-wide effort on climate change by presenting a CEB Statement of Purpose and Policy Brief on UN system adaptation efforts to deal with climate change.

In addition to supporting member States to more effectively address the impacts of climate change, the CEB initiative is seen as a “thematic pilot” for the UN system “delivering as one” in response to major global challenges. It also addresses the need to project a coherent and effective institutional framework that can serve the international community in a credible manner.

The ICAO is an integral part of the CEB and has been recognized as the competent specialized agency to set standards and recommended practices for GHG emissions from aircraft. In this role, ICAO has been actively pursuing cooperation with all other organizations involved in work on how to address international aviation and climate change. Examples of such cooperation are given in **Table 1**.

ICAO is committed to continued contribution to the work of the CEB to ensure that the UN “delivers as one” through coherent and coordinated efforts in this very important area of work. ■

Negotiations On A Future Global Climate Change Agreement

In May 1992, the international community agreed on a framework for addressing climate change through the adoption of the United Nations Framework Convention on Climate Change (UNFCCC). The Convention covers a broad spectrum of issues including reducing greenhouse gas (GHG) emissions from human activities and efforts to adapt to, and cope with, the effects of climate change. Almost two decades later, 193 countries have ratified the Convention, making it a nearly universal instrument.

UN Body	Related Activities
United Nations Framework Convention on Climate Change (UNFCCC)	<ul style="list-style-type: none"> ● Implementation of the Convention and its Kyoto Protocol. ● Post-2012 negotiation on climate change. ● Kyoto Mechanisms (domestic aviation projects). ● Aviation emissions data and methodological issues. ● Regular updates to governments on the work of ICAO on climate change, including statements to SBI, SBSTA, AWG-LCA, AWG-KP, CDM Board.
Intergovernmental Panel on Climate Change (IPCC)	<ul style="list-style-type: none"> ● IPCC Assessment Reports. ● Special Report on Aviation and the Global Atmosphere (1999). ● NGGIP – National Greenhouse Gas Inventory Programme. ● Guidelines for National Greenhouse Gas Inventories. ● Current information on impacts of international aviation.
United Nations Environmental Programme (UNEP)	<ul style="list-style-type: none"> ● EMG/IMG – Carbon Neutral UN Initiative. ● EMG/IMG – Green Economy. ● EMG/IMG – Sustainability Management. ● Sustainable UN (SUN).
UN World Meteorological Organization (WMO)	<ul style="list-style-type: none"> ● Adaptation. ● Data collection. ● CAEP technical input.
UN Chief Executives Board for Coordination (UN CEB)	<ul style="list-style-type: none"> ● Coordination of UN efforts on climate change. ● Participation in high level meetings. ● Statements on climate change mitigation.
UN Commission on Sustainable Development (UN CSD)	<ul style="list-style-type: none"> ● Agenda 21 and further developments. ● Rio+12.
UN World Health Organization (WHO)	<ul style="list-style-type: none"> ● Health impacts from aviation.
International Maritime Organization (IMO)	<ul style="list-style-type: none"> ● Addressing GHG emissions from international maritime transport. ● Coordination on implementation of Kyoto Protocol Art. 2.2. ● Post-2012 negotiation on climate change. ● Market-based Measures for international bunkers emissions.
UN World Tourism Organization (UNWTO)	<ul style="list-style-type: none"> ● Aviation environmental policies and tourism.
UN Economic Commission for Europe (UNECE)	<ul style="list-style-type: none"> ● Conferences on transport and environment.
UNECE Convention on Long-Range Transboundary Pollution (CLRTAP)	<ul style="list-style-type: none"> ● Protocols on substances – NO_x, Volatile organic compounds (VOCs).
Ozone Secretariat (Montreal Protocol)	<ul style="list-style-type: none"> ● Updates/guidance regarding Montreal Protocol for the depletion of Ozone. ● Scientific Assessment Panel. ● Aviation's use of halons for fire fighting.

Table 1: UN cooperation on aviation and climate change.

Kyoto Sets the Tone

The Kyoto Protocol to the UNFCCC, which was adopted in 1997, shares the Convention's objective, principles and institutions and constitutes a first attempt to set legally-binding greenhouse gas emission reduction and limitation targets for 37 industrialized countries and the European community. The resulting emissions reductions amount to an average of five per cent below 1990 levels over the five-year period 2008-2012.

