

ICAO JOURNAL

NEWS AND DEVELOPMENTS FROM THE INTERNATIONAL CIVIL AVIATION ORGANIZATION - VOL.71 - NO.3

PRIORITIZING PARTNERSHIP

**COSM2016 HIGHLIGHTS THE IMPORTANCE OF ICAO'S
ROLE IN BRINGING TOGETHER STATES AND STAKEHOLDERS
FOR SUSTAINABLE AIR TRANSPORT DEVELOPMENT**

STATE PROFILE FEATURE: REPUBLIC OF TURKEY

ALSO IN THIS ISSUE:

LANDMARK NACC DECLARATION ON 'NO COUNTRY LEFT BEHIND'

AFI SECFAL PLAN, RIYADH DECLARATION, MARK MINISTERIAL ENGAGEMENT

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Contents

2

Message from the ICAO President

6

Building Global Partnerships for Aviation Development

A report from the 3rd annual ICAO Council Off-Site Strategy Meeting (COSM 2016)

11

NACC Region States Declare *No Country Left Behind* Intent

A milestone declaration to support procedures, programmes, and technical cooperative activities in the North American and Caribbean regions.

13

Middle East Ministers Adopt New Aviation Safety and Security Commitments

Riyadh Declaration on Aviation Security and Facilitation in the Arab Civil Aviation Commission (ACAC) and ICAO Middle East (MID) Region reaffirms States' need to enhance regional development and integration initiatives.

15

Windhoek Declaration is New Milestone for AFI SECFAL Plan

African Ministers address challenges through the Comprehensive Regional Implementation Plan for Aviation Security and Facilitation in Africa.

16

AFI Week Highlights Region's Exemplary Aviation Cooperation

Reflection on the enormous progress African States have made in terms of developing their aviation connectivity through cooperation and improved ICAO compliance.

17

Friends of the President Meeting Proposes Phased Global MBM

New approach proposes three phases for the global MBM scheme, to be known as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

19

High-level Meeting in India generates MBM support

ICAO sees India as a key player in the APAC region and its success could benefit other States through greater collaboration and sharing of best practices.

20

RPAS and Remote ATS Symposium: Speaker Highlights

21

Solar Impulse 2 Team Completes "Impossible" Round-the-World Zero-Fuel Flight

The accomplishment of a 13-year dream that demonstrates tangible solutions for sustainable aviation technologies, with ICAO serving as an Institutional Partner.

23

STATE PROFILE SPECIAL FEATURE: Republic of Turkey

39

A New Global Reporting Format for Runway Surface Conditions

Pilots need relevant, reliable information about rain, snow, and ice and their effect on friction between the runway and the aircraft's wheels. Dr. Mickaël Thiéry and Jean-Louis Pirat, France DGAC, report on new SARPS and PANS applicable as of 2018.

43

"Tantalizingly Close"

An interview with Jeff Poole, Director General, Civil Air Navigation Organisation

46

The Looming Halon Supply Gap

Time is running out for operators to address aircraft fire suppression systems. By David Catchpole and David P. Verdonik, co-chairs of the United Nations Environment Programme Halons Technical Options Committee.

49

A Regulatory Policy for Prospective Commercial Space Transportation Operations in Italy

By Alessio Quaranta, Director General, Ente Nazionale per l'Aviazione Civile (ENAC)



Dr. Olumuyiwa Benard Aliu

BUILDING ON OUR STRENGTHS



The fostering of Global Partnerships for Aviation Development (GPADs) has become a critical consideration with respect to ICAO's current priorities and planning. Most especially this priority has become key to our goals for providing comprehensive assistance and capacity-building under *No Country Left Behind* and ICAO's World Aviation Forum.

These initiatives seek to assure that all States and Regions have the tools they need to effectively implement ICAO's Standards and Recommended Practices (SARPs) for safety, security and our other Strategic Objectives, and to realize through that the significant socio-economic benefits of enhanced global air transport connectivity.

For instance, you may wish to explore the results of our Council State's most recent deliberations on the importance of partnerships to ICAO, undertaken at this year's Council Off-site Strategy Meeting (COSM2016).

In preparing its agenda for COSM2016, the Council's Implementation, Strategy and Planning Group took these matters to heart and aimed to determine recommendations on the specific types of partnerships ICAO will need to foster in the years ahead, including between States and other UN specialized agencies, industry stakeholders, international financial institutions, and donors.

The recommendations it determined are detailed in this article, and I would encourage everyone to review them in order to appreciate the full scope of the task ahead.

“Cooperation and consensus... require an active and enduring commitment on behalf of world governments, and the key to that commitment is the spirit of partnership which is so important to everything we accomplish in ICAO.”

One of the keys to this entire process will be the success ICAO realizes in incentivizing States to prioritize aviation in their national development plans. Our Organization is stressing this point in every mission it undertakes today, ensuring the message is heard loud and clear by senior officials in all States and Regions.

Most importantly, we are working to ensure that governments are much more clearly aware of how effective implementation of ICAO SARPs and other investments toward safer and more secure civil aviation connectivity will also aid their objectives for long-term economic prosperity. This in turn provides them with the strong foundation and planning certainty needed to reach toward many of the United Nations Sustainable Development Goals under the visionary *Agenda 2030*.

I have also been encouraged to see how enhanced partnership under *No Country Left Behind* is being appreciated by our Member States in every ICAO Region. An excellent example of this appreciation can also be found in this Issue in the report on the recent Declaration signed by ICAO's North and Central American and Caribbean (NACC) Member States.

In their statements, you will find a tremendous testament to the value of the *No Country Left Behind* process and reprioritization, and to the importance of fostering closer partnerships in aid of its objectives. What is perhaps most heartening about all of these activities and outcomes is that they reinforce so strongly the core mandate of ICAO as set out by the founders of our Convention.

Cooperation and consensus, after all, are the stock and trade of our Organization, consistent with the Convention's values and ICAO's status as a United Nations specialized agency. They are also qualities which require an active and enduring diplomatic commitment on behalf of world governments, and the key to that commitment is the spirit of partnership which is so important to everything we accomplish in ICAO.

This certainly would include our latest challenge to resolve a practical and effective global market-based measure (GMBM) to mitigate emissions from international flights.

At the time of this writing, the ICAO Council has now agreed on the draft Resolution for our 39th Assembly covering the scope and design of the GMBM. This agreement came subsequent to a very determined and comprehensive series of consultations which were organized, culminating in the Friends of the President Meeting I convened in late August.

Council States have been diligent throughout this process to ensure that the GMBM, which is proposed to come into effect in 2020, is suitably flexible in its application and requirements to mitigate emissions while avoiding adverse impacts on air transport markets where sustainable aviation and economic development objectives are currently most critical.

And underlying all of this work was the shared understanding, amongst States and industry alike, that no one benefits if the end result of this work is an acrimonious and inefficient patchwork of local emissions regimes.

Some who may be more influenced by passion than experience may point to the eventual GMBM Resolution for the 39th Assembly and stress only those aspects of what it is not accomplishing. But as the history of our sector and its very successful efforts at international cooperation have made clear over many decades now, consensus and progress on the complex geopolitical issues which confront us, whether for civil aviation or emissions mitigation more specifically, is never achieved by one-size-fits-all solutions.

Instead we find the common ground which does exist, and leverage that to our best possible mutual advantage. And as ICAO's States continue on this course toward yet another global first in terms of a global emissions mitigation agreement, it is important that we recognize that we are continuing to move in the right direction for both our sector and our planet.

And let us also not lose sight of the fact that the global air transport community of governments, operators, manufacturers and others continues to make progress on all elements in the basket of measures we're addressing to reduce aviation's emissions. Developments such as the new CO₂ emissions standard for aircraft, our continuing work on improving air traffic management efficiency, and the promotion of sustainable alternative aircraft fuels are all making tangible gains.

Our common goal in all of these efforts is to respond to the needs of civil society for environmentally sustainable air travel which is dependably safe and secure, now and for future generations.

And with our 39th Assembly now just around the corner, I can say with confidence that we are well on our way to accomplishing this aim. ■

Dr. Olumuyiwa Benard Aliu
President of the ICAO Council

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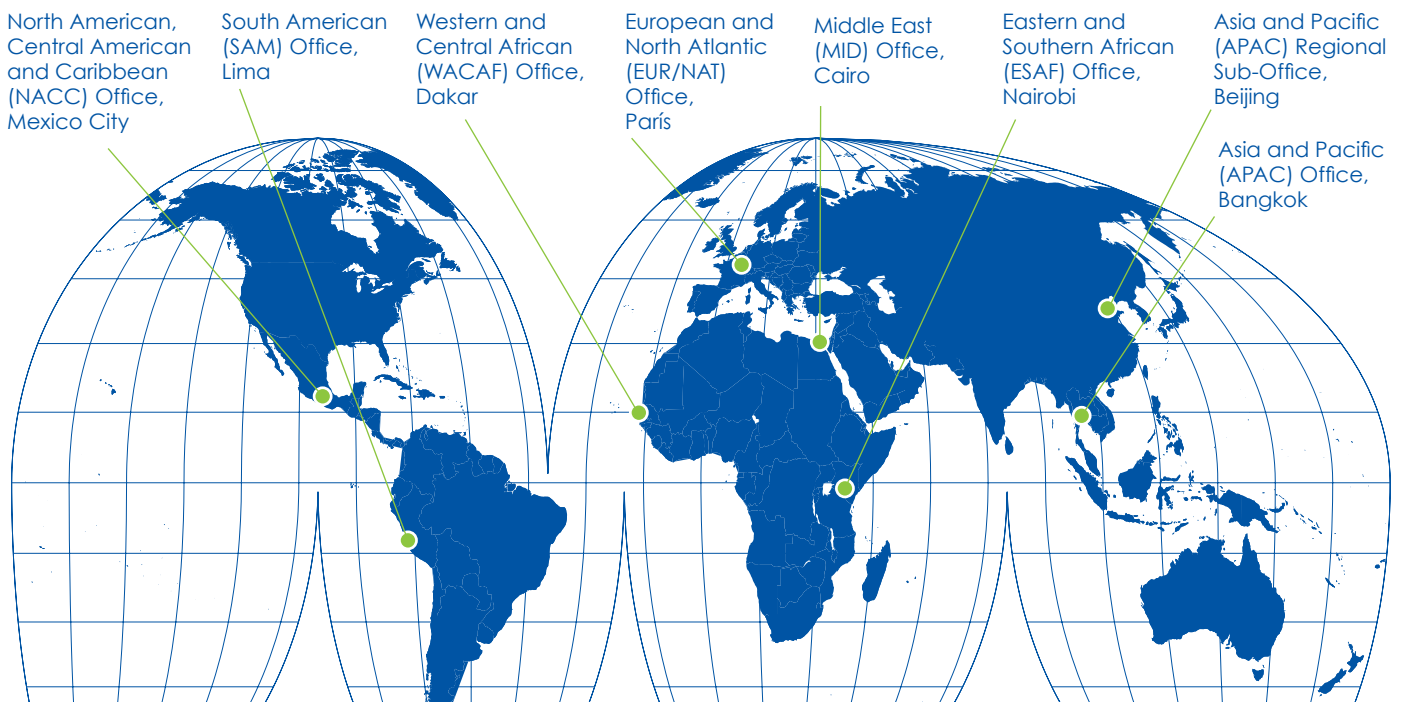
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Participants in the third annual ICAO Council Off-Site Strategy Meeting (COSM 2016) in Québec City.

BUILDING GLOBAL PARTNERSHIPS FOR AVIATION DEVELOPMENT

 In their third annual Off-Site Strategy Meeting (COSM 2016), Representatives to the ICAO Council, ICAO senior officials and invited industry participants focused ICAO's emerging role as an interface to assist States in developing partnerships and sourcing resources to address priority needs for the safe, secure, sustainable, and orderly growth of international civil aviation. The theme, "Building Global Partnerships for Aviation Development (GPADs)," built on discussions at the previous two COSMs.

COSM 2016, held in June in Québec City, Canada, comprised 70 participants from 31 Member States on the Council, part of the leadership team of the Air Navigation Commission, the senior management team of the Secretariat, including Regional Directors, seven Representatives to ICAO, industry representatives from Airports Council International (ACI), the Civil Air Navigation Services Organisation (CANSO), and the International Air Transport Association (IATA).

Key participants in preparing for the discussions were the Council's Implementation, Strategy and Planning Group (ISPG) – featuring the Representatives of Australia, Bolivia, Burkina Faso, Canada, Portugal, and the United Arab Emirates – together with the Representative of France in his capacity as Chairperson of the Working Group on Governance and Efficiency and the Representative of Nigeria as Chairperson of the Technical Cooperation Committee, assisted by the Secretariat.

The strategy meeting's overarching objective was to develop recommendations for facilitating funding assistance to States, including implementing ICAO's *No Country Left Behind* (NCLB) initiative. It also recognized that this could be best achieved by

fostering strategic partnerships between States and UN specialized agencies, industry stakeholders, international financial institutions, and donors – mobilizing resources to meet governments' capacity building and training needs (*for a summary of COSM 2016 recommendations, see opposite page*).

On the morning of the first day, the methodology for addressing the group's objectives was outlined by the event facilitator, Mr. Shahid Qadeer, Senior Specialist in Strategy and Corporate Performance Management at the United Arab Emirates (UAE) General Civil Aviation Authority (GCAA).

