

ICAO JOURNAL

NEWS AND DEVELOPMENTS FROM THE INTERNATIONAL CIVIL AVIATION ORGANIZATION - VOL.69 - NO.3

CIVIL AVIATION AND CONFLICT ZONES

ICAO Task Force takes immediate
action in the aftermath of MH17

ALSO IN THIS ISSUE:

LOC-I SYMPOSIUM ADDRESSES ICAO'S NO.1 SAFETY PRIORITY

THE AIR TRANSPORT CONNECTIVITY INDEX

DAKAR AFI AVIATION SAFETY SYMPOSIUM

SAFETY OVERSIGHT AUDITS: THE SUDAN EXPERIENCE

ICAO CIVIL AVIATION TRAINING POLICY

IATS AND AIR TRANSPORT SUSTAINABILITY CHALLENGES



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UNITING AVIATION



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ICAO Council Information accurate at time of printing

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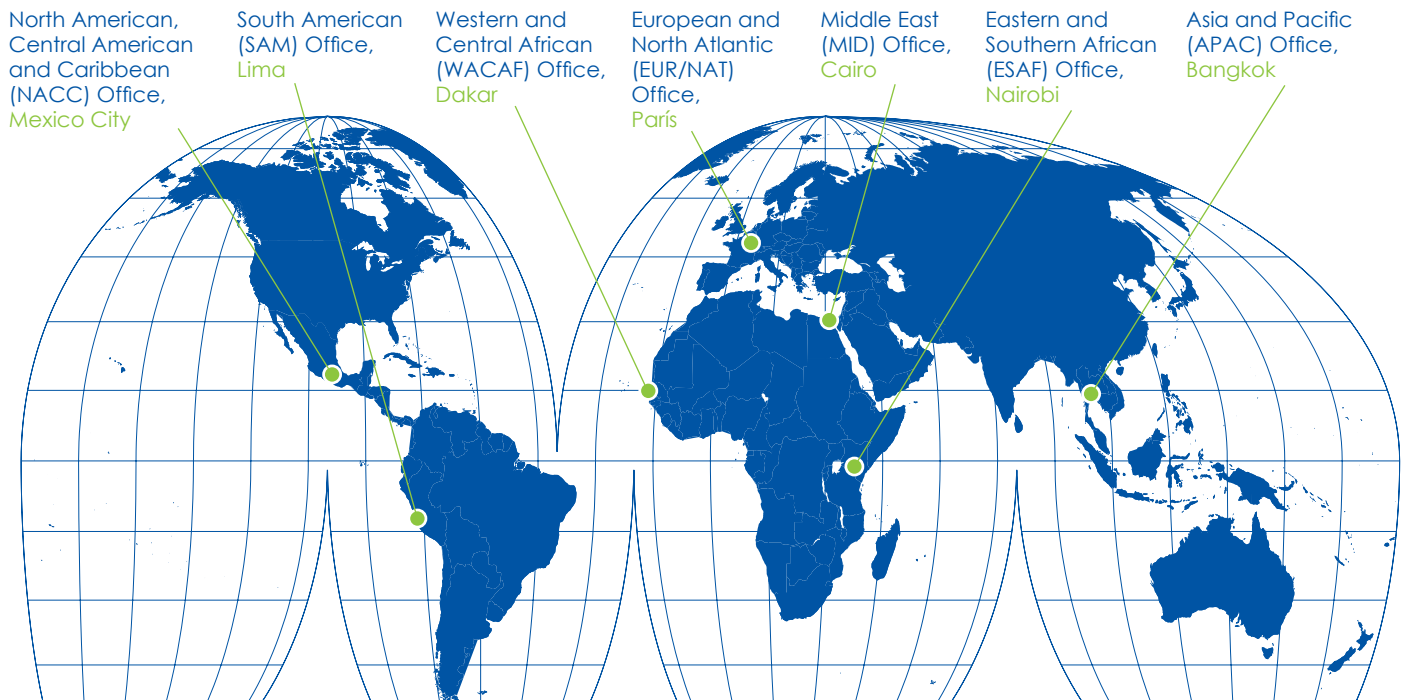
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ICAO's Global Presence





Olumuyiwa Benard Aliu

RESPONDING PROMPTLY AND EFFECTIVELY TO CONFLICT ZONE RISKS

 The downing of Malaysia Airlines Flight MH17 over Ukraine on 17 July prompted rapid and concerted action on the part of the international community to prevent the recurrence of such a horrific tragedy.

A *Task Force on Risks to Civil Aviation arising from Conflict Zones* (TF RCZ), set up jointly by ICAO and industry leaders on 29 July, immediately produced two pilot projects and a set of specific recommendations for a well-defined, long-term work programme to mitigate the threat to civil aircraft flying near or over conflict zones.

The first project is looking at how the Notice to Airmen (NOTAM) system can be refined to better disseminate conflict zone risk information, while the second focuses on creating a new centralized system for the prompt sharing of the information, so that the right information reaches the right people at the right time.

As for the recommendations, they are specifically designed to ensure the safety of passengers and crew regardless of the airline on which they travel or where they are flying. Once reviewed by Council, they may be incorporated into a series of measures to be presented at a High-level Safety Conference convened for February 2015, at ICAO Headquarters.

With the Task Force and its recommendations we are definitely on the right track for dealing with operations in zones of conflict. But we must also recall that this is complex work involving not only the global aviation system and the ICAO Standards which support it, but also the methods and means by which States

gather and disseminate information relating to their National Security programmes.

As our work proceeds, we will therefore remain focused on the gaps which have been revealed between our network and these separate State areas of responsibility, building on the collective thinking of the Task Force as well as all views expressed by the members of our global aviation community, so that our strategy for moving ahead fully considers the existing legal, operational and commercial imperatives associated with the safe, secure and sustainable growth of global air transport in the decades to come.

Ultimately, under the Convention, States are responsible to address and promulgate information on any potential risks to civil aviation in their airspace. This involves close cooperation between civil and military authorities, so that essential threat information is readily available to civil aviation officials, commercial carriers and business and general aviation airspace users.

All of these considerations compel us to work diligently towards a consensus at both the global and national levels.

As we convey our deepest sympathies to the families of the passengers and crew of flight MH17, we must also remain steadfast in our commitment to ensure the safety and security of all persons on board an aircraft, wherever they may fly around the world.

Working together on these challenges, as we have very well to this point, remains our best hope of meeting this commitment to the benefit of all ICAO Member States. ■



Confronting Critical Emerging Safety Issues

ICAO's 2nd High-level Safety Conference will provide DGCA's and strategic decision makers with an opportunity to exchange updates and perspectives on future approaches to managing aviation safety and facilitating increased regional cooperation. It will review critical and emerging safety issues, including the global tracking of aircraft and risks to civil aviation arising from conflict zones.