The Kyoto Protocol commitments can be met through the implementation of national measures and the use of three market-based mechanisms (emissions trading, clean development mechanism and joint implementation). These mechanisms help stimulate green investment and help industrialized countries meet their emission targets in a cost-effective way.

This system is complemented by reporting and review procedures, which aim to ensure the accuracy of the information provided on the efforts of countries, and a compliance system that ensures that countries are meeting their commitments.

Building on the Convention and the Kyoto Protocol

Since 2005, the work under the Convention and the Kyoto Protocol has focused on long-term cooperative action to address climate change over the coming decades addressing five key elements: mitigation, adaptation, financing, technology transfer, and capacity building. It is anticipated that the outcome of this process will be a new global agreement on climate change that will ensure the sustainable development of our societies.

At the UN Climate Change Conference in 2005, Parties to the Kyoto Protocol initiated a process to consider further commitments of developed countries for the period beyond 2012. The resulting decision established the "Ad-hoc Working Group on further commitments for Annex I Parties under the Kyoto Protocol" (AWG-KP) to conduct this process and report annually on the status of this process.

The UN Climate Change Conference in December 2007 culminated in the adoption of the Bali Roadmap which consists of a number of forward-looking decisions that represent the various tracks that are essential to strengthen international action on climate change. Central to the Bali Roadmap is the establishment of a process to enable full, effective and sustained implementation of the Convention through long-term cooperative action up to and beyond

2012, known as the Bali Action Plan (BAP). It focuses on five key elements: a shared vision for long-term cooperative action, mitigation efforts by both developed and developing countries, adaptation efforts, investment and financial needs, and development, deployment, dissemination and transfer of technology. Discussions on these topics take place in the "Ad-hoc Working Group on Long-term Cooperative Action under the Convention" (AWG-LCA) negotiating group.

Addressing Aviation Emissions

Emissions from international aviation include over-flight of potentially multiple States and the high seas, making them difficult to assign to a particular State. Recognizing the complexity of how to address these emissions, the Convention and the Kyoto Protocol excluded them from countries' national totals and from the reduction/limitation commitments. Specifically for the Kyoto Protocol, Article 2.2 requires industrialized countries to pursue the limitation or reduction of GHG emissions from international civil aviation through ICAO.

The issue of how to address GHG emissions produced by international aviation has been on the agenda of the UNFCCC negotiation process both under the AWG-KP and AWG-LCA. During the negotiations, governments have debated how to reconcile the principle of non-discrimination under the Chicago Convention (which established ICAO) with the principles of common but differentiated responsibilities (CBDR) and respective capabilities under the UNFCCC and the Kyoto Protocol. In relation to setting emission reduction targets for international aviation, some countries favoured a negotiating process under the UNFCCC while others supported the coordination of all aspects of the work by ICAO.

Regarding implementation, the negotiations have centred on the possible use of cooperative sectoral approaches and sector specific actions for the international aviation sector, and the possible development of instruments for financing mitigation and adaptation activities using funds collected through fiscal policies (e.g. levies) for international aviation.

The political outcome of the 15th Conference of the Parties to the UNFCCC (COP15), which is reflected in the Copenhagen Accord, does not contain any references to how international aviation emissions could be treated. Given this situation, ICAO has the opportunity to make further progress on the recommendations of its High-level Meeting on International Aviation and Climate Change and Conference on Aviation and Alternative Fuels, in support of the negotiation process on a future climate change agreement. ■



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The Green Economy Is It Time for Take Off?

The notion that Bertrand Piccard's Solar Impulse aircraft, which recently flew day and night using solar cells, could one day carry passengers and cargo around the globe in a new and environmentally-friendly way may seem ridiculous to some right now.

But one is reminded of the sketch by American comedian Bob Newhart that features an imaginary chat between an entrepreneur and the Wright Brothers about commercializing their new aeroplane more than a century ago. When told that the plane would have to touch down every few minutes, the promoter queries whether the inventors really think this will attract customers on proposed scheduled package flights to Florida!