The Secretariat presented current ICAO activities, challenges, and opportunities for global partnerships, while presentations by ACI, CANSO, IATA, the European Union (EU), and the Global Affairs Office of the Canadian government added context for activities outside ICAO.

COSM 2016 participants then engaged in vigorous discussions to develop a vision statement for GPADs and identify the key challenges. The afternoon sessions included a SWOT (Strengths-Weaknesses-Opportunities-Threats) analysis related to ICAO's role in GPADs.

Frequent terms throughout the vision discussions included "sustainable" ... "capacity building" ... "global partnership" ... "private and public" ... "mobilize" ... "catalyze" ... "national and regional" ... "incentivize" ... "harness," setting the context for the remainder of the event. Although the vision statements developed by the breakout groups may have been differently worded, they reflected common views shared by the participants regarding the goals and aspirations for GPADs.

Continued on page 8

RECOMMENDATIONS FROM THE 2016 ICAO COUNCIL OFF-SITE STRATEGY MEETING

ADVOCATE for aviation by sensitizing high-level government officials and by raising awareness about aviation's contribution to sustainable development, the benefits of mobilizing resources for air transport, and the benefits of investing in civil aviation.

Main activities include:

- Raising awareness of ICAO's *No Country Left Behind* initiative with Member States, the United Nations system, international and regional organizations, financial institutions, and the donor community to garner the political will necessary to invest in aviation development and promote liberalization of air transport.
- Promote partnerships with relevant stakeholders to ensure sufficient resources and capacities for development of the aviation sector.

Establish a reputable and sustainable **PLATFORM** to assist States in identifying, engaging, and securing resources to promote economic growth via the development of their air transport systems.

Main activities include:

- Facilitate bilateral/multilateral meetings to connect potential recipient States with potential donors and investors. Leverage the ICAO World Aviation Forum (IWAF) as the preeminent annual outreach event to foster partnerships with stakeholders.
- Examine the feasibility of creating investment pools and a financial marketplace in which aviation-related projects can be consolidated and promoted.

IDENTIFY where financing is required and deficiencies in infrastructure and ICAO Standards and Recommended Practices (SARPs) compliance.

Main activities include:

- Further develop indicators/tools using Universal Safety Audit Programme (USAP) and Universal Security Oversight Audit Programme (USOAP) results, air traffic and aviation professional forecasts, Planning and Implementation Regional Group (PIRG) and Regional Aviation Safety Group (RASG) reports, etc. to assist in identifying funding needs in an objective manner.

Develop and implement strategies to **PRIORITIZE** aviation in global and regional frameworks, mechanisms, and initiatives related to development.

Main activities include:

- Ensure that ICAO continues to participate in relevant mechanisms to demonstrate linkages of aviation with the UN Sustainable Development Goals (SDGs). Collaborate with UN agencies, particularly the United Nations Development Programme (UNDP), to reflect and elevate the priority of the aviation sector into national and regional development plans.
- Member States should take into consideration the contributions of aviation to sustainable development in their development plans, which can be further supported by relevant indicators.

Build capacity for States to develop **BUSINESS CASES** which can be used to accurately estimate requirements for identified projects.

Main activities include:

- Develop guidance material on model business cases and training assistance in the preparation and evaluation of business cases, including the conduct of feasibility studies.
- Review, through the Air Navigation Commission, the impact assessment analysis of new SARPs to identify means to support feasibility studies and development of business cases.

BUILD CAPACITY for States to develop their respective civil aviation master plans linked to the national growth or development plan, taking into consideration the ICAO global and regional plans.

Main activities include:

- Develop guidance material to assist States in developing their transport sector strategic plans and civil aviation master plans, and create an inventory of funding sources (such as the State's budget, development banks, and public-private partnerships) to implement the plans.
- Encourage States to ensure aviation infrastructure development projects include elements of capacity building and training.

The next steps in the COSM 2016 process will see a review of the ICAO Resource Mobilization Policy to ensure that all elements required for successful Global Partnerships for Aviation Development are taken into account. A Working Paper featuring the aggregated COSM 2016 GPAD recommendations will also be reviewed by the Council.

From an overall standpoint, COSM 2016 helped to emphasize that the reprioritization in ICAO under *No Country Left Behind* is engaging the Organization at every strategic and tactical level, clearly reflecting the cultural transformation now ongoing in ICAO to ensure its continued and valued contributions to States and the global civil aviation network.

VISION STATEMENTS

Participants in group breakout sessions at COSM 2016 offered their collective vision of how to build global partnerships for aviation development. Proposals included:

"Engage strategic partners to lay the foundation for the sustainable and orderly development of air transport in all States by catalyzing potential partnership and global opportunities and to push beyond the traditional resource mobilization approach."

"Incentivize States to prioritize aviation in the national plans. Identify aviation development needs and funding opportunities while assisting States in building business plans as well as setting criteria for sustainable returns."



ICAO Council President Dr. Olumuyiwa Benard Aliu (right) and Secretary General Dr. Fang Liu at COSM 2016.



Shahid Qadeer served as facilitator for COSM 2016.



Summarizing and consolidating the GPAD vision statements.

A YEAR AGO, COSM 2015

At last year's ICAO Council Off-Site Strategy Meeting, the focus was on the projected need for future skilled aviation personnel and expanding training capacity under ICAO's *No Country Left Behind* initiative. Key objectives identified by the Council and its guests included:

- A long-term strategy to **attract young talent** to aviation
- Developing a **roadmap of global demand** for capacity-building
- Pursuing **strategic partnerships** with UN specialized agencies, international financial institutions, and donors
- Conducting a Global and Regional **training needs assessment**
- Providing a list of **required competencies** for the implementation of SARPs and training programmes ■



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NACC REGION STATES DECLARE *NO COUNTRY LEFT BEHIND* INTENT

 **Directors of Civil Aviation in the North and Central American and Caribbean regions, together with the ICAO NACC Regional Office, signed a milestone Declaration of Intent for the ICAO No Country Left Behind (NCLB) Strategy in May 2016, agreeing to endorse and support the development of procedures, programmes, and technical cooperative activities for the advancement of air commerce and aviation safety.**

This important agreement is an example of the will and commitment of States and international organizations to work alongside ICAO to increase their Effective Implementation (EI) of the ICAO Standards and Recommended Practices (SARPs).

The Declaration states, in part: “... recognizing the different challenges and socio-political and economic realities of the various member States/Territories accredited to the ICAO NACC Regional Office ... it is in the best interest of the member States/Territories to have tailored action plans that take into consideration these differences and challenges.”

The Nassau declaration was undertaken to continue the work of the Port-of-Spain Declaration, signed in 2014, which is due to expire at the end of this year.

In addition to the NCLB Declaration of Intent, conclusions and decisions reached at the Sixth Meeting of the North American, Central American and Caribbean Directors of Civil Aviation (NACC/DCA/6), held in Nassau, Bahamas, included:

1. Implementation of a regulatory framework for unmanned aircraft systems (UAS) operations, including safety oversight risk management mechanisms
2. Sharing of training plans and programmes to increase regional safety oversight capacity
3. Creation of more effective monitoring and harmonized regional implementation aligned with the ICAO Aviation System Block Upgrade (ASBU) methodology
4. Establishment of a Regional Accident and Incident Investigation Organization (RAIO) in the Caribbean region
5. Sharing of transnational experiences and inspectors in the Caribbean region and identification of critical Universal Safety Oversight Audit Programme (USOAP) improvements
6. Enhancement of Regional Safety Oversight Organizations (RSOOs) and regional support on safety oversight improvements
7. Streamlining of aerodrome certification and safety improvements
8. Coordination with the NACC Regional Office and Member States on bank financing of projects and donor community efforts
9. Evaluation of the feasibility of an association of training organizations in the NAM and CAR regions to help meet regional training capacity needs
10. Assisting States with Action Plans on CO₂ emissions reduction

Also at the NACC/DCA/6 meeting, the two RSOOs of the Caribbean Region – the Central American Agency for Safety Oversight (ACSA) of the Central American Corporation for Air Navigation Services (COCESNA) and the Caribbean Aviation Safety and Security Oversight System (CASSOS) – signed a cooperative agreement to strengthen the relationship between the organizations and establish close cooperation in the field of civil aviation. This framework for enhanced collaboration includes such joint activities as the development of a Common Safety Management Manual, sharing transnational inspectors to assist their member States, as well as providing a mechanism for information and data sharing across disciplines.

The NACC/DCA/6 meeting documentation and report are available at: www.icao.int/NACC/Pages/meetings-2016-naccdca6.aspx



Sixth Meeting of the North American, Central American and Caribbean Directors of Civil Aviation. The NACC/DCA/6 meeting was hosted by the Bahamas Civil Aviation Authority and opened by the Honourable Perry G. Christie, Prime Minister, Commonwealth of The Bahamas. The event had civil aviation authority participants from Aruba, Bahamas, Barbados, Belize, Costa Rica, Cuba, Curaçao, Dominican Republic, the Eastern Caribbean Civil Aviation Authority (ECCAA), El Salvador, France, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Sint Maarten, Trinidad and Tobago, Turks and Caicos Islands, United Kingdom, and United States. Observers included Airports Council International Latin America Caribbean (ACI-LAC), Civil Air Navigation Services Organisation (CANSO), Caribbean Community (CARICOM), Central American Corporation for Air Navigation Services (COCESNA), International Air Transport Association (IATA), International Coordinating Council of Aerospace Industries Associations (ICCAIA), International Federation of Air Line Pilots' Associations (IFALPA), Rockwell Collins, United Nations Development Group (UNDG), and the World Bank.

"The signing of this agreement is only the first of many steps, on the way to get the best out of mutual cooperation between regional organizations and enable the flow of information and best practices between parties on issues related to security and air navigation services."

– Jorge Vargas Araya, President of the Central American Corporation for Air Navigation Services (COCESNA)



Left to right: Ivan Galan, Director, ICAO Technical Co-operation Bureau (TCB); Keith O. Major, Director (Ag.) of the Bahamas Civil Aviation Department; Glenys Hanna Martin, MP, Minister of Transport and Aviation, The Bahamas; Rt. Hon. Perry G. Christie, Prime Minister, Commonwealth of The Bahamas; Melvin Cintron, Regional Director, ICAO North American, Central American and Caribbean Regional Office, Lorraine Armbrister, Permanent Secretary, The Bahamas.

WHAT NCLB MEANS FOR STATES IN THE NACC REGION

The ICAO NACC Regional Office asked its members, "What does the Regional NCLB Strategy mean to you?" Here are some of their statements.

ARUBA

While the primary, obvious, and measurable goal would be an increase in Effective Implementation (EI), we particularly look forward to the other consequential effects of the NCLB implementation such as establishment of long-term partnerships with other States based on win-win situations.

BELIZE

The transformative leadership that now guides the regional programme, coupled with the dynamic approach contained in the NCLB strategy, guarantees a raise in the level of EI of all the States in the region.

CUBA

Through bilateral cooperation with Nicaragua and Belize, and multilaterally within the framework of the ICAO RLA/09/801 Technical Cooperation Project, the strategy has provided expertise of its specialists and maintains its commitment to continue doing so in order to attain the proposed regional safety and air navigation goals.

DOMINICAN REPUBLIC

With the support of the NCLB strategy led by the NACC Regional Office, our State has been able to reach a high level of compliance in safety, air navigation, and environmental protection.

GUATEMALA

Under the NCLB strategy, we already have a proactive and measurable action plan, as part of the same strategy, which allows our State to be focused and committed to transform the Universal Safety Oversight Audit Programme (USOAP) EI status in the near future.

HAITI

The NCLB campaign represents a spectacular initiative as it is relying on the inclusive nature of international aviation to respond to the serious challenges that are impeding its overall performance.

JAMAICA

The ICAO Council's *No Country Left Behind* strategy is proving to be a 'game-changer' as States strive to increase their compliance with the SARPs.

MEXICO

For Mexico, this initiative will be the engine that motivates the increase of SARPs compliance.

NICARAGUA

The key of success belongs to the will and testament of States and of the NACC Office to ensure that no one is indeed left behind. ■

ELEMENTS of the NACC NCLB Strategy include:

- Focus and accountability of engagement at the highest level for creating an environment that ensures political will and government support.
- Concentrating on solving the problems identified in the system, rather than on the end-product being produced.
- Melvin Cintron, Regional Director, noted that it is imperative that leaders set the example of political will and commitment as they have done in this Declaration.

For further information: www.icao.int/NACC/Pages/nacc-nclb.aspx



ICAO Council President Dr. Olumuyiwa Benard Aliu addresses Summit attendees in Riyadh.

MIDDLE EAST MINISTERS ADOPT NEW CIVIL AVIATION COMMITMENTS, INCLUDING MAJOR DECLARATION ON AVIATION SECURITY

✈️ ICAO Middle Eastern Member States took a series of bold steps towards improving global cooperation and alignment on air transport objectives at the Global Aviation Ministerial Summit, hosted by the Kingdom of Saudi Arabia in Riyadh in late August under the patronage of the Custodian of the Two Holy Mosques, King Salman bin Abdulaziz. The Summit was attended by 104 officials representing 54 countries from the Middle East, Africa and other regions, and featured a high-level address by ICAO Council President Dr. Olumuyiwa Benard Aliu.