This event is an essential opportunity for the international civil aviation community to build consensus, obtain commitments and formulate the important recommendations which will guide the effective progress of key aviation safety activities over the near- and longer-term. For programme and registration information please visit: www.icao.int/meetings/hlsc2015




ICAO

SAFETY



JOINT INDUSTRY TASK FORCE ADDRESSING CONFLICT ZONES

 In the aftermath of the downing of Malaysian Airlines Flight MH17, the International Civil Aviation Organization (ICAO), together with industry partners, issued a Joint Statement and rapidly formed the Task Force on Risks to Civil Aviation arising from Conflict Zones (TF RCZ). The Task Force's conflict zone risk mitigation recommendations were reviewed by the ICAO Council at its October meeting.

"We have agreed to take several near-term actions on a unified sectoral basis to review and mitigate, to the fullest extent permissible and possible, the risks to civil aviation arising from conflict zones," stated Dr. Olumuyiwa Benard Aliu, ICAO Council President.

He noted: "None of this is as a result of action by civil aviation. We are trying to react to the changing operating environment arising from external factors. We are taking note of these factors and we are taking action to see where we can address them."

"Civil aviation is fundamentally very safe, but we do need to apply lessons learned from the tragedy of MH17 and recent events to fill any gaps that may exist to better assess and share risks from and near regional conflict zones," said David MacMillan, Chairman of the Flight Safety Foundation. MacMillan was elected Chair of the ICAO TF RCZ at its initial meeting in mid-August. McMillan was nominated by the Government of Malaysia and supported by the Government of the Netherlands, two countries vitally affected by the shoot down of MH17 in the Ukraine.

"We're looking for urgent, practical measures to address these new risks," MacMillan emphasized.

The Task Force was agreed to at a special high-level meeting at ICAO's headquarters in Montréal, Canada on 29 July 2014. The meeting was hosted by Dr. Aliu and

ICAO Secretary General Raymond Benjamin. They were joined by the Directors General of the International Air Transport Association (IATA) – Tony Tyler; Airports Council International (ACI) – Angela Gittens; and the Civil Air Navigation Services Organisation (CANSO) – Jeff Poole.

Among the key points made by Dr. Aliu, SG Benjamin, and the civil aviation industry leaders in their Joint Statement (see the complete statement below) and subsequent press conference with question-and-answer session:

- Aviation's first priority is always the safety of the passengers and crew.
- Civil aviation has a remarkable safety record, and the downing of MH17 was an unprecedented, exceptional incident.
- States are responsible to address any potential risks to civil aviation in their airspace.
- The Task Force will work with both civil and military authorities and experts to facilitate a process for gathering and disseminating essential threat information to civil aviation authorities and industry.
- The airline should make the decision whether it will fly a particular route.
- Longer term, ICAO and industry will seek to address, through appropriate UN frameworks, possible measures to govern modern anti-aircraft weaponry.



Dr. Olumuyiwa Benard Aliu, ICAO Council President and Raymond Benjamin, ICAO Secretary General



JOINT STATEMENT ON RISKS TO CIVIL AVIATION ARISING FROM CONFLICT ZONES

The International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), Airports Council International (ACI) and the Civil Air Navigation Services Organisation (CANSO) jointly express their strong condemnation of the use of weapons against civil aviation.

The downing of Malaysia Airlines Flight MH17 is unacceptable. Our organizations wish to convey our deepest condolences to the families of the passengers and crew who lost their lives in this tragic event. While aviation is the safest form of transport, the MH17 incident has raised troubling concerns with respect to civilian aircraft operating to, from and over conflict zones.

We have met at ICAO today (29 July 2014) with collective resolve to urgently review the issues and potential responses to be pursued. As a first step, States have been reminded by ICAO

of their responsibilities to address any potential risks to civil aviation in their airspace.

We recognize the essential need for information and intelligence that might affect the safety of our passengers and crew. This is a highly complex and politically sensitive area of international coordination, involving not only civil aviation regulations and procedures but also State national security and intelligence gathering activities.

All parties to the discussion agreed that ICAO now has an important role to play in working as urgently as possible with its Member States, in coordination with the aviation industry and other bodies within the United Nations, to ensure the right information reaches the right people at the right time.

Moving forward ICAO with support of its industry partners will:

- Immediately establish a senior-level Task Force composed of state and industry experts to address the civil aviation and national security aspects of this challenge, in particular how information can be effectively collected and disseminated.
- Submit the Task Force findings as urgently as possible to a Special Meeting of the ICAO Council for action.

Industry has called for ICAO to also address:

- Fail-safe channels for essential threat information to be made available to civil aviation authorities and industry.
- The need to incorporate into international law, through appropriate UN frameworks, measures to govern the design, manufacture and deployment of modern anti-aircraft weaponry.



ICAO is convening a High-level Safety Conference with all of its 191 Member States in February 2015. Industry and governments stand united and committed to ensuring the safety and security of the global air transport system and its users.



Tony Tyler, IATA Director General and CEO; Angela Gittens, ACI Director General; and Jeff Poole, CANSO Director General.

STATEMENTS FROM ICAO AND INDUSTRY LEADERS

Dr. Olumuyiwa Benard Aliu, ICAO Council President

"Aviation's first priority is always the safety of the passengers and crew who count on our global network to carry them rapidly and reliably, anywhere in the world."

"ICAO has been strongly encouraged by the level of support for our global role which is reflected in Security Council Resolution 2166. The use of weapons against international civil aviation absolutely cannot be tolerated and we stand closely alongside Malaysian officials as they continue to deal with the aftermath of this tragedy."

"One of the things the task force will work on is the gathering and dissemination of the information. Of course, ICAO will have some role in that to facilitate the process. We will work to have a mechanism by which we can coordinate that globally. But of course we will not be taking over the responsibilities of the States themselves."

"The ramifications of what the industry is asking go beyond the civil aviation sector. There is a need to find consensus not only globally but at a national level and there is a need to consider all these issues – socio-political, economics, intelligence, legal, liability, how to use the information only for safety purposes."

"While the circumstances of the loss of MH17 present some very complex challenges, for States particularly but also for airlines, airports, and air navigation services providers, I have been very encouraged by the range of ideas presented and am confident that the ICAO Council will be reviewing some mature Task Force proposals when it reconvenes later this year."

"ICAO's convening of this Task Force, not to mention the excellent rate of progress it has established to this point, clearly underscores the commitment of States and industry to this important and multidisciplinary challenge."

Raymond Benjamin, ICAO Secretary General

From a State Letter

"Taking into consideration the armed conflicts that are currently underway in various locations, I draw your attention to the possible existence of serious risks to the safety of international civil flights and the critical need for close coordination between civil and military authorities. In this respect, you are reminded that Article 9 of the Convention on International Civil Aviation (Doc 7300) sets forth that each contracting State may, for reasons of military necessity or public safety, restrict or prohibit uniformly the aircraft of other States from flying over its territory. Such prohibited areas, if needed, shall be of reasonable extent and location so as not to interfere unnecessarily with air navigation. Notices to airmen (NOTAM) or other communications containing the necessary information, advice, and measures to be taken should then be issued and subsequently updated in light of developments."

"The responsibility for initiating the coordination process rests with the State whose military forces are engaged in the conflict. The responsibility for instituting special measures to assure the safety and security of international civil aircraft operations remains with the State responsible for providing air traffic services in the airspace affected by the conflict, even in cases where coordination is not initiated or completed."