Little could our fictional promoter have known about the way that aviation would rapidly evolve over the next 100 years. The challenges of the early 21st century have also evolved and are increasingly driving the aviation industry to find solutions to a wide range of environmental problems including climate change. Over the past two years, ICAO and UNEP have been increasingly collaborating on this issue, particularly in the area of the United Nations and its carbon footprint.

The UN's Environmental Management Group, at the request of the UN Secretary-General, has pinpointed that over 50 per cent of the organization's carbon footprint relates to travel, including air travel. Together our two agencies have worked closely on a carbon emissions calculator aimed at measuring and reducing the UN's emissions. The calculator may also be able to assist businesses and individual citizens become part of the climate solution too.

Some airlines and aircraft manufacturers are taking on this challenge as well. ICAO has a critical role to play in bringing together governments and the regulatory frameworks. Indeed, the signals sent out to the marketplace by policymakers are pivotal to bolstering the enthusiasm of industry and business to invest in transformational technologies, innovation, and research.

ICAO's work includes a programme of action that has set a two per cent annual improvement in fuel efficiency. Areas that are being examined for efficiencies include the management of air traffic and airports. Innovations such as the potential role of biofuels and other substances such as fluorinated gases are also coming rapidly into the picture. UNEP and ICAO are cooperating in all of these areas.

A future global economy needs to achieve a balance between growth and the legacy that growth leaves behind for the next generation. Aviation has a significant role to play in realizing that transition to a low carbon, resource efficient Green Economy.

Before the Wright Brothers, the idea of manned powered flight was nothing more than a fantasy. Today, the challenge is no longer manned powered flight, but rather, environmentally-friendly flight. With the right market signals stimulating investment and human ingenuity, the sky is the limit. Piccard's solar powered plane—and the other sun-powered aircraft that have taken to the air in recent years—may look like a fantasy today, but who knows. They once said the same of Orville and Wilbur's invention over a century ago. ■

International air transport and the global effort to address climate change

Science has spoken clearly – drastic reductions of emissions of greenhouse gases (GHGs) are needed in all sectors to effectively address global climate change.

International aviation is an important global sector for trade and for the world's economy, and is a significant contributor to the emissions that cause climate change. If left unchecked, aviation's current and projected growth are very likely to have further impacts on climate.

ICAO was entrusted by governments which are Parties to the Convention and its Kyoto Protocol to work on limiting and reducing the greenhouse gas emissions from international aviation. In response, ICAO agreed on a global aspirational goal to improve the fuel efficiency of international civil aviation by two percent annually and its States endorsed a Programme of Action on International Aviation and Climate Change that is under implementation. Work has started on development of a carbon dioxide Standard for new aircraft engines.

Building upon the recommendations of the High-level Meeting and Alternative Fuels Conference held last year, ICAO continues its work to achieve further progress toward the 37th ICAO Assembly in September 2010 and beyond, in particular on three areas: exploration of more ambitious goals; development of a framework for market-based measures; and elaboration on measures to assist States.

The measures that the Assembly may consider — such as a medium-term goal on carbon-neutral growth, long-term goals on carbon emissions reductions and market-based measures operating across national borders - could reverse the trend of emissions from international aviation. The development of a global framework for market-based measures in international aviation would avoid the patchwork or duplication of such measures.

Under the United Nations Framework Convention on Climate Change (UNFCCC), governments are now developing a text on cooperative sectoral approaches and sector specific actions in international aviation and maritime transport that will continue to be the focus of discussions in the run-up to Cancun, where the next UN Climate Change Conference will be held at the end of the year. Government proposals build on the uniqueness of this sector, and include clarifying the principles that should guide this work, setting of sectoral targets and working through ICAO to achieve these targets, and defining the possible use of revenues generated by market-based measures.

One challenge that remains to be addressed is that ICAO is based on the principle of non-discrimination, while the United Nations Framework Convention on Climate Change (UNFCCC) is based on the principle of common but differentiated responsibilities. Innovative thinking and solutions are needed to reconcile these principles. Developed countries must lead in reducing emissions, while developing countries need support to engage in mitigation actions.

Market-based measures can reconcile the principles of ICAO and the UNFCCC by raising funds for adaptation and mitigation in developing countries through, for example, a global cap on aviation bunker fuels, as well as by deploying revenues from emissions rights auctions. A global cap on bunker fuels would be in line with the 'equal treatment' principle of ICAO, and using the revenues to assist developing countries in addressing climate change would be in line with the provisions of the UNFCCC.