A key outcome of the summit was the new **Riyadh Declaration on Aviation Security and Facilitation** in the Arab Civil Aviation Commission (ACAC) and ICAO Middle East (MID) Regions. The six-page Declaration reaffirms States' need to enhance regional development and integration initiatives for aviation security while seeking new efficiencies for collaborative information sharing and security and facilitation training.

"ICAO has begun building on the tremendous success of our Global Plans for safety and air navigation by developing a new *Global Aviation Security Plan* (GASeP), which we expect to be endorsed by our upcoming 39th Assembly and which will bring important global targets and alignment to all regional and national security planning," President Aliu noted.

In the Riyadh Declaration, the Ministers and Heads of Delegations decided to:

- Support, provide and make available needed resources for the development of a **Regional SECFAL (Security and Facilitation) Plan** which aims to enhance aviation security and facilitation in the ACAC and ICAO MID Regions and for the implementation of the Declaration;
- **Incorporate** [into the Regional SECFAL Plan] the provisions of the **ICAO Global Aviation Security Plan and the Global Facilitation Plan** after their endorsement by ICAO's Assembly;
- Direct the ACAC Secretariat, in coordination with the ICAO Secretariat, to establish an effective monitoring, evaluation and reporting mechanism for the Declaration through the **creation of a Joint Steering Committee**, including all stakeholders which will establish and maintain a clear action plan with specific targets towards the establishment of a regional SECFAL Group.

The Declaration expressed concerns, among them were recent aviation terrorist attacks, the continuous need to improve States' capacity and capability to address the tenuous security environment, conflict zones, and new and emerging threats, and the need to enhance guidance and training for aviation security and facilitation personnel in order to increase the number of competent/skilled professionals.

In the aviation safety domain, Council President Aliu highlighted the need for rapid agreement on a new Middle East/North African Regional Safety Oversight Organization (MENA RSOO).

“The Regional Safety Oversight approach is fundamentally about pooling resources for shared benefit. Here in the Middle East it would assist many States with meeting the targets established under the ICAO *Global Aviation Safety Plan (GASP)*, as well as associated MID Regional Aviation Safety Group (RASG) objectives,” he stressed, adding that revisions to the GASP are focused on greater prioritization on safety management system (SMS) implementation for airlines and other industry partners, as well as progress on State Safety Programmes (SSPs).

In the context of ICAO’s *No Country Left Behind* initiative, Dr. Aliu urged the establishment of a structured programme in the MID region. “This would enable a coordination mechanism suitable to the participation of all stakeholders, and with specific targets relating to the safety, security and efficiency of air transport operations. This type of framework would also benefit related institutional and financial objectives in support of the various initiatives and projects determined,” he said.

Saudi Minister of Transportation Sulaiman Al-Hamdan acknowledged that the air transport industry was experiencing challenges on safety and security, doubling of air traffic, privatization, competition, legislation and rapid technology deployment.

“However, the countries and organizations which are participating in this forum are qualified and ready to meet those aviation

challenges through joint international action,” he said. Al-Hamdan added that international cooperation through the ICAO promotes the regularity and sustainability of international civil aviation growth.

Dr. Aliu also took time to acknowledge the benefits seen through the existing Memorandum of Understanding between ICAO and ACAC, which has facilitated the exchange of statistical information and access to key databases, the organization of joint events, and the promotion and support of training activities.

“As we now confront together the challenges of rapid air transport growth, globally as well as in the MID Region, we need to ask ourselves how this cooperation between ICAO, ACAC and Member States can drive even further progress,” he concluded. ■

“Our common goal is safe, secure and environmentally sustainable air travel, now and for the coming generations.”

– Dr. Olumuyiwa Benard Aliu
ICAO Council President

SAUDI KING SALMAN RECEIVES PRESIDENT ALIU, PLEDGES US\$1M FOR NCLB

The Custodian of the Two Holy Mosques, King Salman bin Abdulaziz Al Saud (right), receives the President of the ICAO Council, Dr. Olumuyiwa Benard Aliu (left), at Al-Salam Palace. The two dignitaries reviewed ways to strengthen bilateral cooperation between the Kingdom of Saudi Arabia and ICAO in the field of civil aviation.


Dr. Aliu expressed his thanks and appreciation for the Kingdom’s pledge of financial support of US\$1 million for the ongoing ICAO *No Country Left Behind* initiative, under which ICAO provides or coordinates assistance and capacity building to States in order to augment the global effective implementation of ICAO’s Standards and policies — a critical step in States and Regions realizing air transport’s unique connectivity and socio-economic benefits.

The audience was attended by Minister of State and Cabinet Member Dr. Musaeb bin Mohammed Al-Aiban, Minister of

Transport and Acting Chief of the General Authority for Civil Aviation (GACA) Sulaiman Bin Abdullah Al-Hamdan, the Authority’s Assistant President for Safety Captain Abdulhakim bin Mohammed Al-Badr and ICAO Middle East Regional Director Mohamed Rahma.



WINDHOEK DECLARATION NEW MILESTONE FOR AFI SECFAL PLAN

 **African Ministers responsible for aviation security and facilitation, meeting in Windhoek, Namibia this past April, adopted the landmark Windhoek Declaration and Targets to address challenges in Africa through the implementation of the Comprehensive Regional Implementation Plan for Aviation Security and Facilitation in Africa (AFI SECFAL PLAN). The Ministers stressed they would seek to effectively implement ICAO Standards and Recommended Practices (SARPs) and to enhance oversight efforts toward the targets' attainment.**

A milestone in the evolution of civil aviation security and facilitation in Africa, ICAO's AFI SECFAL Plan has now become an agreed and effective framework through which African States, donor States, organizations and industry can coordinate their efforts and activities.

The Plan, which is fully aligned with complementary targets already identified under the AU's *Agenda 2063*, was adopted by over 20 Ministers in attendance at the Ministerial Conference on Aviation Security And Facilitation in Africa, held this past April in Windhoek, Namibia.

The special high-level event was organized jointly by the African Civil Aviation Commission (AFCAC) under the auspices of the African Union (AU) Commission.

Commenting on the urgency needed to address civil aviation security concerns, ICAO Council President Dr. Olumuyiwa Benard Aliu noted that "Recent incidents illustrate that there is no doubt that aviation is, and remains, a target of choice for terrorists, and the global policy and regulatory frameworks have become much more responsive to this very aspect of today's dynamic risk context. This response was enabled by ICAO's steadfast commitment to aviation security and facilitation, which also enabled our Member States to realize greater benefit from our capacity-building and targeted technical assistance activities."

Capacity-building and the coordination and provision of targeted technical assistance is a key priority for ICAO today under its *No Country Left Behind* initiative.

The Right Honourable Prime Minister of the Republic of Namibia, Mrs. Saara Kuugongelwa-Amadhila, underscored the importance of security in the development of any economic sector, including air transport and tourism.

She also recognized that Africa is not immune from emerging threats such as cybersecurity risks and other acts of unlawful interference to civil aviation, highlighting that the implementation of the ICAO AFI SECFAL Plan will play an important role in near-term and long-term aviation security and facilitation progress.

The Windhoek Declaration on Aviation Security was also top of mind when African and ICAO officials came together during the Third Africa-Indian Ocean (AFI) Aviation Safety and Security Symposium, held during ICAO's "AFI Aviation Week" in Malabo, Equatorial Guinea, at the end of June.

ICAO Secretary General Dr. Fang Liu, responding to the question of whether ICAO and African States could better mitigate or eliminate the risks which terrorist groups pose to civil aviation facilities and operations, noted that for ICAO, the answer to this was partnership, coordination and collective commitments.

"We are working very hard to help African States coordinate their planning and resources toward continent-wide progress, develop the partnerships needed to help build much-needed capacities, and ultimately to establish affordable, sustainable and effective Security and Facilitation solutions to the benefit of all African States," she noted. ■



AFI WEEK HIGHLIGHTS REGION'S EXEMPLARY AVIATION COOPERATION



ICAO's Third African and Indian Ocean (AFI) Aviation Week was an opportunity to reflect on the enormous progress African States have made in terms of developing their aviation connectivity, in particular through cooperation and improved ICAO compliance, and to identify pathways and opportunities for further enhancement. The 27 June – 1 July event was hosted by the Republic of Equatorial Guinea, attracting more than 200 participants from 35 States and 25 international and regional organizations, and featured the participation of ICAO Secretary General Dr. Fang Liu.

Taking stock of progress against regional safety targets – namely the Abuja targets agreed by African Ministers of Transport in 2012 – was a major agenda item. Participants also reviewed the implementation status of ongoing initiatives and of plans guiding effective cooperation on aviation safety, security and human resources development. They discussed related outcomes from recent African high-level meetings and Declarations, and heard proposals on how the specific work programmes under each area could be further improved in light of the latest data and developments.

"We are seeing an increasing number of States with ICAO Universal Safety Oversight Audit Programme (USOAP) Effective Implementation (EI) rates over 60 percent, and a diminishing number of outstanding Significant Safety Concerns (SSCs). These are indeed very positive trends, but they must continue to be improved upon," explained Secretary General Liu.

The occasion was utilized to showcase the release of the Second Edition of the *Annual Safety Report of the AFI Regional Aviation Safety Group* (RASG-AFI).

Two agreements were achieved: (1) two States signed project documentation for African Flight Procedure Programmes (AFPP) membership to foster improved Performance-based Navigation (PBN implementation), and (2), ICAO's Technical Cooperation Bureau concluded a project agreement on safety and security assistance with Equatorial Guinea.

The agenda also provided helpful opportunities for discussions on pursuing and preserving States' momentum on safety and security issues, and for side meetings regarding on-going ICAO assistance activities aimed at improving safety and security oversight were held with various States. ■

"Effectively-resourced and administered civil aviation systems in States are essential to establishing air transport's global connectivity, which in turn serves as a key catalyst for sustainable economic and social development."


– Dr. Fang Liu
ICAO Secretary General



ICAO Secretary General Dr. Fang Liu told AFI Week delegates, "Africa is one of aviation's greatest examples today of what cooperation and commitment can deliver in terms of concrete civil aviation progress."



THE DAWN OF ICAO'S GLOBAL MARKET-BASED MEASURE (MBM)

 The Friends of the President (FOTP) Informal Group Meeting was convened at ICAO in late August to discuss a new approach for the phased implementation of a global market-based measure (MBM) for addressing carbon dioxide emissions from international aviation. The results of the meeting were reported to the ICAO Council, which subsequently approved a draft Assembly Resolution on the global MBM design. This draft Assembly Resolution was issued on 2 September and will serve as the basis for consideration by Member States at the 39th Assembly.

The approach for the global MBM proposal is based on the outcome of bilateral and multilateral consultations that had taken place prior to the FOTP meeting. This approach proposes three phases for the implementation of the global MBM, to be known as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and consists of:

- A Pilot Phase (from 2021 through 2023) and a First Phase (from 2024 through 2026) on the basis of voluntary participation, and
- A Second Phase from 2027 through 2035 with participation of all States except for exempted ones.

Within a couple of days of the release of the Assembly Working Paper (A39-WP/52) containing the draft Assembly Resolution, a number of countries issued declarations of support and intent to join the initial voluntary phase.

The 44 Member States of the European Civil Aviation Conference (ECAC) declared their intent to participate in the MBM from its outset, and called on other major aviation States “and those having the capacity to do so” to commit to the global MBM, “and make their decision public before the end of the ICAO Assembly”.

The United States and China also announced, ahead of a G-20 summit, that they expect to be early and will volunteer to join. Other countries, including Canada and Mexico (together with the United States), and Indonesia, had previously announced their intent to be part of the MBM from its outset, and other countries are expected to make their announcements soon.

Under the CORSIA, participating aircraft operators would offset carbon emissions from international aviation activities above 2020 levels by buying “Emissions Unit” credits from eligible programmes and projects.

Depending on the price of carbon, ICAO estimates the programme will cost airlines 0.2-0.6% of total revenues from international flights in 2025. This could increase to 0.5-1.4% by 2035.

PUTTING CORSIA INTO PRACTICE

The global MBM proposal to be considered by the Assembly contains the following elements:

OPTIONS FOR STATES THAT PARTICIPATE IN THE PILOT PHASE

For the Pilot Phase, each participating State could choose the basis of calculating their operator's offsetting requirements from two options: (1) either the operator's emissions in a given year (i.e., 2021, 2022 and 2023), or (2) the operator's emissions referring back to a single year of 2020.

SCOPE OF EXEMPTIONS FOR THE SECOND PHASE

Exemptions will be defined for Least Developed Countries (LDCs), Small Island Developing States (SIDS) and Landlocked Developing Countries (LLDCs). Exemptions to additional States would be defined on the basis of an individual share of international aviation activities in RTKs (revenue tonne kilometres) in year 2018 below 0.5 per cent of total RTKs or cumulative share of 90 percent RTKs.

Exempted States, nonetheless, are encouraged to participate voluntarily.

REVIEW OF THE PHASED IMPLEMENTATION

The periodic review of the CORSIA will take place every three years starting in 2022, which will allow the ICAO Council to make informed decisions on whether it is necessary to make adjustments to the next phases.

DYNAMIC APPROACH FOR DISTRIBUTION OF OFFSETTING REQUIREMENTS

The proposed approach for the distribution of offsetting requirements considers that for the pilot and first phases, as well as the first compliance cycle of the second phase (2021 through 2029), a 100 percent sectoral rate and 0 percent individual rate would be applied. From the second compliance cycle of the second phase, at least a 20 percent individual rate would be applied from 2030 to 2032 and at least a 70 percent individual rate from 2033 to 2035.