"It is further recalled that each State shall keep under constant review the level of threat to civil aviation within its territory, and establish and implement policies and procedures to adjust relevant elements of its national civil aviation security programme accordingly, based upon a security risk assessment carried out by the relevant national authorities."

Tony Tyler, IATA Director General and CEO

"Every day about 100,000 flights take to the air and land safely. The systems supporting global aviation have produced the safest mode of transportation known to humankind. There is no need for

major surgery. But we must identify and close some specific gaps in the system that, however infrequently, lead to unspeakable mistakes and tragedies.”

“Civil aircraft are instruments of peace. They should not be the target of weapons of war. That is enshrined in international law through the Chicago Convention.”

“We are asking ICAO to address two critical tasks. The first, and most urgent, is to ensure that governments provide airlines with better information with which to make risk assessments of the various threats they may face. The second is equally important but comes with a longer time frame. We will find ways through international law that will oblige governments better to control weapons which have the capability to pose a danger to civil aviation. Achieving these will make our safe industry even safer.”

“Under ICAO’s leadership, I am confident that we can find ways within the UN system to augment the international law framework to ensure that States fully understand and discharge their responsibilities in this regard.”

“I believe at the end of the day an airline should make the decision whether it will fly a particular route. But it needs to make that decision on the basis of complete full accurate and clear information. Part of that information relates to the safety of

the route and it is very clearly government responsibility to declare whether a route is safe or not.”

Angela Gittens, ACI Director General

“This is just the beginning of a complex process and although this matter is urgent it is important that we take the time to fully examine the issue in order to avoid any unintended consequences. Any changes made with regard to policies or routings or the use of airspace will impact the operations of all stakeholders.”

“What we need to address is the fact that some States may not have the capabilities or willingness to provide relevant intelligence in a consistent manner.”

“Along every step of the traveler’s journey we need to make sure that we have actionable intelligence relating to threats.”

Jeff Poole, CANSO Director General

“In order to provide safe and effective ATM for airspace users and passengers, air navigation service providers (ANSPs) need correct and reliable information, guidance, and decisions from States. We need the right information at the right place at the right time to enable prompt and appropriate airspace management actions. For ATM we do not need detailed security and intelligence reasons for airspace restrictions or closures, but we do need authoritative, accurate and consistent decisions from the appropriate authorities.”

“As an integral part of aviation, air traffic management has a remarkable safety record. The current safety systems are serving the industry well so we do not believe that the entire system needs to be overhauled. Therefore the Task Force will focus on the specific shortfalls and lessons to be learned from MH17.”

“It’s now time for states to improve their own performance.” ■

TASK FORCE AGREES TWO PILOT PROJECTS

ICAO established a well-defined overall work programme and two projects of the Task Force on Risks to Civil Aviation arising from Conflict Zones (TFRCZ).

The first pilot project is exploring how the Notice to Airmen (NOTAM) system already in place between States and operators could be better used to share urgent and critical conflict zone risk information.

The second project is being piloted by key ICAO partners on a new centralized system to be established for the prompt sharing of conflict zone risk information.


The Chairman, TFRCZ, David McMillian said: “We saw some very strong consensus around the two specific projects we will now be pursuing, and I am very confident that we will be submitting a very mature and practical set of proposals to the ICAO Council. These recommendations will help to ensure the safety of civilian passengers and crew, no matter what airline they are flying on or where they are flying.”

The TFRCZ will be meeting again in December for its next round of talks.

“We have agreed to take several near-term actions on a unified basis to review and mitigate to the fullest extent permissible and possible the risks to civil aviation arising from conflict zones.”

– Dr. Olumuyiwa Benard Aliu,
ICAO Council President

LOC-I SYMPOSIUM ADDRESSES ICAO'S NO.1 SAFETY PRIORITY

 Accidents attributed to Loss of Control In-Flight (LOC-I), though not frequent, nonetheless result in more fatalities in scheduled commercial operations than any other category of accidents during this young century. LOC-I is one of ICAO's three main priorities in operational safety efforts, together with Runway Safety and Controlled Flight Into Terrain (CFIT).

In May 2014, ICAO gathered the world's experts on the subject for the LOC-I Symposium at the Organization's Montréal, Canada headquarters. The Symposium featured more than 70 speakers and panelists representing pilots, operators, regulators, academics, and training organizations, and showcased individual and crew strategies, operational countermeasures, as well as training approaches and tools to prevent and recover from a loss of control in-flight.

Between 2006 and 2013, Loss of Control In-Flight (LOC-I) represented only two percent of all accidents. Yet LOC-I accounts for 25 percent of all fatalities. Nancy Graham, Director of ICAO's Air Navigation Bureau, said, "Because of its association with high fatalities, LOC-I is now the number one issue in aviation today." In her Symposium welcome, Graham called for the type of global collaborative effort that has been so successful in addressing Runway Safety. She noted that ICAO's mission and role is to ensure global harmonization of related solutions.

The type of collaboration Graham referred to is represented in the new *ICAO Manual on Aeroplane Upset Prevention and Recovery* (Doc 10011), published March 3, 2014 and applicable November 13. The purpose of the manual is to provide guidance to developers and providers of UPRT programmes, which will in turn help reduce LOC-I related incidents and accidents. The ICAO framework employs an integrated approach that identifies training resources to provide pilots with the necessary knowledge, skills, and attitudes to reduce the probability of an upset encounter and to maximize their ability to recover from such an event.

GLOBAL COLLABORATION IN ACTION

The UPRT manual was developed out of initiatives undertaken over the past several years by numerous aviation organizations to investigate LOC-I phenomena, examine current training practices, and develop risk-mitigating strategies.

Two notable working groups were the International Committee for Aviation Training in Extended Envelopes (ICATEE), under the auspices of the Royal Aeronautical Society (RAeS), and LOCART (Loss of Control Avoidance and Recovery Training), which evolved from a US Federal Aviation Administration (FAA) aviation rulemaking committee into a joint effort of the FAA, the European Aviation Safety Agency (EASA), and ICAO. Ultimately, the LOCART effort involved about 100 training experts – many of whom participated in the ICAO LOC-I Symposium – and included representatives from OEMs Airbus, ATR, Boeing, Bombardier, and Embraer; training

companies CAE, FlightSafety International, and others; industry groups such as the Flight Safety Foundation (FSF), the International Federation of Air Line Pilots' Associations (IFALPA), Coalition of Airline Pilots' Associations (CAPA), the International Air Transport Association (IATA), Airlines for America (A4A), and Regional Airlines Association (RAA); regulators from Canada, Europe, the UK, and US; and ICAO.

After half a dozen LOCART meetings in 2012, a draft UPRT manual was developed in December 2012. The draft was reviewed in May 2013 and again in December 2013, then published as Doc 10011 under the authority of the Secretary General in March.