ICAO has traditionally recognized the different circumstances among Member States' capacity to respond to climate change and the need to assist them either through technical and financial support or via differentiated timelines for the implementation of measures. To this end, possible areas to further explore include exemptions from market-based measures of small- or transitional rules for larger-size commercial air operators from developing countries and use of revenues for supporting the introduction of sustainable biofuels for aviation in developing countries.

Informing the Conference of the Parties on practical actions for regulating GHG emissions from international aviation would make a significant contribution towards a global climate change strategy for the sector and to a successful outcome in Cancun. Government representatives at the UNFCCC Conference are looking forward to receiving input from ICAO. ■



Christiana Figueres

■ Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC)

Greening the Blue: Moving the UN Towards Climate Neutrality...

By *Aniket Ghai and Niclas Svenningsen*



Aniket Ghai, a Kenyan national, works at UNEP's Environment Management Group secretariat, where he coordinates its work on a Green Economy and formerly coordinated the UN system's move towards climate neutrality. He has been employed by UNEP for the past eleven years, during which he set up and ran the Geneva

Environment Network, led UNEP's first-ever assessment of the Palestinian environmental situation, and implemented a programme of environmental capacity building for Palestinians and Israeli-Palestinian environmental cooperation.



Niclas Svenningsen is the head of the Sustainable United Nations (SUN) at the United Nations Environment Programme (UNEP), based in Paris, France. SUN is coordinating the implementation of the UN climate neutral strategy across the entire UN system. He is also responsible for UNEP's work on sustainable buildings and construction, as well as UNEP's urban program,

and sustainable public procurement program. He has a background in civil engineering, environmental law and journalism. He has spent the past 20 years working on various sustainable development issues in the developing world both for the UN and as an independent consultant.

Climate change is a key priority for the United Nations (UN) to address. In the mandates of different UN organizations – ranging from peace keeping, public health and emergency assistance, to biodiversity, poverty alleviation, economic development, and specialized agencies such as ICAO – climate change has significant importance. In other words, climate change is much more than a simple environmental issue for the UN and most of its affiliated organizations are currently working with different aspects of climate change in their various programmes and projects.

But the question arises, what is the UN doing about its own carbon footprint? How credible can the UN be in its programmes and activities if it does not practice what it preaches to others?

From Preaching To Practice

UN Secretary-General Ban Ki-moon has repeatedly emphasized the need for the UN to 'walk the talk', in particular, on key issues such as climate change. Following this call by the Secretary General, in October 2007 the UN Chief Executives Board adopted the UN Climate Neutral Strategy. This Strategy committed all UN agencies, programmes and funds to achieve three goals by the end of 2009:

1. Estimate the annual greenhouse gas emissions, consistent with accepted international standards.
2. Undertake efforts to reduce our greenhouse gas emissions.
3. Analyze the cost implications and explore budgetary modalities of purchasing carbon offsets to eventually reach climate neutrality.

The above were adopted in the context of greening the UN in general, and in particular, of improving the resource efficiency of UN organizations.

The implementation of the UN Climate Neutral Strategy is the responsibility of each UN organization but the Environment Management Group (EMG) was tasked to oversee and report on the implementation of the strategy. The EMG is an inter-agency group that facilitates coordination and cooperation among UN organizations on environmental matters. In order to support on-the-ground inter-agency cooperation,

the Issue Management Group on Sustainability Management (IMG) was established under EMG with one representative from each UN organization assigned to assist in jointly developing tools and approaches needed to implement the climate neutral strategy.

The Sustainable UN (SUN) facility provides technical support to all UN organizations to identify and realize opportunities for emissions reductions. SUN also extends the same support to organizations outside the UN, in particular, to public organizations in developing countries. In this context, ICAO plays an important role in providing tools and training and in supporting approaches for calculating and reducing the UN's climate footprint from air travel.