BASELINE EMISSIONS FOR CALCULATION OF OFFSETTING REQUIREMENTS

The draft Assembly Resolution defines the baseline for the calculation of offsetting requirements as the average of emissions covered by CORSIA in 2019 and 2020.

OTHER ISSUES

Work in the areas of Monitoring, Reporting and Verification (MRV), Emissions Unit Criteria (EUC), and Registries will continue after the Assembly, and technical material will be developed by the Committee on Aviation Environmental Protection (CAEP).

The draft Assembly Resolution states that the CORSIA or any other proposal decided by the Assembly is to be the market-based measure applying to CO₂ emissions from international aviation. "No one will benefit if the end result of this process is an acrimonious and inefficient patchwork of local emissions regimes," said ICAO Council President Dr. Olumuyiwa Benard Aliu.

A ROBUST CONSULTATIVE PROCESS

The proposed Assembly Resolution represents three years of

intensive efforts by hundreds of aviation leaders and subject experts following the 38th Assembly.

As a starting point in this process, the Environment Advisory Group (EAG) established by the ICAO Council held 15 meetings from March 2014 and – supported by the CAEP – developed a "strawman" proposal with a set of technical analyses and ultimately a draft Assembly Resolution was presented at EAG/15 in January 2016.

ICAO's Global MBM High-Level Group, established to facilitate the convergence of views and further refine the draft Assembly Resolution text, met in February and April 2016, followed by a High-Level Meeting in May 2016.

In addition, in terms of global awareness and outreach, Global Aviation Dialogues (GLADs) were conducted by ICAO in April 2015 and March-April 2016, covering all world regions. Their objective was to share information regarding MBMs and their role in the basket of measures to address CO₂ emissions from international aviation, as well as provide opportunities to receive feedback from Member States and relevant organizations.

Finally, the FOTP Meeting considered the new approach for the phased implementation resulting from the bilateral and multilateral consultations by States related to the draft Assembly Resolution text, as well as the issues and language to operationalize the approach.

CORSIA IMPLEMENTATION CHALLENGES


CORSIA will be the first global MBM to be implemented by a major industrial sector. In order to overcome related challenges, a thorough strategy for assistance and capacity building is being envisaged to support States, in particular those developing States requiring assistance for its expeditious implementation.

More information on the global MBM can be found on the ICAO web site. ■

"We have been diligent to ensure that the global MBM is suitably flexible in its requirements and application to mitigate emissions, while not adversely impacting aviation and economic development objectives in air transport markets."

– Dr. Olumuyiwa Benard Aliu
ICAO Council President

HIGH-LEVEL MEETING IN INDIA GENERATES MBM SUPPORT

 At the invitation of the Government, Dr. Olumuyiwa Benard Aliu, visited Delhi, India for three days in August to undertake high-level bilateral meetings with government and aviation officials. The ICAO Council President met with Mr. Shri Ashok Gajapathi Raju Pusapati, India's Minister of Civil Aviation, Mr. Jayant Sinha, its Minister of State for Civil Aviation, and the Permanent Secretary in the Civil Aviation Ministry, Mr. Rajeev Nayan Choubey. President Aliu was also provided with a detailed presentation on India's civil aviation sector by the country's Civil Aviation Ministry Permanent Secretary and Senior Officials. He was accompanied by ICAO's Regional Director for the Asia and Pacific (APAC) Region, Mr. Arun Mishra, the President of the ICAO Council.

Dr. Aliu highlighted that ICAO sees India as a key player in the APAC region and that its contributions to ICAO have been very valuable. India was one of the earliest members of the International Civil Aviation Organization. The President lauded India's achievements with its GAGAN satellite-based navigation system, as well as its civil/military aviation cooperation and Air Traffic Flow Management (ATFM).

Minister Raju said it was a "very useful" meeting on "furthering India's interests in the global aviation sector."

Following his meeting with the Minister and Permanent Secretary respectively in India's Ministry of Environment and Forests, Anil Madhav Dave and Ajay Narain Jha, Dr. Aliu noted the importance of their discussions on a Global Market-Based Measure (MBM) for aviation emissions. The ICAO President observed that India played a very significant role in the positive outcome of the COP/21 talks in Paris. He also appreciated the ambition displayed in India's climate actions under the leadership of Prime Minister Narendra Modi.

Dr. Aliu expressed his expectation that India would continue to work toward positive consensus through ICAO on the global MBM for international flight emissions and support the MBM resolution in the 39th Assembly.

Minister Raju has said that India is recording the fastest growth in the civil aviation sector in the world at 20%. Reiterating India's prioritization of the aviation global MBM, Minister Dave emphasized concern that as a developing nation the scheme should not hinder the aspirations of the Indian people to continue maximizing the significant economic benefits of global air transport connectivity. He reiterated his Government's commitment to work with ICAO and other Member States in order to resolve an MBM design borne out of consensus which adequately addresses the interest of all States. ■

LEVERAGING INDIA'S SUCCESS

Noting India's near-perfect scores on its recent ICAO Aviation Security Audit, President Aliu highlighted that India's success could also benefit other States in the Region through greater collaboration and sharing of both security and safety best practices.

"ICAO would greatly appreciate India's consideration to enhance its leadership role in the APAC Region by providing technical assistance to its neighbouring countries to further the ICAO *No Country Left Behind* initiative," the President remarked. "And I would also urge Indian

experts to fully participate in the ongoing technical work of ICAO, both at the Regional level as well as at ICAO Headquarters."

President Aliu observed that while India has made significant progress in all the fields of civil aviation, further work was required in the areas of personnel training, airports, and accident investigation, in addition to improved regulatory oversight in the air navigation services (ANS) domain.



ICAO Council President Dr. Olumuyiwa Benard Aliu (centre right) with India's Minister of Civil Aviation Mr. Shri Ashok Gajapathi Raju Pusapati (centre left), and its State Minister for Civil Aviation Mr. Jayant Sinha (second from left). Accompanying the dignitaries are ICAO's Regional Director for its Asia and Pacific Office in Bangkok, Mr. Arun Mishra (second from right), India's Representative to the ICAO Council, Mr. Alok Shekhar (far right), and India's Permanent Secretary in the Civil Aviation Ministry, Mr. Rajeev Nayan Choubey (far left).

RPAS AND REMOTE ATS SYMPOSIUM

✈ The ICAO Remotely Piloted Aircraft Systems and Remote Air Traffic Services Symposium in Stockholm, Sweden, in May was held to advance the understanding of remotely piloted aircraft systems (RPAS) and remote air traffic services (R-ATS) with a specific focus on ways to address the challenges and make best use of the opportunities availed by these parallel, cutting-edge technologies.

Here are highlights of remarks by some of the more than 30 expert speakers and panelists.

“Drone technology is disruptive for both business and for regulators. We need to move from an aircraft-centric to an operation-centric approach. Common rules, but local application. The starting point is to focus on the particular risk of a particular type of operation.”

Koen De Vos, Senior Drone Expert, European Commission

“Innovation starts on the flight deck, at the control position and on the tarmac. People using the tools are the first to know how they can be improved.”

Stephen P. Creamer, Director of the Air Navigation Bureau, ICAO

“Taking advantage of accelerated technological improvements, both RPAS and ATS programmes have the potential to dramatically improve aviation efficiency and safety. But as technology accelerates, how fast can the culture really keep up? How do we effectively manage safety?”

Doug Davis, Northrop Grumman,
representing Civil Air Navigation Services Organisation (CANSO)

“What we are trying to achieve has one big common element. That is, how do we replace perception from the human eye with technology?”

Dr. Ruth Stilwell, Aerospace Policy Solutions

“The general perception in the aviation insurance market is that Remote Towers is a step forward. Remote technologies will improve aviation safety and reduce costs. However, insurers want harmonization of regulations.”

Roger Sethsson, Head of Aerospace Aviation,
Inter Hannover

“An important step for safe, secure, environmentally friendly unmanned aircraft operations is respecting the privacy of the citizens.”

Eric Sivel, European Aviation Safety Agency
(EASA)

“UAS will be major aerial actors tomorrow. The aviation world has to integrate newcomers, with a start-up culture rather than an aviation culture. Whatever the regulation, let them fly safely with a proportionate and realistic approach ... because they will fly anyway.”

Muriel Preux, France DGAC



Remote control tower,
Bristol UK (NATS photo)

SOLAR IMPULSE 2 TEAM COMPLETES “IMPOSSIBLE” ROUND-THE-WORLD ZERO-FUEL FLIGHT

↑ The Solar Impulse 2 aircraft – the first electric airplane powered only by solar energy – took 13 years to plan and develop and 23 total days of flight to journey 43,041 kilometres around the world. The International Civil Aviation Organization is an Institutional and Aeronautical Partner for Solar Impulse 2, aligned with ICAO’s Strategic Objective to reduce emissions from international civil aviation activity using a multi-faceted approach.

Swiss aviation pioneers André Borschberg (left) and Bertrand Piccard. SI2 initiator, chairman, and pilot Piccard developed the vision and outreach to promote clean technologies. Borschberg assembled the team that designed the Solar Impulse 2 aircraft and organized the flight missions. They alternated flying the 17 legs of the round-the-world flight.



All images copyright Solar Impulse



In the pre-dawn of 26 July 2016, the Solar Impulse 2 aircraft landed at Al Bateen Executive Airport in Abu Dhabi on the final leg from Cairo.

“The Solar Impulse 2 project clearly demonstrates that renewable energies and efficient technologies offer tangible solutions to meet the UN Sustainable Development Goals.”

– Jane Hupe, Deputy Director,
Environment, ICAO Air Transport Bureau



Captain Piccard and his wife, Michèle, prior to departure of the final flight leg from Egypt.



“The same clean technologies used on Solar Impulse could be implemented on the ground in our daily life to divide by two the CO₂ emissions in a profitable way.” – Bertrand Piccard. For more information on their #FutureIsClean initiative, visit www.futureisclean.org.



The Mission Control Centre in Monaco erupts in celebration on completion of the final flight. Their message: “Take It Further!” Borschberg said, “By capitalizing on the engineering skills and expertise gained over the past decade, we will continue to work to encourage concrete innovations and disruptive solutions.”



Republic of Turkey
Ministry of Transport Maritime Affairs
and Communications

Türkiye

...bridging the continents...



GREETINGS FROM TURKEY, THE COUNTRY WHERE CONTINENTS AND CULTURES MEET!

As the Minister of Transport, Maritime Affairs and Communications, I would like to summarize the facts and figures about our civil aviation sector which has been booming since 2003.

Considering the multiplier effect of civil aviation on the growth of national economies by virtue of its supranational characteristics, we have adopted a number of measures over the last 13 years, the first of which was the opening of our domestic market to competition. Today, Turkish civil aviation can be said to have truly taken off thanks to these measures.

We are very keen to continue and improve the vision of the Prime Minister Mr. Binali Yıldırım with the following motto which is “EVERY TURKISH CITIZEN WILL FLY AT LEAST ONCE – THE AIRWAYS WILL BE THE PUBLIC WAY”

This vision came true as passenger, cargo, and aircraft traffic have increased nearly fivefold over this period. This growth still continues at rates higher than the world averages.

The Turkish Directorate General of Civil Aviation (DGCA), which is of essential importance to the standards-compliant functioning of civil aviation activities, was restructured in 2005, and was made independent and given its own budget.

The organization’s regulatory and oversight activities play an important role in the safety, security, and growth of the industry. Of course, this growth has brought out a need for well trained and qualified personnel, particularly pilots and technicians.

From the very beginning, we have been making every effort to provide solutions to such matters in order to ensure healthy and sustainable growth. Additionally, our airports, which are operated through the Build-Operate-Transfer model (also known as the Turkish model), have been renewed at zero cost to the State, thus bolstering the development process. They add capacity while also becoming centers of social and economic activity due to architecture and offer all facilitation services to our passengers with no compromise to security. This model is also being used for the new airport in Istanbul which will have an annual capacity of 150 million passengers.

FLIGHT SAFETY AND AVIATION SECURITY

Our top priorities in the field of civil aviation are to maintain high levels of safety and security and to have an aviation industry that is environmentally friendly, sustainable and efficient.

In line with these priorities, which are also in harmony with ICAO’s strategic objectives, we will continue to support regional development by sharing our experiences and capabilities with other countries in the region where requested.

Let me take this opportunity to state that, in recent years, Turkish civil aviation sector has experienced annual growth rates of more than 10 per cent despite the global economic crises and is expected to continue to grow at such rates until 2030. This is a result of our experience that we have gained during the last decade and we are ready to share that experience with any country.



Ahmet ARSLAN
Minister

In the view of such information, I believe that Turkey’s election to the Council of ICAO will provide our country with the opportunity to further contribute to the efforts towards realizing the objectives of the International Civil Aviation Organization.

REGIONAL AND GLOBAL COOPERATION

In the pages ahead, Turkey’s success story will be presented to you with concrete facts and figures. I certainly believe that a civil aviation system that facilitates environmentally friendly and sustainable development with no compromise to flight safety and aviation security can only be accomplished through the utmost cooperation at regional and global levels.

Collaboration and coordination between the member States and all related stakeholders to achieve the strategic objectives are needed.