In addition to the Manual on Aeroplane UPRT, changes were made to Annex 1 with regard to Multi-crew Pilot Licence (MPL) UPRT, Commercial Pilot Licence (CPL) UPRT, and Type-Rating UPRT; to Annex 6 Part 1 for Operator UPRT programmes; and to the PANS-TRNG UPRT chapter. Amendments are also being developed for Doc 9625 Part 1, the *Manual of Criteria for the Qualification of Flight Simulation Training Devices (FSTDs)* – these changes, expected later this year, are being developed through the International Pilot Training Consortium (IPTC), a collaboration of ICAO, IATA, IFALPA, and the RAeS.

A training aid that was produced by the manufacturers, *Airplane Recovery Upset Training Aid, Revision 2 (ARUTA)*, is being revised so it covers aeroplanes that were previously not covered, such as turboprops and smaller aircraft, and is expected to be ready by the end of 2014. It will be published as an official ICAO document.

Henry Defalque, ICAO Technical Officer, told the Symposium, “Mitigating Loss of Control In-flight accidents is an ICAO safety priority. Upset prevention and recovery training is one means to address this priority. Prevention is the key factor being emphasized. The challenge is implementation, and a harmonized approach is necessary.”

STARTLE, STRESS, SURPRISE

Dr. Sunjoo Advani, president of International Development of Technology, The Netherlands, and ICATEE group chair, said pilots have limited exposure to extended envelope environments. The biggest surprise? “The startle factor. Why is this stall happening? Pilots freezing at the controls or doing the wrong thing. We need to understand what’s going on in a pilot’s brain and find training strategies to mitigate it.”

Dr. Clint R. ‘Clutch’ Balog, Embry-Riddle Aeronautical University (ERAU), outlined for Symposium participants the work of ICAO’s Dealing with Unexpected Events (DUE) working group. The DUE group is chaired by Dr. Michelle Millar, ICAO’s Human Performance Technical Officer and the primary organizer of the 2014 LOC-I Symposium.

The DUE group’s focus is to describe the physiological, psychological (cognitive), and performance impacts on the flight crew following

KEY OUTCOMES OF ICAO’S LOSS OF CONTROL IN-FLIGHT (LOC-I) SYMPOSIUM

1. Collaborative approach

International and regional organizations, regulators, manufacturers, operators, training organizations and professional representatives to contribute to the development and implementation of activities to be coordinated through ICAO.

2. Information sharing

Recognition of the need to:

- Aggregate multiple data sources, using harmonized taxonomies
- Harmonize analysis processes
- Protect sensitive information

3. Lifecycle model for pilot training

Evolve current pilot training models to:

- Meet different training needs at different career points
- Better address human performance issues

4. Implement Upset Prevention and Recovery Training

- Develop and offer Regional UPRT Rollout Workshops
- Develop UPRT implementation tools (e.g. FSTD software upgrades, debriefing tools, FSTD scenarios, training videos) with collaborators
- Establish and coordinate UPRT Implementation Assistance (IA) Teams with collaborators

5. Outreach

- Develop website that provides information on research related to LOC-I and the operational implications - collaboratively developed by research centers such as NLR and NASA
- Tools to assist in UPRT implementation for regulators, operators, and training organizations
- LOC-I events (including UPRT Rollout Workshops and UPRT IA Teams)

Unexpected Threatening Events (UTEs) in-flight. Their research purpose is to develop a detailed understanding of professional pilot-in-command experiences of an extended, extreme in flight emergency – which were successfully overcome – focused on the cognitive processes employed, including aeronautical decision making, risk assessment, and problem solving.

The DUE Group offered these definitions for the aviation community: **Unexpected Threatening Event:** Any in flight event that the flight crew could not anticipate in the course of normal flight operations

and that is perceived as having a high negative impact on the safety of the current flight.

Startle Response: The initial short term, involuntary physiological and cognitive reactions that commence the normal human stress response.

Stress Response: A response to an unexpected event that includes physiological, psychological, and cognitive effects that may range from positive to negative and may enhance or degrade performance.

Surprise: An emotion typically resulting from the violation of an expectation (a difference between expectation and reality).

ACADEMIC AND PRACTICAL TRAINING

UPRT training is divided into two tracks: academic and practical. Practical training is further subdivided into two parts: on-aeroplane and FSTD. IFALPA's Human Performance Committee vice chairman, Capt David McKenney, emphasized that UPRT should begin with academic and on-aircraft training during ab-initio training. He also stated, "Training at the type rating and ATPL (Airline Transport Pilot Licence) level should be conducted in an FSTD (flight simulation training device) that is fully qualified to provide UPRT, including proper cues, to avoid negative transfer of training."

The ICAO UPRT manual recognizes that current FSTDs "have limitations that render them incapable of providing the complete exposure to conditions synonymous with preventing or recovering from an LOC-I event." The on-aeroplane UPRT helps to fill the gaps and provides experience and confidence in the psychophysiological domain of upsets, such as the 'startle factor' and G-forces.

Steve Stowe, Senior Test Pilot, Bombardier Flight Test Center, said they studied multiple solutions and opted for an on-aircraft training approach with Advanced Performance Solutions (APS), Mesa, Arizona. "We believe we need to train the primary recovery strategy in a real airplane. We need real 'G' feel, real sustained roll, pitch, and yaw rates. We need the startle factor – really go inverted, really stall and spin."

"Even highly experienced test pilots need refresher to practice the hard skills necessary for unexpected aircraft behavior, stall recoveries, etc. These skills are perishable – research shows two years," Stowe said. "Hopefully improvement of simulator aero models will be a step in the right direction but still limited physically in giving real sensations to the trainee, especially those that are potentially disorienting."

ICAO's Defalque cautioned that UPRT training in aerobatic aircraft may not be feasible worldwide, as there are a limited number of such aircraft and qualified instructors. He noted that 60 percent of Member States don't have the type of aerobatic aircraft required. However, he added that 90 percent of the stall training solution can be achieved without inverted flight.

The ICATEE group identified 176 training tasks related to UPRT, 25.5 percent of which can be handled via today's training devices and another 30.7 percent with academics. An additional



Photo courtesy Advanced Performance Solutions

6.3 percent of tasks need to be trained in an aircraft in flight. To accomplish a higher percentage of the identified tasks will require upgrades to Level 7 FSTDs (labeled Level 7+ and yielding 26.1 percent of training tasks) and possibly three new training devices: a G-awareness device (5.7 percent), a spin device (4.5 percent), and a spatial disorientation device (1.1 percent).