Setting The Boundaries

One of the first challenges for the UN climate neutral strategy was to determine what activities should be included when calculating greenhouse gas emissions from the organization. UN organizations typically include a wide range of functions and activities, from office work and administration, to meetings, travel and transport, to field operations, emergency assistance, and peace keeping missions. It was decided by the EMG members that the UN would use the Greenhouse Gas Protocol (a widely used methodology, developed by the World Resources Institute and the World Business Council for Sustainable Development) to calculate emissions. This basically says that activities over which the UN has management (financial) control should be included in the organizations' greenhouse gas inventories.

This means that, for example, when UN organizations plan meetings they must include in their greenhouse gas inventories the emissions from travel to the meeting of all participants for whom the UN paid the travel. The climate footprint of participants who paid their own way to the meeting is not included. The air travel related part of the inventory is computed using the ICAO Carbon Emissions Calculator.

UN and the ICAO Carbon Emissions Calculator

For nearly every UN body, the emissions from air travel are the single largest source of their carbon footprint (usually more than 50%). As a result, it is important that the best possible estimate of these emissions be calculated as accurately as possible.

*Since ICAO had developed an internationally approved Aviation Carbon Emissions Calculator, it was decided by the IMG to use the same calculator within the UN to estimate CO₂ emissions from air travel. Thus, UN organizations provided ICAO with sample sets of data taken from their travel booking systems, which were then used by ICAO to build a prototype interface to its aviation carbon calculator tailored to the needs of the UN officers involved in the preparation of carbon inventories. (for more information on the development of the ICAO Carbon Emissions calculator, see article *The ICAO Carbon Emissions Calculator*, Chapter 1 of this report).*

Thanks to this coordinated approach, in December 2009 the UN released its first ever common greenhouse gas inventory. This inventory reported on emissions from 49 UN organizations, including ICAO, showing a total climate footprint of 1.7 million tons CO₂ equivalent in 2008 (see **Figure 1**). About 50% of this comes from travel, while the remaining parts are split mainly between operation of offices, electricity use, and fuel use by ground transport.

Many UN organizations have already begun to seek ways to reduce their emissions and IMG is now working to produce draft emission reduction plans for all UN organizations by the end of 2010, to be presented and hopefully adopted by their governing bodies in 2011.

From Sources To Causes

In tackling emissions, it is not enough to simply know the sources of greenhouse gases. It is also necessary to understand their causes. For example, the causes of emissions from heating an office may range from the performance of the heating system and insulation of the building envelope, to the choice of energy supply and the setting of indoor target temperature, to attitudes of staff, and the training of technicians. Opportunities for efficiency improvements and greenhouse gas emission reductions are often found in

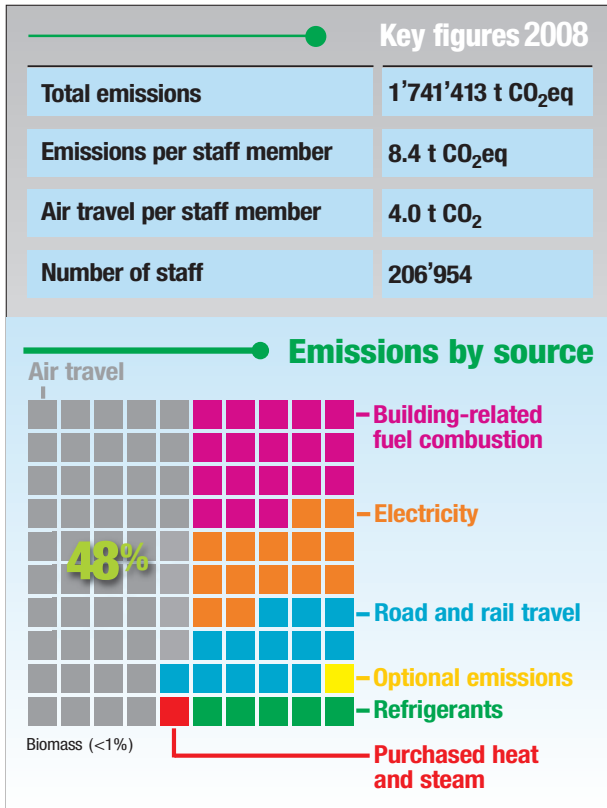


Figure 1: Total GHG footprint and key performance indicators from UN system facilities, travels of officials, and peacekeeping operations.

areas as diverse as: management systems, procurement, training, facilities management, travel policies etc. The bottom line is that one needs to know both the sources and the causes of emissions to be able to reduce them.