Best regards,

THE FUTURE OF THE WORLD'S AVIATION INDUSTRY IS BEING BUILT IN ISTANBUL

End of construction
26.02.2018

TODAY
28% of construction is completed.

Construction of **Istanbul New Airport**, the largest project of the Turkish Republic era, is rapidly moving forward.

Turkey is on its way to becoming a global aviation hub, as construction of Istanbul New Airport continues at full speed. The mega project grows closer to completion each day, generating excitement in Turkey and around the world.

200 Million
Passengers

6
Runways

350+
Destinations

150+
Airlines

25 Minutes
Distance to City Center

18.000 Vehicles
Parking Capacity



OVERVIEW OF AVIATION IN TURKEY

Number of Airlines

Total	Passenger and Cargo	Cargo
13	10	3

Number of Airline Aircrafts

	Aircraft	Seat Capacity	Cargo Capacity (tons)
2003	162	27,599	302,737
2015	489	90,259	1,759,600
2016(June)	525	98,124	1,752,600

Number of Airports

Total	International	Domestic
55	39	16

Number of

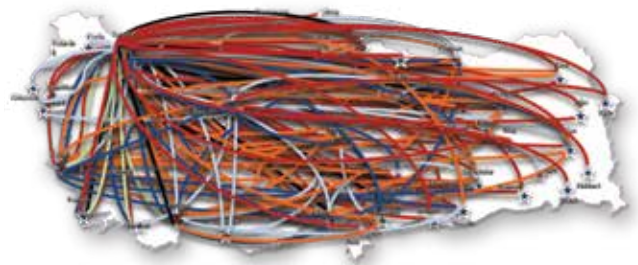
Pilots (Turkish License)	7,414
Pilots (Licensed by other States)	1,345
Aircraft Technician	3,594
Cabin Crew	14,731
Air Traffic Controller	1,476
Air Traffic Safety Electronics Personnel (ATSEP)	590
Authorized Medical Examiner	55
Dispatcher	396

Domestic Flights

2003 ▶ 2 Bases, 26 Destinations, 1 Airline



2016 ▶ 7 Bases, 55 Destinations, 6 Airlines



International Flights

2003 ▶ 60 Destinations



2016 ▶ 281 Destinations, 115 Countries



We are navigating the development of global aviation

TAV Airports is navigating the growth in global aviation. Pushing through the boundaries of aviation, we have footprint in 65 airports in 14 countries.



STRATEGIC OBJECTIVES

Safety, Security, Environment, Sustainability, Efficiency

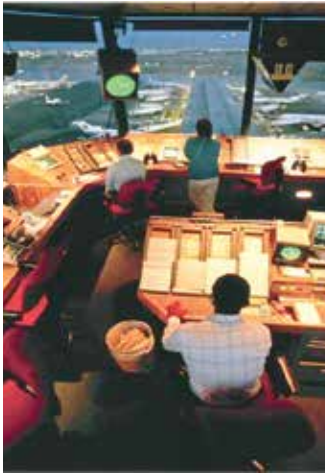
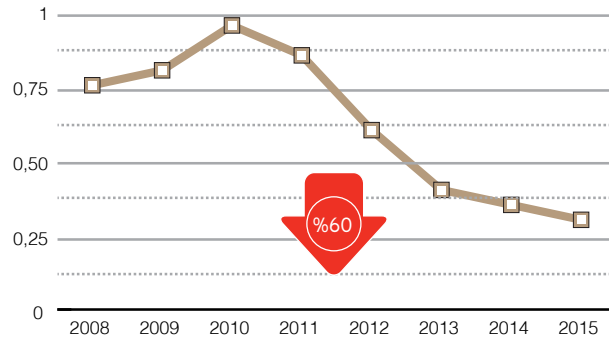
SAFE AND SECURE AVIATION

Safety:

The incredible progress occurring in aviation is only made possible through a safe and secure aviation system. In addition to these two high-priority issues, the reduction of accident rates to zero, environmentally friendly sustainable growth and efficiency are the other strategic objectives for the Turkish civil aviation industry.

- USOAP ICVM, EI, 83.63 %
- SAFA- 2016, First Quarter 0,36
- EASA Standardization, systems on AIR, MED, OPS, FCL

SAFETY ASSESSMENT OF FOREIGN AIRCRAFTS



Air Navigation Services are provided by the Turkish ANSP, called DHMI, within the Turkish airspace covering an area of 1 million square kilometers through a renewal project called SMART using modern equipment. All the related stakeholders, including the military authorities, demonstrate close coordination and cooperation on this important issue.



Security:

Turkey is committed to implement ICAO standards on Aviation Security and also had been audited under USAP CMA, resulted with 93,63 per cent EI.

- Turkish DGCA- IATA Secure freight project
- Turkey-ECAC-EC One-Stop Security Project
- Certification of Screeners and Instructors Project

ENVIRONMENTALLY FRIENDLY ACTIVITIES

One of the strategic objectives is environmentally friendly aviation activities. We are pleased to commit our full support to ICAO initiatives in this field. The Turkish action plan to reduce CO₂ emissions is among the first plans presented to ICAO, and developments relating to the EU Emissions Trading Scheme are being monitored closely.



2 Boeing 747 ERF, **2** Boeing 747 F, **4** Boeing 747 BDSF

myCARGO is the first company which has **8 B-747** aircrafts in Turkey, Istanbul based all-cargo carrier and flies to various destinations around the world providing extra capacity to major carriers.



One of the most strategic countries in the world in terms of air travel by virtue of its geopolitical position.



Located at the intersection of the continents of Asia, Europe and Africa.



Located at the intersection of the continents of Asia, Europe and Africa.



426%

Increase in Passengers Carried over the last thirteen years **181,074,531**



217%

Increase in Cargo Carried over the last thirteen years **3,060,951**



243%

Increase in Airplanes Using Airspace over the last thirteen years **1,815,095**



224%

Increase in Aircraft fleet over the last thirteen years **525**



The cradle of civilization, located on the most significant migration and trade routes throughout history.

A country with a population of seventy-six millions that welcomes millions of foreign visitors every year with its unique, historic architectural heritage and one-of-a-kind hospitality.



195%

Increase in Aviation Employees over the last twelve years
191,716



165

Number of Air Service Agreements signed with ICAO Member States.



\$23,4 Billion

Industry Revenue.

INTERNATIONAL RELATIONS



EASA	Working Agreement
SOUTH KOREA	Safety Agreement
FAA	Safety Agreement Negotiation
IAC AR	Safety Agreement Negotiation
BRAZIL	Safety Agreement Negotiation

Turkey is a member State of many international and regional organizations such as International Civil Aviation Organization (ICAO), European Civil Aviation Conference (ECAC) and European Organization for the Safety of Air Navigation (EUROCONTROL). It also has active management duties in organizations such as ECAC, EUROCONTROL, ICAO, JAA-TO, D8 Civil Aviation Commission.

Number of Passengers			
	Domestic	International	Total
2003	9 millions	25 millions	34 millions
2015	97 millions	84 millions	181 millions

REVENUE TONNE-KILOMETRES* (millions) (passengers, freight and mail)	
Rank Number 2014	Increase
11	% 15

REVENUE PASSENGER-KILOMETRES* (millions)	
Rank Number 2014	Increase
10	% 15

* ICAO 2014 Annual Report



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ACTIVITIES AND PROJECTS

Civil aviation activities in Turkey are conducted in accordance with Turkish National Laws & Regulations published in line with international standards. The duties and responsibilities of the DGCA mandated by the law are categorized under the following three headings:



Rulemaking >> Oversight and Surveillance >> Enforcement



• Hürkuş Project (CS-23 Category)

- Type Certificate was issued by DGCA-TR and validated by EASA on 11th July 2016
- DGCA-TR and EASA work closely
- Panel Meetings
- Compliance Verification
- Test Witnessing

- CS-29 Category Rotorcraft Project has been started
- TSO Articles (Seat, Avionic Instruments, Trolley)

Basic Training Aircraft Hürkuş has been certified by Turkish DGCA and EASA. Hürkuş is the first international certified plane in Turkey.



A new training centre, also located in Istanbul, will provide the civil aviation community with cutting-edge programmes to build and expand human resources capacity for years to come. The project will be finalized by the end of 2017.

The Type Rating Training Organization's including Turkish Airlines and Pegasus provide high quality flight trainings with

- A330 - 3 Simulators
- A321 - 5 Simulators
- A340 - 2 Simulators
- B738 - 9 Simulators

ready to serve the civil aviation to improve safety in regional and global manner.



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OTHER ACTIVITIES



INVESTMENT MODEL IN CIVIL AVIATION: BOT MODEL (Build - Operate - Transfer)

Since 2003, we have invested more than 4.35 billion USD in the aviation sector. Currently, investments at worth of 13.49 Billion USD continue to be made with private sector financing. It will be possible to share our BOT experience during these meetings.

DRONES

Registered users: 8457

Registered RPAS: 6470

Turkish DGCA has worked on regulations of drones, has authorized training organizations and follows draft regulations about drones. On the other hand, punitive sanctions for unauthorized drones use are followed up by DGCA and they are working on legislation for unauthorized drones coordinately with Judicial Authorities.





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Passenger Capacity**

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INFRASTRUCTURE

 **6 Runways**

The new airport will feature six runways and terminal buildings with an expandable capacity of up to 200 million passengers.

DESIGN

 **A Unique Facility
Impressive
Architecture**

The New Airport's modern and functional architectural design will also reflect the architectural character and richness of Istanbul.



Istanbul, the largest airport in the world,
will be inaugurated in 2018!

A NEW GLOBAL REPORTING FORMAT FOR RUNWAY SURFACE CONDITIONS



DR. MICKAËL THIÉRY

He is deputy head of the Airfield Infrastructures Department in the French Direction General de l'Aviation Civile (DGAC) Service Technique de l'Aviation Civile (STAC). He served as co-chair of the Symposium on Runway Surface Conditions Assessment and Reporting.



JEAN-LOUIS PIRAT

He is a Scientific Counselor and International Affairs in the French Direction General de l'Aviation Civile (DGAC) Service Technique de l'Aviation Civile (STAC) with particular focus on airports, environmental, and safety matters. He is chairman of the ICAO Aerodrome Design and Operations Panel.

✈ Aircraft operational performances, at landing or take-off, strongly depend on runway surface conditions. Inclement weather conditions such as rain, snow, and ice may severely degrade runway surface conditions. For obvious safety reasons, pilots need relevant, reliable information about the nature of contaminants, the depth and coverage of contamination, and their effect on friction between the runway and the aircraft's wheels.

With the objective of updating existing safety-related provisions and developing a harmonized Global Reporting Format (GRF) for assessment and reporting of runway surface conditions, ICAO established the Friction Task Force (FTF), comprised of international experts and stakeholders from key industry groups. The result is a new set of Standards and Recommended Practices (SARPs) regarding operations on contaminated and slippery runways – impacting ICAO Annexes 3, 6, 8, 14, and 15 and Procedures for Air Navigation Services (PANS) Aerodromes and Air Traffic Management. The new SARPs and PANS will be applicable as of late 2018 with an implementation target of 2020.

To help aviation stakeholders better understand the new SARPs and PANS, the *Service Technique de l'Aviation Civile* (STAC), the French civil aviation technical centre (part of the *Direction générale de l'aviation civile* – DGAC), organized an international Symposium on Runway Surface Conditions Assessment and Reporting this past spring in Paris. The event was attended by 183 aerodrome operators, regulatory authorities, air carriers, aircraft manufacturers, equipment providers, and other participants from countries such as Germany, Israel, Italy, Japan, Norway, Turkey, Russia, Switzerland, United Kingdom, USA, and of course France.

The Symposium was co-chaired by Armann Norheim, Norway Civil Aviation Authority (rapporteur of the ICAO FTF), and Mickaël Thiéry from DGAC-STAC.

GLOBAL REPORTING FORMAT

The Global Reporting Format (GRF) is defined by these key elements:

- A Runway Condition Report (RCR)
- A Runway Condition Code (RWYCC)
- A Runway Condition Assessment Matrix (RCAM)
- A standardized terminology and phraseology for the characterization of the runway surface conditions.

The RCR is a comprehensive standardized report relating to runway surface conditions and its effect on the aeroplane landing and take-off performances. It is based on objective assessments that are directly tied to contaminant type and depth categories determined according to aeroplane manufacturers' requirements. The RCR is comprised of a code (RWYCC between 1 and 6) and a description of the runway surface (type, depth, and coverage of contaminants) for each one-third section of the runway.



The 25 speakers of the Symposium on Runway Surface Conditions Assessment and Reporting.

The basic procedures for the determination of the RWYCC are described in the ICAO *PANS-Aerodromes* (Doc 9981) through the use of the RCAM and its associated procedures. It represents a foundation for the assessment by aerodrome operators of runway surface conditions and their report to pilots. However, runways worldwide are exposed to various climatic conditions and consequently a significant difference in the conditions to be reported. The RCR corresponds to a basic methodology applicable for all climatic variations and is structured with a built-in flexibility.

The main objective of the Symposium was to launch the implementation phase of the RCR so that the involved stakeholders can be ready by 2020. It is the first of a series of events to facilitate orderly and timely worldwide applications.