MORE THAN JUST A PILOTS' ISSUE

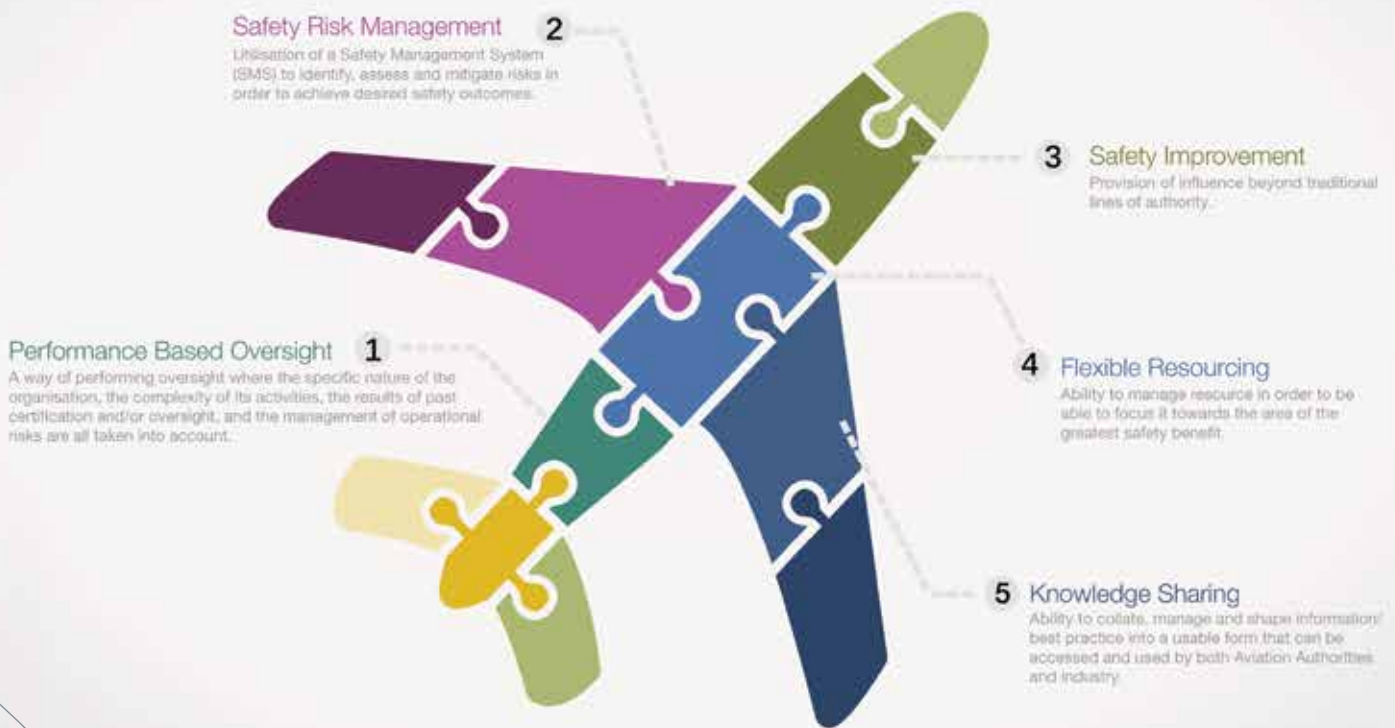
Bertrand de Courville, LOC-I Consultant, IATA, and Co-Chair of the European Commercial Aviation Safety Team, cautioned, "Because these accidents are rare, we have very few relevant correlations and no trends to understand their real nature. Catastrophic accidents such as loss of control put the focus on the most recent ones for a significant time to a point that other scenarios and other accident risks may be neglected."

"Pilots are not the only actors involved in LOC-I accident risk," de Courville noted. "Flight ops, maintenance, ground ops, cargo, and other actors are supporting or affecting the control, recovery, or mitigation defences separately, or collectively. For example, angle of attack probes damaged during ground operations or unsecured heavy load on cargo aircraft could result in a loss of control accident, with or without pilot errors. Weather services and ATC as well play a role regarding risks related to low level wind shear or wake vortices on departure or arrival. All these actors with different professional cultures may have a different perception of their role, but they contribute to the same safety system. We should not forget about the value they add to our effort."

Dennis A. Crider, Chief Technical Advisor, Vehicle Simulation, US National Transportation Safety Board, said the industry "needs to address multiple points in the accident chain for best effect. New training we are outlining this week addresses most LOC-I factors, though some elements may be better addressed by technologies." ■

Components of Performance Based Regulation

PBR Definition: A regulatory approach that focuses on desired measurable safety outcomes.



Moving to Risk and Performance-Based Regulation

With the number of flights set to double over the next 15 years, more demand is being placed on an already busy regulatory system. In accordance with ICAO's Global Aviation Safety Plan (GASP), further regulation alone will not have the greatest effect to support future aviation growth. The UK Civil Aviation Authority (UK CAA) believes it is now time for States to examine the underlying factors of aviation risks more closely and take the necessary steps to transform to a more advanced safety oversight system; Performance-Based Regulation (PBR).

For over 40 years, the UK CAA has influenced regulatory policy on a European and International level. Ahead of the GASP 2027 target date, the UK CAA is at the forefront of PBR in both development and delivery. Working closely with ICAO and EASA, the main driver for PBR transition in the UK has been the UK CAA's continuous search for safety improvement at a time when safety performance had plateaued in some areas.

PBR does not replace the traditional compliance-based approach. Essentially, PBR uses compliance as another source of intelligence and reviews the resulting safety picture in its totality from a safety performance perspective. To initiate this transformation, education within the UK CAA and stakeholder engagement was key. Unless industry could recognise the safety and economic

benefits, the transition to PBR would in all likelihood fail.

The benefits of PBR are immediately encouraging. The UK CAA has seen safety information actively used to promote a more open and challenging risk based discussion between the regulator and the regulated. PBR is encouraging organisations to adapt and educate their resources to employ a total system approach. This has helped the UK CAA compare and prioritise risks/issues at an organisation, sector and total risk level. Resources are being better optimised, focusing on what delivers the greatest improvement to safety performance.

Most importantly, the UK CAA has seen PBR break down barriers and improve the sharing of risk information - inside the Regulator and between the CAA and industry. Within the UK CAA, the typical technical 'silos' of Flight Operations, Air Traffic Management, Aerodromes and Airworthiness have diminished and efficient cross functional regulatory teams have emerged. PBR has brought specialists together to help make safety decisions that are rational, objective, proportionate and provide a more composite picture of risk. In industry, Accountable Managers and operational personnel will be able to benchmark safety performance within their sector, helping to strengthen their areas of weakness across the system.

PBR is the future of safety regulation. It requires an improved understanding of safety risks and the identification of appropriate mitigations. It provides better targeting of resources to achieve continuous improvement of safety. As a result of the UK's PBR development/deployment experience, the UK CAA believes that now is the time for National Aviation Authorities (NAAs) to embrace PBR and strive towards continuous global aviation safety improvements through more cost effective, targeted and smarter regulation.

Through CAA International (CAAi), a wholly owned subsidiary of the UK CAA, the UK is well positioned to guide States into a new era of aviation regulation. Using the UK's PBR experience and lessons learnt so far, CAAi has the capability to support Governments and NAAs on PBR implementation to raise global safety performance. To further support global PBR implementation, the UK CAA is developing a suite of next-generation Regulatory Tools and Processes that will be available through CAAi.