SUN and IMG are developing a range of tools and services to guide organizations in their climate neutral pursuit. All of these tools, along with more than 60 case studies about ongoing sustainability work throughout the UN system, tips, best practices, links, and other resources are now available on the UN's new common sustainability website "Greening the Blue" (www.greeningtheblue.org).

What's Next?

The first two years of implementation of the climate neutral strategy has demonstrated that climate neutrality is a realistic and attainable objective for the UN. Not only is it a chance to walk the talk on climate change, but it is also an opportunity to improve the efficiency of many aspects of the organization's work. However, to achieve the climate neutral goal also requires dedication and investment of time of staff and management alike.

Over the next year a number of initiatives will be undertaken, including: the second annual greenhouse gas inventory will be conducted, a first generation of emission reduction plans for all organizations will be prepared, and a blue print will be drawn up for how climate neutrality and sustainability may be integrated into the organization through a common approach to sustainability management systems. Greening the UN is off to a good start, but much more remains to be done before the organization can truly claim to walk the talk on climate change. ■

Moving ICAO Toward Carbon Neutrality

By ICAO Secretariat

As described in the article *Greening the Blue – Moving UN Towards Climate Neutrality* (Chapter 8 of this report), the United Nations has adopted a climate neutral initiative (CNUN). As a UN agency, ICAO has supported this initiative from the beginning and is actively working to reduce its own climate footprint. This article provides an overview of ICAO's efforts to date towards its goal of eventually achieving climate neutrality through carbon neutrality.

ICAO's Approach To Climate Neutrality

Carbon neutrality is not a static condition but the result of an active and dynamic process, as described by the UN Issue Management Group (IMG) on sustainability management. As defined by the IMG, the UN system follows a systematic approach toward climate neutrality that includes the following three fundamental steps shown in Figure 1:

1. **Measure** the organization's footprint.
2. **Reduce** greenhouse gas emissions by developing targeted goals and strategies.
3. **Offset** the remaining annual emissions by purchasing offset credits certified to a transparent and consensus based standard.

To date, ICAO has focused its work on the first two steps of the process described above, while discussions continue throughout the UN on how best to implement the third step.

Step 1: Measure

In 2009, for the first time, the ICAO Secretariat estimated its total climate footprint.

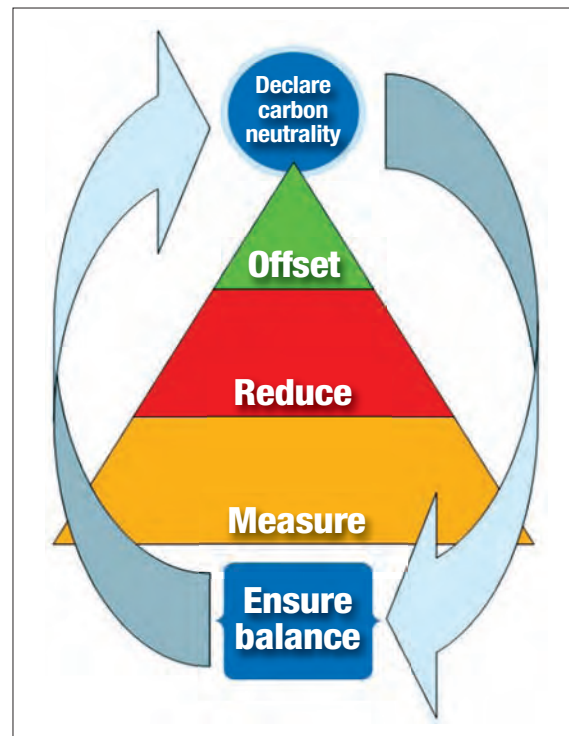


Figure 1: Carbon management process to achieve climate neutrality.

The calculation was accomplished by using the UN Greenhouse Gas Calculator that was developed by UNEP in order to produce consistent inventories of greenhouse gases arising from facilities, operations, and non-air travel emissions. For air travel, ICAO's Carbon Emissions Calculator for the aviation-related emissions was used.