Symposium speakers illustrated forthcoming evolutions of the regulatory framework, shared feedback about the implementation of these modifications, and presented state-of-knowledge, practices, and research/innovation in process. The presentations are available on the STAC website (www.stac.aviation-civile.gouv.fr/manifestation/friction_symposium_2016_CR.php).

Richard Thummel, Deputy Head of the *Direction de la Sécurité de l'Aviation Civile* (DSAC), the French oversight authority of civil aviation, opened the Symposium, stating: "It is clear that ineffective braking is often related to the presence of contaminants or water on the runway. There is no doubt that poor reports of runway surface characteristics have already contributed to many safety events. Thus, the origin of the concept of RCR stems from a real operational need to improve safety. The RCR enables to eliminate most shortfalls in accuracy and timeliness of current procedures, which are not always perfectly consistent across States and airport operators and even, sometimes, not representative of stopping performances of aircraft."

The Symposium agenda featured four sessions:

1. *TALPA Experimentations* – past and present experimentations organized by the States to test the RCR and its assessment tools, in particular the RCAM and the procedures for downgrading and upgrading the RWYCC.
2. *Reporting Solutions: Procedures and Systems* – existing or forecast tools that airports may implement to assess the RCR.
3. *Maintenance* – assessment of slippery wet conditions and the definition of Maintenance/Minimum Friction Levels.
4. *On the Way to Implement the RCR* – essential steps to implement the ICAO amendments by 2020.

TALPA EXPERIMENTATIONS

Following the landing overrun of a Boeing 737 at Midway International Airport, Chicago, USA in December 2007, the US Federal Aviation Administration (FAA) formed the Takeoff and Landing Performance Assessment – Aviation Rulemaking Committee (TALPA-ARC) to review the related FAA regulations and policies, as well as industrial practices. TALPA-ARC worked on a concept of assessment matrix (TALPA-ARC Matrix) as a basis for the aerodrome operator to assess and report the runway conditions to the flight crews, and for the pilot to interpret the information. TALPA-ARC worked in parallel with the ICAO FTF to converge toward more objective and timely practices at a global level for the assessment and reporting of runway surface conditions.

The FAA conducted two successive trial programs during the winters of 2009-2010 and 2010-2011. Other States organized their own experimentations. At the Symposium, the USA, Japan, United Kingdom, Switzerland, Italy, France, and Norway presented their feedbacks of their TALPA trials. The objectives of these trials were threefold:

- Validate the correlation between the aerodrome and pilot reports to verify the Matrix assessment against the braking performances experienced by the pilots.

- Check the Matrix usability/applicability, both for airport operators and flight crews.
- Prepare the implementation of the concept of Ground Friction Measuring (GRF) by 2020.

TALPA experimentations are managed by the State with common principles:

- A panel of voluntary airports representative of the country's climate
- Air traffic control, air carriers, and, in some cases, aircraft manufacturers are involved
- Guidance materials prepared by the State
- Training sessions carried out for air carriers, pilots, and aerodromes in order to ensure uniformity of application of the procedures
- A validation team analyzes the results and identifies inconsistencies in the reported information, mostly the pairing of pilot reports (PIREPs) versus airport reports

This last step is essential to compare the aerodrome information (RWYCC, contamination types/depths/coverage, temperature) near the time of landing. Data are analyzed at the State level and each pairing is categorized according to the type of contaminant and three conditions of consistency, i.e.:

- *Match*: The RWYCC generated by the runway condition description based on the Matrix matches the PIREP
- *Favourable*: The RWYCC is lower than the PIREP
- *Unfavourable*: The RWYCC is higher than the PIREP

The amount of collected pairs, RWYCC/PIREP, varies across the experimentations (slightly less than 100 for France during winter 2014-2015 and more than 1000 for the USA during winter 2010-2011).

Climatic conditions are different across countries. For example, Japan, Norway, and the USA experience winter conditions with a predominance of snow and ice, while France and Italy encounter water, slush, and wet conditions (less than 3 mm water). Variations in the specific practices and procedures of each State in the collection of data and the application of the assessment matrix, particularly regarding the downgrading procedures of the RWYCC, are responsible for disparities in the results. For instance, even if not reported to flight crews, the runway friction measuring device readings remain, for some States, key elements for the assessment of the RWYCC, in conjunction with the evaluation of the effectiveness of clearing actions. Choice of the maximum time interval for pairing of RWYCC and PIREPs also varies across States.

The TARPA trials highlighted the need to improve the accuracy of the collection, assessment, and reporting of data. Training, particularly for pilots, plays a key role to increase the level of consistency and the amount of collected PIREPs.

REPORTING SOLUTIONS – PROCEDURES AND SYSTEMS

The Symposium was highly concerned with the importance of the quality of data. Exchange of information needs to be trustworthy, and uncertainty of measurements, traceability, and measurement processes needs to be appraised at a global level.

It was outlined that timeliness is fully achieved when the entire aeronautical data chain from the point of origin to the point of use are able to identify and dispatch the operationally significant information to the user in real time. Modern automated technologies should make this possible.

Focus was put on training aspects. The presence of trained personnel on the ground is crucial since their assessment has a direct impact on the information used by the flight crew. All personnel involved in the information chain from data gathering, assessment, dissemination, phraseology, and operational use should also be adequately trained.

The RCAM is particularly suited to serve as a reference method because it provides a framework transcending international boundaries and compatible with usual inspection practices (temperature readings, use of a graduated rule, etc.). The objective is now to investigate by 2020 complementary tools and procedures, tailored to the various climatic exposures, which could make the assessment of the RWYCC more reliable, objective, and up-to-date while remaining consistent with the RCAM principle.

Some of the means presented in the Symposium pertain to research and innovation projects such as H2020 Future Sky Safety or the Single European Sky ATM Research (SESAR) programme:

- Implementation of *built-in runway sensors* able to describe contaminants in a more reliable, robust, and automated manner. Technologies exist and are already used in the roadways sector – and by some aerodromes – but their performance in terms of accuracy, range of measurement, and capacity of providing real-time information and feasibility of installation on a runway must be further assessed in relation to ICAO requirements.
- The *predictive modelling* of runway surface conditions according to weather records and forecast. Developments are expected regarding the prediction of water thickness based on the dynamics of rainfalls and the topography of the runway.
- The use of *braking data provided by on-board systems* to assist pilots with their PIREPs and to participate in runway condition assessments by considering the aircraft as an airborne friction measuring tool.
- The development of *GFM devices* able to emulate the braking conditions of aircraft (tires, weight, anti-skid braking systems, etc.). Models are currently in development to physically correlate ground friction coefficients to real stopping performances of aircraft.

In the near future, aerodrome operators will therefore dispose of multiple cues to determine a consolidated and reliable RCR. To guide them, decision-support models able to compile all available indicators from the traditional to the complex need be developed. Such an approach requires effective information sharing between all stakeholders. Beyond the objective of improving safety and knowledge of runway conditions, these efforts will improve use of runway capacity thanks to more precise information.



Left to right, Richard Thummel, Deputy Head of the French oversight authority of civil aviation, DGAC; Chuck Enders, Aviation Safety Inspector, Air Carrier Operations, US Federal Aviation Administration (FAA); Armann Norheim, Aerodrome Inspector, Norway Civil Aviation Authority, ICAO-FTF rapporteur, and co-chair of the Symposium; Patrick Gandil, Director of the DGAC.

MAINTENANCE

The Symposium focused on how to address the concept of Minimum Friction Level (MFL) and thus the detection of slippery wet conditions related to degraded runway surface characteristics (due to rubber deposit, polishing of aggregates, etc.).

ICAO has abandoned the single use of friction measuring devices to determine if a runway's surface friction characteristics fall below or above a threshold fixed according to the technology. The basic problem is that a fixed reference cannot be established for friction measuring devices due to the difficulty to maintain the readings stable in time, to the existence of different uncertainty levels according to the measuring technology and even the device used. The concept of MFL can be addressed by monitoring the trends of surface friction characteristics and a decision should not be based solely on one measuring method. A more holistic approach of friction should take into consideration, including the topography of the runway, the macrotexture of the surface, skid resistance, and operational feedback.

Another way to consolidate the principle of MFL is to reduce the uncertainty of friction measurements leading to errors in the assessment of friction characteristics of runway surfaces. Comparisons based on statistical correlation with a reference device employed according to principles of control of uncertainties and time-stability and training of personnel are a way to assess the conformity of measuring systems.

ON THE WAY TO IMPLEMENT THE RCR

The Symposium shared feedbacks on the way to implement the RCR concept. These will impact the development of guidance material at global and regional levels to meet users' needs and expectations.

TALPA trials prepare the deployment by 2020 of the GRF with the production of guidance materials, training procedures, etc., following the TALPA-ARC approach for the transition phase according to a voluntary approach, i.e. without rulemaking. Many interrelated changes and updates in documentation have

already been done by the FAA or are scheduled in the very near future. An advisory circular (150/5200-30D) has been published providing guidance to aerodrome operators in assessing and reporting runway surface conditions.

EASA has established a rulemaking task about aeroplane performance requirements, taking as reference the *ICAO Aeroplane Performance Manual* under development by the ICAO Friction Task Force. The ICAO Circular 329, *Assessment, Measurement and Reporting of Runway Surface Conditions*, will also be revised by the end of 2016.

It is important that every stakeholder make the necessary adjustments in their management and operations – in a timely manner – including development of additional means, methodologies, and procedures, in their operational information systems, and their training programmes ... with tight interaction between the various adjustments.

At State and regional levels, the establishment of an RCR-dedicated Implementation Team is recommended to ensure proper planning and coordination.


Patrick Gandil, Director of the DGAC, closed the Symposium with these remarks: "The French DGAC applauds the efforts of the ICAO Air Navigation Commission, Aerodrome Panel and Friction Task Force, as well as the FAA and TALPA-ARC for their works to progress this matter. [We expect] considerable benefits for a more harmonized format when reporting runway surface conditions. It will allow almost real-time communication by the aerodrome operator of the surface conditions to flight crews with a clear terminology directly related to aircraft performances."

The development of regulations and standards at a suitable level for pilots and air carriers, supported by technology and thorough training of personnel, is crucial to ensure consistency of implementation across borders. The master word for success is to install a truthful cooperation and coordination between the various stakeholders in the validation and transition toward the Global Reporting Format, leading to ownership and confidence. ■

“TANTALIZINGLY CLOSE”

AN INTERVIEW WITH JEFF POOLE, DIRECTOR GENERAL, CIVIL AIR NAVIGATION SERVICES ORGANISATION (CANSO)

This is the seventh in a series of interviews with world aviation leaders.

 Celebrating its 20th anniversary this year, the Civil Air Navigation Services Organisation (CANSO) is one of the youngest major global aviation trade associations. Based near Amsterdam's Schiphol Airport, CANSO Members support over 85% of world air traffic. Its members consist of the world's air navigation service providers (ANSPs) as well as industry suppliers. CANSO positions itself as “the global voice of air traffic management (ATM)” with a mission to transform global ATM performance and deliver seamless airspace globally. CANSO Region Directors are based in Brussels, Belgium; Johannesburg, South Africa; Mexico City; Amman, Jordan; and Singapore. CANSO's Director ICAO Affairs is based in Montréal, Canada.

Jeff Poole became Director General in December 2012 and within six months launched CANSO's Vision 2020, its strategic framework for the ATM industry and supporting work programme. He joined CANSO from the International Air Transport Association (IATA), where on behalf of airlines he drove reductions in airport costs, air navigation charges and aviation taxes. He had previously worked at Airbus, mainly on the development programme for the A3XX (now the A380).

“IATA gave me the opportunity to view the air traffic management industry from the perspective of the users. The CANSO DG role was an opportunity to move to the other side of the table and see how improving the ATM industry could be influenced from within,” Poole told *ICAO Journal* Editor Rick Adams.

In the four years since you became CANSO leader, what do you consider the organization's key achievements?

The first is Vision 2020, under which our objective is to transform the performance globally of air traffic management. We have

140 individual work programmes and deliverables which are fully aligned with the ICAO *Global Air Navigation Plan (GANP)*, the *Aviation System Block Upgrades (ASBUs)*, and the *Global Aviation Safety Plan (GASP)*. Vision 2020 is now embedded in the DNA of CANSO and its members. It is how we organize ourselves, how we relate to each other; it drives our activities and priorities.

Second, linked with that, are our relationships, in terms of partnership with ICAO and with our industry partners such as the airlines and airports, which are working much more effectively now. We genuinely have a seat at the top table when important issues are discussed in ICAO and elsewhere. Our views are sought and respected. We provide representatives to a number of key ICAO working groups and task forces, and we are working widely with States and industry partners on all of the issues affecting aviation and air traffic management.

Third, we are particularly proud of the World ATM Congress. It is now the global event for the air traffic management industry, and provides a unique forum for education, policy discussions, best practice exchanges and so on. It has more than 7,000 people attending, more than 225 exhibitors and a top-class conference of about 80 education sessions. From zero to that in four years.

What's next?

There is an enormous amount of work we still have to do. We are on the cusp of transforming the global performance of air traffic management with various new technologies. Our priorities are firstly to improve safety – always our number one priority. We do that through the CANSO Standard of Excellence in Safety Management Systems and work on safety maturity systems in air navigation service providers. Secondly, we need to build and modernize the ATM structure across the globe, and do that on an integrated regional basis, not continue to build on a national basis. And we need to work much more on harmonization of airspace and efficiency of operations through new technology and new procedures.