To discuss PBR with a UK CAA expert, please visit our stand at the ICAO Global Aviation Cooperation Symposium (GACS) on 30 September until 3 October at the ICAO Headquarters, Montréal. Alternatively, please contact liam.byrne@caainternational.com



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THE AIR TRANSPORT 'CONNECTIVITY' INDEX – A BENCHMARK CONCEPT FOR COMMON INTERESTS



ABOUT Dr. NARJESS ABDENNEBI
She is Chief, Economic Analyses, for ICAO. She has served in leadership roles for an airline, an aircraft manufacturer, a tourism agency, and an international standards organization - the whole of the value chain in air transport connectivity.

✈ The challenge for the aviation system is to address all of the interests of the five major groups in the civil aviation community — States, aircraft operators, airport operators, air navigation services providers (ANSPs), and air transport users — in a coordinated manner, while working toward the objective of a more efficient, orderly, and attractive transportation product.

The five groups' interests overlap, but they have somewhat different priorities. And historically, there has been a segmented view of air transport policy, focusing on impediments and challenges in separate areas of the air transport sector.

During the 18th annual World Conference of the Air Transport Research Society (ATRS), an organization which addresses multi-national and multi-disciplinary issues of air transportation, ICAO's Economic Analysis and Policy Section presented a research paper on the development of a proposed "air transport connectivity index" (ATCI).

The common interest of all global stakeholders is the improvement of air transport connectivity. For airports, aircraft operators, and ANSPs, increased connectivity is closely associated with market access liberalization and results in enhanced business opportunities. This in turn brings additional benefits to air transport end-users, whether airline passengers or air cargo users, in the form of expanded destination choices, improved travel experiences (effortless and uncomplicated), as well as time savings. For States, connectivity means meeting public needs, notably through the development of economic activity associated with air transport, including tourism.

As just one example: according to the United Nations World Tourism Organization (UNWTO) and the World Travel and Tourism Council (WTTC), simplified visa facilitation processes in the G20 economies could lead to 102 million additional international arrivals and generate USD 206 billion in tourism receipts while creating as many as 5.1 million jobs in the G20 economies up to 2015. Challenges related to transit visa processes in many countries remain a major obstacle to tourism development and since more than 50 percent of tourists are also air travellers, obstacles to tourism are obstacles to the development of air transport.

Connectivity, in the context of air transport, could be defined as the movement of passengers, mail, and cargo involving the minimum of transit points, making the trip as short as possible, with optimal user satisfaction, at the minimum price possible. Connectivity should not be confused with connecting traffic, as the former is fundamentally about access to global markets and regions and a primary enabler

“... the objective is to develop an index enabling the measurement of connectivity in linkage with liberalization of international air transport services.”

of national economic activity, while the latter is limited to connections between flights, typically at airport hubs.

The requirement for air transport connectivity is embedded in the 1944 Chicago Convention. The Preamble records the Contracting States' agreement that “civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically.” ICAO's aims and objectives are to: “foster the planning and development of international air transport so as to ... meet the needs of the peoples of the world for safe, regular, efficient, and economical air transport ... [and] prevent economic waste caused by unreasonable competition” (Article 44).

The enhancement of connectivity brings concrete benefits for the parties involved. For users, it yields an improved quality of service, better value for money and enhanced experience. In turn, operators benefit from larger markets and an optimized fleet usage. For economies at large, connectivity allows businesses to be better connected to domestic or international markets, also increasing travel and tourism. However, the most important factor to foster connectivity is to have a strong supporting regulatory framework through the liberalization of market access as well as to a lesser extent of air carrier ownership and control.

As part of the evolution to a more holistic view of air transport, ICAO has developed a customer-centric framework focused on the overall efficiency of the air transport system, designated as “air transport connectivity.”

Following a recommendation by the first meeting of the Aviation Data and Analysis Panel (ADAP/1), the ICAO Economic Analysis and Policy Section developed a research paper on the topic “Liberalization and air transport connectivity index.” The paper was presented in a panel convened by the International Transport Forum (ITF) of the Organization for Economic Co-operation and Development (OECD) at the ATRS conference in Bordeaux, France, on 18 July 2014. The objective was to receive feedback on how to improve the ATCI methodology based on a very preliminary analysis. Other panelists included chair Stephen Perkins, ITF/OECD; Jaap De Wit, University of Amsterdam; Guillaume Burghouwt, SEO Economic Research; Pablo Mendes de Leon, University of Leiden; and Mike Tretheway, InterVISTAS.

WHAT IS CONNECTIVITY?

The broad definition of air transport connectivity involves different components, liberalization of market access being the *sine qua non* condition. With regard to time, connectivity is enhanced through facilitation, fast security clearance, passenger flow management, identification management, and paperless cargo, as well as by other efficiency improvements of the air transport system, resulting in reduced trip time. Operators' activities in support of connectivity are linked to a more efficient operational system and include passenger management by airlines, reduced turnover time, line maintenance optimization, cooperative arrangements and can be illustrated by best practices offered by integrators. The optimal uses of aircraft, air navigation services, and airport systems are also supporting components of connectivity as they contribute to increased overall efficiency of the air transport system. Intermodal coordination, which prevents speed erosion due to inefficient connections with other transport modes, is another key contributor to connectivity.

However, before looking at the other components, the liberalization of market access is the critical path that needs to be achieved. Therefore, the objective is to develop an index enabling the measurement of connectivity in linkage with liberalization of international air transport services.

Building on recent efforts at measuring connectivity in an economically parallel sector — maritime — the development of an Air Transport Connectivity Index (ATCI) is proposed, as such an index may serve States in their decision-making processes in support of their market access liberalization.

Since one indicator cannot take into account all the components of the connectivity concept, the ATCI is proposed to be generated from a set of different indicators. Each set can be considered as a possible indicator of a State's “connectivity.” This index will be built on a weighted average of offer, supply, regulatory framework, and structure of flights. The aviation datasets enabling the rigorous analysis framework will be based on the unique ICAO database and World Air Services Agreements (WASA) as well as the Official Airline Guide (OAG) database.



to evolve at various levels since the 1980s. It is estimated that, in 2012, this involved about 35 percent of country-pairs with non-stop scheduled passenger air services and about 59 percent of the frequencies offered, through either bilateral “open skies” ASAs or regional / pluri-lateral liberalized agreements and arrangements, compared with about 6 percent and 32 percent, respectively, 17 years earlier in 1995 (Figure 1).

As liberalization spreads, the question of how to maintain and promote fair competition in air transport is increasingly becoming a challenge. About 90 States have competition laws of some sort with a number of bilateral antitrust enforcement cooperation agreements, particularly between developed countries. The use of competition laws for the air transport sector has occurred not only with more frequency but has also encompassed a variety of issues, ranging from abuse of dominant position (such as capacity dumping and predatory pricing), collusive behaviours including price-fixing, inter-airline coordination and alliances, consolidation through mergers and acquisitions, vertical business relationships in product distribution, to State aid. Unlike most competition laws which are for general application, aviation-specific rules have also been developed by some regional groups.

Several regional bodies, such as the European Union (EU), African Union (AU), the Association of Southeast Asian Nations (ASEAN), the Arab Civil Aviation Commission (ACAC), and the Latin American Civil Aviation Commission (LACAC), have been developing provisions on fair competition, using ICAO guidance in some cases.