ICAO's total GHG emissions and the relative amounts of different greenhouse gases are shown in Figure 2. Those numbers may change in the near future with improved data availability and refined methodologies. Consistent with other organizations, the activities accounting for the largest shares of emissions in ICAO's inventory are air travel and electricity usage.

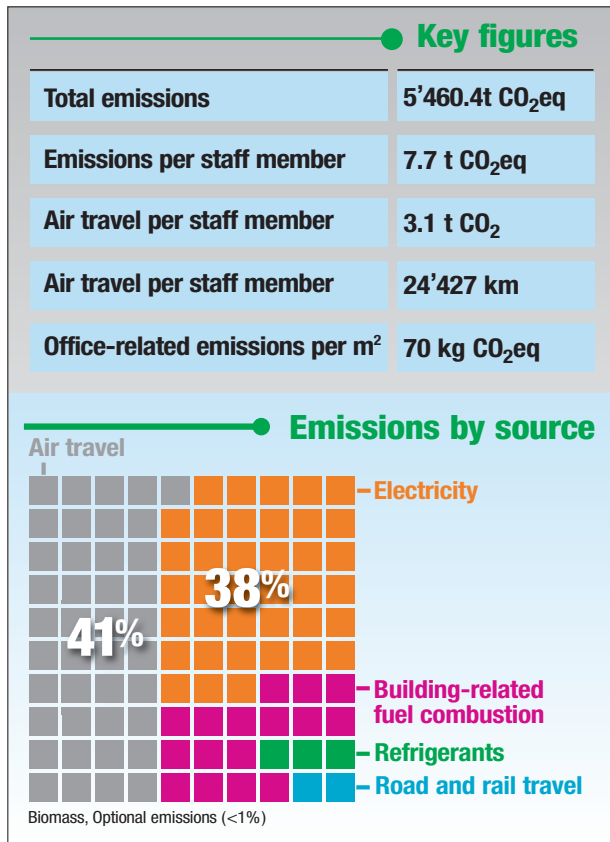


Figure 2: ICAO's total emissions, key GHG performance indicators, and emissions, by source.

Step 2: Reduce

There has been much progress in recent years in greening ICAO. A major milestone was the achievement of Canada's first Leadership in Energy and Environmental Design for Existing Buildings (LEED-EB) Gold Certification that was awarded to ICAO Headquarters in Montréal. The ICAO Headquarters building required major work in order to meet LEED standards, which involved significant challenges as several modifications had to be made in terms of lighting, plumbing, ventilation, water use, recycling, and maintenance.

The achievement of this certification by the company that owns and leases the Organization's Headquarters underscores ICAO's desire to integrate environmental considerations into its daily operations and building management.

Even before the CNUN initiative was launched, the ICAO Secretariat had implemented a series of environmentally-friendly practices such as: conducting paperless meetings, and using web-meeting services; as well as many other initiatives aimed to reduce energy consumption.

The challenge for the next few years is to formalize the isolated environmental initiatives into cohesive policies and staff regulations. As part of this effort, UN IMG organizations agreed to prepare their first Emission Reduction Plan (ERP) for 2011-2013, to achieve further emission reductions to be monitored against the inventory data already collected.

As the preparation of the ERP involves various aspects of ICAO operations, a Task Force with members from different offices was established. This Task Force will analyze achievable systematic improvements in ICAO operations, taking into consideration environmental benefits and cost-saving opportunities in the following priority areas:

1. Paper consumption – reduced paper consumption and enhanced recycling.
2. Telecommuting – reduced utilization of office space and related energy resources.
3. E-communication – enhanced IT platform and tools to support the first three action areas.
4. Sustainable procurement – procurement code modelled after overarching UN guidance.
5. Official travel – optimized official staff travel procedures.

Conclusions

ICAO continues to lead by example in support of the UN Climate Neutral Initiative with the successful quantification of its climate footprint and the implementation of active steps toward reducing it. Moreover, ICAO will continue to support the other UN organizations by providing the best available information and tools to support the accurate quantification of emissions from air travel.

ICAO is already benefitting from its reduced carbon footprint and improved operational sustainability through reduced exposure to increases in energy costs and future carbon prices and regulations. With formalized policies regarding its operations, the Organization will continue to work to further reduce the environmental impact of its in-house operations. ■