“We're on the cusp of transforming the global performance of air traffic management.”



“We have to overcome what’s hidden behind the word ‘sovereignty.’”

– Jeff Poole,
Director General, CANSO

One of the major topics currently is integration of remotely piloted aircraft systems (RPAS) into the airspace. What is CANSO’s perspective?

It has quite a focus for us. We have a collaborative airspace working group that reviews everything that is in and going through airspace. We are working with the RPAS and drone user associations as well as other industry associations, such as IATA and Airports Council International (ACI), and the ICAO working group on RPAS.

The challenge for everybody is to be able to react at the speed with which the drones and the technologies are being introduced. This is a fast-moving game and one of the things we are trying to do is bring together the big players to ensure that we have a cohesive framework around the globe. Not only the airline organizations and safety organizations but also regulators like the Federal Aviation Administration (FAA) and European Aviation Safety Agency (EASA) so we all deal with the issue in a consistent way. As with everything else in aviation and ATM, we need to act and be treated as a global industry; the last thing we want is to have a very fragmented approach – local regulation, different regulations, and different approaches.

Air traffic management is going through a major modernization with interconnected programmes such as the ICAO ASBUs, Single European Sky ATM Research (SESAR), and NextGen in the US.

What has happened in recent years has been very encouraging in the sense of setting a clear roadmap for aviation and the ATM industry. We are very strong supporters of the ICAO ASBUs; they are a high priority for us and a fundamental part of the Vision 2020 programme. Implementing the ASBUs will improve safety, enhance efficiency and improve connectivity. ASBUs provide a common roadmap for everybody, but one that also allows individual States and individual ANSPs to be flexible in how they are implemented, particularly on the timings. That is really important because not everybody is on the same level of maturity and there are different systems in place. There is very significant recognition that different

States are at different levels, which is why ICAO has its *No Country Left Behind* initiative. CANSO could say similarly that one of our objectives is that no ANSP is left behind.

The SESAR and NextGen programmes are delivering new technologies, new processes and new ways of working, which are consistent with the ASBUs and helping to modernize the industry. There is still a long way to go before we fully modernize everything and have really transformed performance on a global basis.

How far along are we with the ATM roadmap?

Tantalizingly close, I would say. Both the SESAR and NextGen programmes have struggled for different, very understandable, reasons. It would be easy for some people to be critical of the cost of the programmes and the length of time they have taken, but given all of the institutional, financial and bureaucratic hurdles, there has been some very good work done. We are in the deployment phase for many of the technologies and processes and new ways of working. Once we see significant deployment of the SESAR and NextGen outputs then we should equally begin to see major change in the industry and its performance.

Of course, deployment needs investment. As air navigation service providers are virtually all government-owned or subject to government financial controls or constraints, it is really important that governments understand the importance of the SESAR and NextGen programmes and deployment of their technologies. Governments either provide the funding for the air traffic management infrastructure improvements or at least approve and authorize the ANSP to seek the necessary funding. There are good business cases but sometimes there are bureaucratic processes and approvals to be managed.

How do we move beyond the concept of individual States each managing their own airspace?

We have to overcome what is hidden behind the word ‘sovereignty.’ Every State has sovereignty over its airspace and is responsible for the provision of air traffic management in its airspace. That does not mean to say that the State has to carry out its air traffic management itself. There is lots of scope for States delegating their airspace, joining airspaces together, agreeing on a common service provider across swathes of airspace and so on. But there is also a real nationalistic sovereignty barrier to making such progress in ATM.

It is clearly better to run ATM on the basis of the operational requirements of airspace users rather than national boundaries. So there is growing pressure to run things on a network basis with proper air traffic flow management. The other factor that is really going to change things, in my view, is the introduction of new technologies and processes which mean that ATM activities do not need to be carried out at individual airports. The outreach of an ANSP can be significantly more than it used to be historically, potentially even providing coverage for another country’s airspace. And we can see this happening in different places already.



Jeff Poole, Director General, CANSO

We need operational and technological pressure for change. What will really help us to change is when we hit gridlock, when there are real capacity constraints and people experience the loss of economic growth because there is no scope for further growth in aviation. I think that it is only a matter of time before capacity constraints will lead to political pressure to ensure effective regional initiatives, and we certainly have the operational and technical capability to make regional airspace initiatives work today.

Are there currently such capacity constraints?

Yes, absolutely. There are some well-known bottlenecks in the Middle East, which also affect other regions because the Middle

East provides significant airways from Europe to Asia or Africa. There are also capacity constraints around some of the conflict zones. Individual States will have bottlenecks depending on their capacity in air traffic management and technology.

CANSO and other organizations have called for 'better regulation.' What does that mean to you?

For us, we see that many regulations are very prescriptive, inefficient and conflicting. They add cost and do not actually help improve performance. What we want to see is performance-based regulation that is focused on achieving agreed measurable outcomes, with the service provider being held responsible for how those performance requirements are met.

It is not an easy issue to address because there is a cultural mindset as well as purely a regulatory one. And it will take time. We know what good performance-based regulation looks like but we do not yet understand how best to achieve it. We believe that it will be more effective to focus on new areas for regulation where there is scope to influence things from the outset. Two examples are remotely piloted aircraft systems and remote air traffic control towers.

There is always some concern and resistance when change is implemented. We need to make sure that the operational, technical and social side of remote towers is matched by an appropriate regulatory framework.

There's a push on for remote air traffic control towers, but not everyone is onboard.

The traditional argument of air traffic management has been that the human eye is better than technology. That is why we have high airport towers that overlook airport runways. But that is no longer true with fantastic technologies allowing much better visibility, especially in adverse weather conditions. Automation and digitization really do reduce the workload on the individual controller. I think the air traffic controllers are seeing that the digitised technology that is required for remote towers is actually improving their workstations and their working conditions. It provides much greater visibility over the areas where they are responsible and reduces stress as well. That has to be a good thing overall.

Final thoughts?

We do have significant challenges and none of us can handle those in isolation. We have to work together; we have to have good relationships with ICAO and individual States; and we have to work closely with our industry partners in the airlines, airports and manufacturing community. Partnership is itself a 'technology' at which we are getting better; we are seeing much more happening now in a more cohesive partnership style. To work in partnership is not necessarily easy; it requires more forethought and initiative to make things happen than when acting alone, but the results are very significantly better. ■

THE LOOMING HALON SUPPLY GAP

TIME IS RUNNING OUT FOR OPERATORS TO ADDRESS AIRCRAFT FIRE SUPPRESSION SYSTEMS



DAVID CATCHPOLE

A consultant with Petrotechnical Resources Alaska, and serves as co-chair of the United Nations Environment Programme (UNEP) Halons Technical Options Committee (HOTC).



DANIEL P. VERDONIK

Director of Regulatory Programs at Jensen Hughes, Inc., Baltimore, Maryland, USA, and serves as co-chair of the UNEP HOTC.

The views and conclusions presented in this article are those of the authors alone and are not necessarily the views of their employers, the UNEP HOTC, or its parent Technology and Economic Assessment Panel.



Has civil aviation reached the point that fire suppression systems installed on new aircraft being produced today cannot be maintained for the lifespan of the aircraft? More than 20 years since the production of halon was banned (because of scientific evidence that halon contributes to the depletion of the stratospheric ozone layer), there remains a lack of progress in replacing halon in civil aircraft, heightening concerns that the civil aviation community is unprepared for a future without halons.

Before the Montréal Protocol on Substances that Deplete the Ozone Layer called for an end to halon production (1994 in developed countries and 2010 in developing countries), halons found extensive use worldwide as clean, safe, and very effective fire suppression agents. Halon was considered ideal for use around aircraft equipment and structures because it is non-corrosive, non-combustible, leaves no residue, is effective in small quantities, and considered safe for humans in passenger cabins and crew cockpits.

Two halons emerged as the agents of choice for many fire protection applications: halon 1301, used in fixed total flooding fire extinguishing systems; and halon 1211, used for streaming applications, primarily in portable fire extinguishers.

Designs of new military facilities and equipment no longer use halons – with the exception of commercial derivative aircraft. In the merchant shipping sector, halons were banned from use in new ships 24 years ago. In contrast, the commercial aviation industry has lagged behind in adopting alternatives and new technologies for new systems.

AIRCRAFT STILL HALON-DEPENDENT

Halon is used for fire suppression on civil aircraft in lavatory trash receptacle extinguishing (lavex) systems, handheld extinguishers, engine nacelle/auxiliary power unit (APU) protection systems, and cargo compartment extinguishing systems. All civil aircraft coming off the production line continue to use halon 1301 for engines, auxiliary power unit (APU), and cargo compartment protection systems and halon 1211 for handheld extinguishers.

Although there has been little progress in the implementation of halon alternatives in civil aviation in the past couple decades, there are new developments and initiatives that hopefully will lead to progress. For handheld extinguishers, a new alternative known as 3,3,3-trifluoro-2-bromo-prop-1-ene or 2-BTP has the potential to be a near “drop-in” replacement with minimal space and weight impact for some aircraft. Airbus anticipates using 2-BTP for in-production aircraft by the end of this year and also plans to retrofit existing aircraft. Boeing’s implementation has been delayed, owing to internal US regulatory review requirements, but they expect to introduce 2-BTP on all in-production aircraft in the near future.

Aircraft manufacturers, who until recently had been working separately to find halon alternatives, have pooled their resources to form the Halon Alternatives for Aircraft Propulsion Systems (HAAPS) consortium. This international collaboration among aircraft manufacturers, fire extinguishing system suppliers, engine/APU/nacelle companies, and other key stakeholders aims to identify a common, environmentally acceptable, non-halon fire extinguishing solution for use in engine and APU fire zones. The HAAPS consortium has set a target date of the end of 2017 for completion of the programme.

The International Coordinating Council of Aerospace Industries Associations (ICCAIA) has formed the Cargo Compartment Halon Replacement Working Group (CCHRWG) to provide a recommended date to ICAO for requiring the use of a halon alternative in the cargo compartment of newly designed aircraft. The search for a halon alternative for cargo compartments has been complicated by the need to also address the potential fire hazard of lithium and lithium ion batteries. The ICCAIA CCHRWG has proposed a date of 2024.

HARMONIZING REGULATORY REQUIREMENTS

In 2010, the ICAO Council adopted Assembly Resolution A37-9, establishing a mandate for the replacement of halon in lavatory fire extinguishing systems, handheld fire extinguishers, and engine nacelle/APU fire extinguishing systems. In 2011, this mandate resulted in amendments to Annexes 6 and 8 of the Chicago Convention that set specific requirements for the use of halon replacements. The 2016 ICAO Assembly is expected to take up proposals for a timeframe for requiring the use of a halon alternative in the cargo compartment of newly designed aircraft.

European Commission (EC) regulations differ from the ICAO amendments in some of the dates and the inclusion of a retrofit requirement. In response to the ICAO amendments and EC regulation, the



European Aviation Safety Agency (EASA) issued a Notice of Proposed Amendment (NPA) to require the use of halon replacements in the lavatory trash receptacle and handheld extinguishers on new production aircraft. This NPA is expected to result in an EC regulation in 2017.

The differences between the ICAO, EC, and EASA requirements are summarized in *Table 1* on page 44.

UNCERTAIN FUTURE SUPPLIES

In May 2012, ICAO issued a State questionnaire on the status of halon reserves. It asked the States if they anticipated that there will be enough halon to meet the civil aviation needs of their State and if they know the quantity of halon reserves accessible to their civil aviation industry. The replies (or lack thereof) from States that are home to major airframe manufacturers were the most telling. One such State indicated that all of the halon for their aircraft coming off their production line came from outside their State and that they were unsure if there would be enough halon to meet their civil aviation needs. Another State replied that they did not require halon or any other specific agent; they only require that aircraft have adequate fire protection.

Only 13 States provided known quantities of halon 1301 for their civil aviation industry, representing a fraction of what civil aviation will ultimately need. These responses confirm that civil aviation has also lagged behind other sectors in establishing stockpiles needed for the future.

A significant percentage of the global aviation halon needs are supplied by a very small number of halon recycling companies that search the global community to identify "used" halon, mostly from decommissioned systems and extinguishers that have reached the end of their useful life. However, as is true for all finite resources, the supply of used halons will diminish and eventually disappear.

While some airlines may have taken the necessary steps to ensure a secure supply, it appears that most rely on service companies. Over the past few years, prices for recycled halon 1301 have increased significantly (doubling in some markets), indicating there is some concern over future availability. Given that service companies have on hand only a 3-4 month supply of halon, there is a potential for short-term supply disruption.

The United Nations Environment Programme (UNEP) Halons Technical Options Committee (HTOC) is often asked how much halon is actually left in the world. No one knows for certain. Estimates of global supplies come from the total amount believed to have been produced minus the amount already emitted or destroyed. Production was reported voluntarily beginning in the 1960s and mandatory reporting under the Montréal Protocol from the late 1980s. Destruction has been reported under the Montréal Protocol, which leaves emissions to be the unknown item.

There is often the temptation to conclude that aviation is a small user of the existing halon bank. However, the inventories of halons are not necessarily all going to be available to civil aviation. Some of the halon thought to exist may be inaccessible due to physical constraints and/or national restrictions on exports. In addition, a portion of the existing halon bank is owned by users whose fire protection applications have equipment that still relies on halons, and they have continuing long-term needs. Of the approximately 40,000 tonnes of halon 1301 estimated to be available globally, only about 33-40% is projected to become available to support civil aviation.