Bilateral ASAs remain the primary vehicles for liberalizing international air transport services for most States. During the

“ ... the most important factor to foster connectivity is to have a strong supporting regulatory framework through the liberalization of market access ... ”

In addition to the facilitation (visa processing) aspect of connectivity, the following components are also part of the air transport connectivity concept, and their improvement could enhance air transport connectivity:

- **Availability of air transport services** — today, the vast majority of arrangements are under a type of bilateral Air Services Agreement (ASA), and there is strong support for removing national air carrier ownership and control provisions from air services agreements, agreeing on acceptance of ownership and control provisions based on principal place of business in one or more of the participating States. According to the industry, airline liberalization can further increase demand and ensure that the services which are providing increased connectivity are sustainable over the long-term.
- **Airline practices** — an efficient utilization of the hub allows network carriers to offer better connectivity. Many airlines supplement the “hub and spoke” model with codeshares, partner flights, or a commuter/regional airline. It should be noted that the way in which airlines price tickets can also impact connectivity, notably in the case of transit by flight stage; if a trip is sold by flight stage as opposed to origin to destination (i.e. two tickets rather than one ticket), there can be significant increases in transit times, hence a loss of connectivity.
- **Passenger information and data** — according to the 2013 ICAO Global Air Transport Outlook (GATO), it is expected that scheduled passenger traffic around the world will double by the year 2030, from the 2013 figure of 3.1 billion to over 6 billion passengers annually. Therefore, it is important to evaluate how the existing use of aviation data can help to plan future infrastructure in order to better manage increasing passenger flows, improve security, and expedite legitimate travel.

THE LIBERALIZATION PACE

According to an ICAO study posted in August 2013, the liberalization of international air transport regulation continued

past decade, about 1,000 ASAs (including amendments and/or memoranda of understanding) were reportedly concluded. Over 70 percent of these agreements and amendments contained some form of liberalized arrangements, such as expanded traffic rights (covering Third, Fourth and in some cases Fifth Freedom traffic rights), multiple designation with or without route limitations, free determination of capacity, a double disapproval tariff or free pricing regime, and broadened criteria of airline ownership and control.

The liberalization of ASAs reflects changes in the economic regulatory environment and ICAO has developed air transport liberalization indicators designed to serve as a yardstick to measure the degree of liberalization by focusing on scheduled passenger services conducted under "liberalized ASAs." However, it is important to note that these indicators are simple descriptive statistics, and as such they are not designed to explain the impact of liberalizing air services on traffic development. Bearing in mind this statistical limitation, it seems that these indicators are not significant enough to measure air transport connectivity and further analyses are required.

NEXT STEPS FOR THE CONNECTIVITY INDEX

In the past decade, although there has been a steady development of air transport liberalization, the degree of liberalization varies widely amongst the regions, as well as between intra- and inter-regional levels and between high- and low-traffic routes.

The opportunities created by liberalization might not necessarily match the commercial interests and business

priorities of airlines, at least in the short term. However, this does not mean that the opportunities created by liberalization are of no value because there sometimes exists code-sharing as well as alliance synergies.

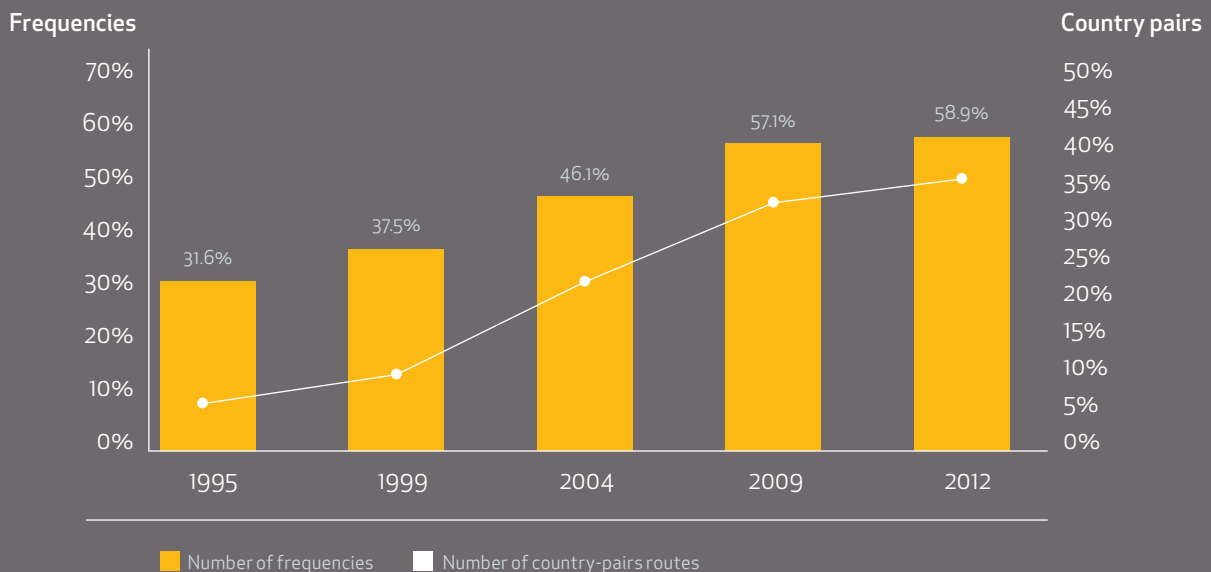
Next steps? A more detailed analysis needs to be undertaken in order to define the possible interactions between each component of the ICAO ATCI and to eliminate redundancies of information between each component of the index that may bias the results found at a State level. There will also be a need to refine the methodology in order to take into account flights with multiple stops involving connecting flights between airlines in the same alliance.

It should also be borne in mind that ICAO's customer-centric connectivity framework is focused on the overall efficiency of the air transport system. As the index develops, one possible enhancement could be the integration of components related to the temporal dimension of air transport. This evolution would be in line with ICAO's approach to air transport connectivity, as the "movement of passengers, mail, and cargo involving the minimum of transit points, making the trip as short as possible, with optimal user satisfaction, at the minimum price possible."


In this context, the index could ultimately serve as a robust tool to showcase and measure the actual benefits for States and economies at large of more efficient policies and practices in favour of facilitation, security clearance, passenger flow management and identification, as well as other techniques making the travel of passengers and cargo as fast and smooth as possible. ■



FIGURE 1: AIR TRANSPORT SERVICES CONDUCTED UNDER LIBERALIZED AGREEMENTS OR ARRANGEMENTS.



BUILDING A CONNECTIVITY INDEX

 **Taking into account the different nature of connectivity components (spatial, temporal, and cost effectiveness), a key question is how to measure the air transport connectivity concept in a consistent way.**

For the maritime sector, the United Nations Conference on Trade and Development (UNCTAD) has developed a Liner Shipping Connectivity Index (LSCI), (UNCTAD, 2007). They define connectivity in terms of access to regular and frequent transport services, then use factor analysis to bring together data on capacity and utilization in the liner shipping sector. In particular, they consider the number of carriers, the number of bilateral links between national ports, total vessel capacity and number of direct services, and the size of the largest vessel on each route. Their methodology produces a connectivity index that is a weighted average of those data, with the weights determined statistically.