The UNEP HTOC provides estimates of the annual quantities needed to support both new production and existing fleets and the estimated years that sufficient halon will be available to meet civil aviation needs (*Figure 1 below*).

Using the *most* optimistic assumptions of the amount of halon left in the global supplies to support civil aviation (17,000 tonnes) and the lowest annual emission rate of approximately 2.5%, based on average global emission rates, *the quantities of recycled halons would no longer be sufficient to support civil aviation needs beginning in the year 2046*.

Using the *least* optimistic assumptions of the amount of halon left in the global supplies to support civil aviation (14,000 tonnes), and

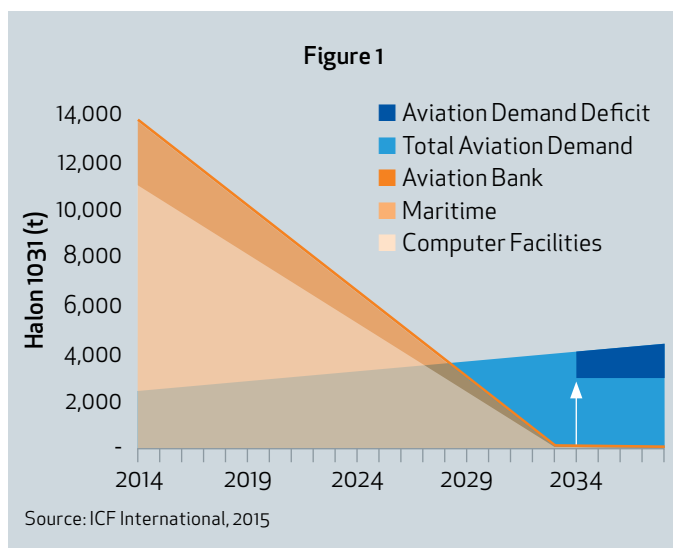


Table 1

	REQUIREMENT	LAVATORY	HANDHELD	ENGINE/ APU	CARGO
New Design Aircraft	ICAO New Design	2014	2016	2014	NA
	EC Cutoff Date	2011	2014	2014	2018
Current Production Aircraft	ICAO New Production	2011	2016	NA	NA
	EC End Date (includes retrofit)	2020	2025	2040	2040
	EASA NPA New Production (proposed)	2015	2018	NA	NA

the highest annual emission rate of 7-8% from the FAA Aviation Rulemaking Committee (ARC) report (December 2014), *the quantities of recycled halons would no longer be sufficient to support civil aviation needs beginning in the year 2034*.

With aircraft lifetimes of 30-40 years and given the industry position that it cannot commit to a non-halon cargo bay system for new designs until 2024, we find it difficult to see how anyone can assure aircraft operators, with any reasonable level of certainty, that there will be enough halon 1301 to support future aircraft that will be produced with halons for decades to come ... unless something changes.

The current path of continued long-term reliance on halons is not sustainable. The longer it takes to begin to install halon alternatives on in-production aircraft, the higher the probability of a disruption in halon supply with impacts to aircraft operations. As recommended in the US FAA ARC report, the aviation community has three immediate actions it should undertake to reduce the risks associated with continued reliance on halons:

1. Investigate the creation of a halon stockpile dedicated to support aircraft servicing needs.
2. Conserve the existing supplies of halons by reducing unnecessary emissions.
3. Support global efforts to ensure the quality and availability of halon reserves.

We also propose a fourth action: accelerate the introduction of non-halon systems on in-production aircraft as quickly as possible. In our opinion, without such actions, civil aviation has already reached the point that the fire suppression systems installed on aircraft being produced today cannot be maintained for the lifespan of the aircraft. ■

A REGULATORY POLICY FOR PROSPECTIVE COMMERCIAL SPACE TRANSPORTATION OPERATIONS IN ITALY



ALESSIO QUARANTA
Director General of the
Italian Civil Aviation Authority
(Ente Nazionale per l'Aviazione
Civile, ENAC)

✈ Several operators have indicated that their spaceplanes will be ready to commence commercial operations within the next five to ten years. Italy – thanks to the *Ente Nazionale per l'Aviazione Civile* (ENAC) and US Federal Aviation Administration (FAA) Memorandum of Cooperation, extended to *Agenzia Spaziale italiana* (ASI), and with

the valuable support of the Italian Air Force (ITAF) – has the potentiality to allow this kind of operation from its territory under an *ad hoc* regulatory framework.

ENAC issued the document, “A Regulatory Policy for the Prospective Commercial Space Transportation Certification and Operations in Italy” to determine what would be required to enable spaceplanes to operate from Italy in the near future.

Two key points: one, define a clear legal and regulatory framework, and two, identify suitable locations for these operations. Moreover, it is important to implement a safety management system (SMS) for airworthiness and operations within segregated airspace.

As a spaceplane for commercial spaceflight operations is an aircraft, in Europe the associated design, production, maintenance, operations and licencing activities shall be carried out under the European Union and European Aviation Safety Agency (EASA) legal and regulatory framework.

Meanwhile, ENAC envisages the possibility that sub-orbital spaceplanes shall be considered as “aircraft specifically designed or modified for research, experimental or scientific purposes, and likely to be produced in very limited numbers,” and therefore operated under the Italian national rules (rif. Annex II of the EU Basic Regulation (EC) No. 216/2008).

In this respect, as experimental aircrafts are not normally allowed to conduct commercial operations, specific exemptions could be issued for spaceplanes. As an example, flight crew and participants should have to be duly informed of the inherent risks of the operations and they will also acknowledge and accept that they will not benefit from the normal safeguards expected for commercial transport. The government should accept these conditions.

The risk for the uninvolved general public (i.e. the third parties and goods on the ground) should be protected at the same level of the current commercial aviation. Very important is the choice of a launch site for spaceplanes (spaceport) with adequate characteristics: easy access to the sea and low population density in the region of the spaceport.

A draft policy has been presented in international forums (FAA COMSTAC ISPWG, September 2014; 1st ICAO Space Symposium, March 2015; 19th FAA Commercial Space Transportation Conference, February 2016; 2nd ICAO Space Symposium March 2016; CESMA Hypersonic Flight Symposium, June 2016) receiving positive acknowledgements and comments by the participants. ■





ICAO

2016 ENVIRONMENTAL REPORT

The ICAO Environmental Report 2016 is the Organization's opportunity to share information on the progress made over the last three years across key areas of ICAO's environmental protection activities. This fourth edition builds on the success of the past reports. This compendium of technical and scientific articles informs the public of the work of the ICAO Secretariat, ICAO Member States and the many other stakeholders involved. As such, it is considered as the reference document in the area of international aviation and the environment and captures all main developments in this field.

The ICAO Environmental Report 2016 presents the work of the Committee on Aviation Environmental Protection (CAEP), which involves more than 600 internationally recognized experts, in areas such as noise, air quality, climate change but also aircraft end-of-life and recycling and climate change adaptation. This report also showcases the importance of partnerships, should it be in the context of assistance and capacity-building projects, with international bodies or with UN organizations.

In this edition, concrete case studies have been added to illustrate the quantified benefits of the mitigation actions developed and supported by ICAO. Major steps have been taken since the 38th Session of the ICAO Assembly in 2013 to equip States with the tools needed to pave the way for an environmentally sustainable future, and some initiatives are already bearing fruit.

*** Proceeds from the sale of this publication will be used to fund future editions of the report.*

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NEWS IN BRIEF

ICAO OFFICIALS MEET WITH SRI LANKA TRANSPORT MINISTER

The Sri Lanka Minister of Transport and Civil Aviation, Nimal Siripala De Silva (left), welcomed ICAO Council President Dr. Olumuyiwa Benard Aliu and ICAO Secretary General Dr. Fang Liu to the Sri Lankan capital of Colombo during the 53rd Meeting of Asia and Pacific Directors General of Civil Aviation (DGCAs), which the Sri Lankan Government generously hosted this year. ICAO's senior officials were accompanied by Asia and Pacific (APAC) Regional Office Director Mr. Arun Mishra (far right).

During the discussions, Minister De Silva reiterated the strong commitment of Sri Lanka to implement ICAO's policies and programmes, which President Aliu and Secretary General Liu highlighted as a key prerequisite for the global air transport connectivity so valued by Small Island States. He also requested that ICAO look into aviation personnel training issues in the APAC Region, stressing that the courses offered can be prohibitively expensive for smaller States.

The development of aviation capacity and connectivity through the effective implementation by States of ICAO's Standards and Policies is a critical prerequisite for future sustainable development. Accessible and affordable human resources development to ensure the Next Generation of Aviation Professionals is a key aspect of this dynamic, given the projected growth of global air transport and forecast attrition rates for pilots, controllers, maintenance staff and managers.



SG LIU ENCOURAGES CHINA TO SHARE AVIATION EXPERIENCE

China is a major power in world civil aviation. Its experience in this regard should be shared by other countries," ICAO Secretary General Fang Liu told the Xinhua News Agency (the official press agency of the People's Republic of China) in a recent interview. "It is our hope that ICAO and China will further their cooperation so that more countries can share China's experience," she said. "This is conducive to the development of global civil aviation. We also would like to see strengthened cooperation between ICAO and China in the field of technical assistance and technical cooperation."

China is the second largest country in the world in terms of total volume of passengers and cargo carried by air transportation. Passengers made a total of 440 million trips in 2015, up 11.4% year on year, according to the Civil Aviation Administration of China.

China has had a good record in aviation safety while developing the industry at a high speed, Liu noted.

MoU ON EXPRESS BOARDING PROJECT

A Memorandum of Understanding has been signed between Rzeszów University of Technology and ICAO by the Secretary General of ICAO, Dr. Fang Liu (pictured at left) and the Vice-Dean for Education, D. Eng. Arkadiusz Rzucidło. The MOU concerns cooperation on the Express Boarding System (EBS) project, which proposes an innovative and intuitive system to reduce boarding times on short and medium range flights by up to 40%, based on initial tests. The authors of the project, D. Eng. Piotr Grzybowski and D. Eng. Arkadiusz Rzucidło, met with ICAO Air Transport Bureau members at ICAO Headquarters in Montréal, Canada to discuss the collaboration.



FIRST ICAO-QUALIFIED WILDLIFE CONTROL OPERATORS

Members of the Cork, Ireland Airport Police Fire Service became the first in the world to be validated under a new course developed by Station Officer Kieran O'Regan, an ICAO subject matter expert, and delivered at the Dublin International Aviation Training Academy (DIATA). The course is expected to be rolled out to other airports worldwide.

In May 2017, ICAO and Airports Council International (ACI) will hold the Wildlife Strike Hazard Reduction Symposium, aimed at increasing international awareness of the wildlife strike threat to aircraft operational safety. For details, see the event website at www.icao.int/Meetings/wildlife/Pages/default.aspx.



NIGERIA SCORES HIGH ON SECURITY

Nigeria scored 96% in a recent security audit; the high score was unveiled during a visit by Dr. Bernard Aliu, President of the ICAO Council.

The Minister of State Aviation, Senator Hadi Sirika, assured that the Nigerian government will implement all of the recommendations made by the ICAO leader in order to “enthroned the highest level of aviation security in the continent. There must be adherence to certain minimum standards for the sake of passengers and all participants in the industry.”

The Minister of State Aviation reiterated the commitment of President Muhammad Buhari's government to sustain the standards achieved. He noted passenger traffic at Nigerian airports increased in the past 12 years from 4.4 million to 15 million per year, and that FAAN anticipates further growth with new international terminals being constructed simultaneously

in Lagos, Abuja, Port Harcourt, Kano, and Enugu.

Dr. Aliu pledged that ICAO would help to reposition the Nigeria College of Aviation Technology, Zaria, to become a world-class regional aviation training centre as part of the Organization's capacity-building support in Africa. Senator Hadi Sirika commended the initiative to support the college's transformation.

The ICAO President said his major challenge has been to raise the level of implementation of ICAO standards among Member States, notwithstanding their level of resources. “We inaugurated the *No Country Left Behind* campaign to focus support on our developing States. ICAO is an organization of 191 countries; some are much endowed and some are less endowed, and all the Member States have to fulfill the same standards and recommended practices; there is no shortcut.”

ICAO EUR/NAT Regional Office Celebrates 70th Anniversary

Together with many State officials and air transport dignitaries, ICAO celebrated the 70th Anniversary of its European and North Atlantic (EUR/NAT) Regional Office in Paris. ICAO Council President Dr. Olumuyiwa Benard Aliu (centre left) and Secretary General Dr. Fang Liu (left) joined France's Director General of Civil Aviation Mr. Patrick Gandil (center right) and ICAO EUR/NAT Regional Director Mr. Luis Fonseca de Almeida (right), in overseeing the fete.

Among other achievements, the EUR/NAT Regional Office has been instrumental to safely managing the technological progression to the first jet aircraft and the complex introduction of the first supersonic transports. It has also been essential to the effective European cooperation established for flexible civil and military airspace use and in helping to facilitate the liberalization transition from national airlines to privatized carriers.





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"Security threats represent a clear and present danger to aircraft and airports. Aviation stakeholders must seize every opportunity to work together for a more secure industry."

— **Tony Tyler**, *Director General and CEO, IATA*



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