Given the multiple ways connectivity could benefit a State's economy, it is not possible to have one single measure of connectivity that captures all aspects of air transport's contribution to the economy. Simple measures such as number of destinations served, number served daily, total frequency, and total seats operated remain useful measures to understand the scale of air transport connectivity at a country or region level.

The approach taken to build an Air Transport Connectivity Index (ATCI) is similar to the UNCTAD approach, applied to air transport through a systematic model and a rigorous network analysis at the State level. The main objective (from ICAO's perspective) is to be able to measure implementation of policies through this ICAO ATCI.

Extensions of this ATCI will enable a means of comparison for the level of connectivity between States and regions as well as to analyze trends in the level of connectivity for the past 10 years at a regional and global level.

CONNECTIVITY DATA SETS

ICAO maintains several databases on air service agreements, but for the purpose of this analysis only the first agreements were taken into consideration (extracted from the online WASA database) that established routes between State pairs – i.e., at least covering the exchange of Third and Fourth Freedom traffic rights. The resulting consolidated database contains agreements from 1944 up to 2013.

However, the ATCI is based on an analysis of the past 10 years, namely from 2004 to 2013. The OAG airline schedule database was used to obtain scheduled passenger frequencies, as it provides a worldwide coverage of the planned scheduled services broken down by airport pair, aircraft type, and operator (both passenger and freighter aircraft have been considered in this study). Only information for non-stop and multi-stops flights that have the same flight number (a multi-stop flight being defined by a flight between two points flown by an airline with no change in flight numbers, which includes at least a stop at an intermediate point) has been taken into account. The States are classified by region using the ICAO statistical regions.

A WEIGHTED AVERAGE INDEX

The ATCI is based on a weighted average of access, capacity, supply, demand, and utilization data for air transport services. The proposed ICAO ATCI is generated from five components and each of them can be considered as a possible indicator of a country's air transport "connectivity":

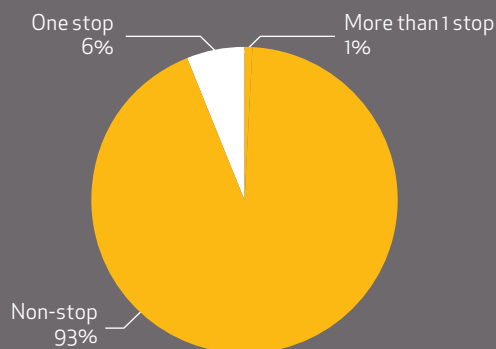
- **ASA component:** number of States with which at least one ASA has been signed by the considered State
- **Connections component:** number of States connected to the considered State by scheduled flights
- **Competition component:** average number of air carriers on each country-pair of the considered State
- **Departure component:** number of scheduled departures from the considered State
- **Capacity component:** number of seats offered on scheduled flights from the considered State.

This index can be developed at different levels of aggregation, each based on a different calculation basis in order to be able to carry out either a comparison between the level of connectivity or on the evolution of the connectivity at a State, regional, or global level.

The **State Level Connectivity Index (SLCI)** is computed as the weighted average of the component values by applying the same weight of 20% to all five components. Each component is normed with a value of 100 in 2004 for the State with the maximum value of the component in 2004, enabling the comparison between each component of a specific State related to the maximum value registered for this component. For 2004,

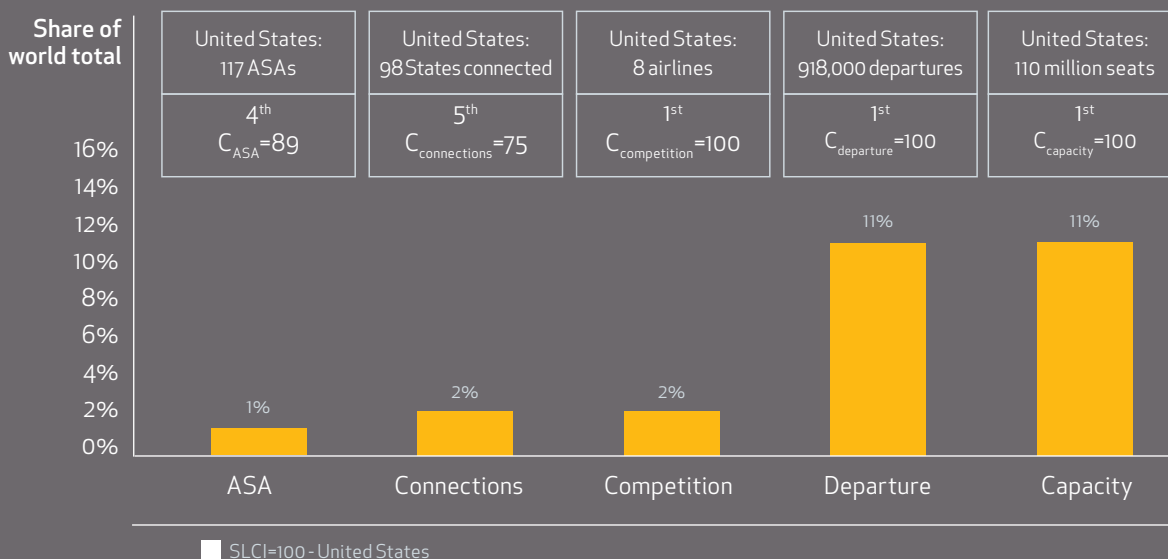
the United States recorded the highest value for the weighted average of the components index (93); therefore, the United States in 2004 becomes the SCLI norm of 100. All the other States will have a SLCI lower than 100 in 2004 (Figure 3).

FIGURE 2 – DISTRIBUTION OF NON-STOP AND MULTI-STOP SCHEDULED FLIGHTS IN 2013 (international services, excluding commercial restrictions).



Source: OAG

FIGURE 3 – 2004 COMPONENT VALUES FOR UNITED STATES



For the following years, the process is the same. Figure 4 shows the top 40 States in terms of SLCI in 2013. The top 3 is comprised of the United States, the United Kingdom, and Germany. China, Turkey, and the United Arab Emirates recorded the maximum SLCI point increases of the top 40 since 2004.

In order to allow the ranking by region, a first **ATCI at the regional level (Regional Transport Connectivity Index - RTCI)** is computed for each region and for each year as the average of the SLCI of all the States of the region. This allows comparison of the regions in terms of average connectivity of their States for each year. Figure 6 shows a comparison of the six ICAO statistical regions in terms of RTCI. The first region in terms of RTCI is North America. Latin America / Caribbean recorded the

lowest RTCI in 2013, reflecting the second lowest score for the departure and the capacity components and the lowest score for the ASA and the connection components. The largest component decrease between 2004 and 2013 for Latin America / Caribbean is the competition component due to a large round of airline consolidations.

A second ATCI at the regional level is computed for each region in order to analyze trends between the regions over the decade and for each region the average of the SLCI of all States in this region is computed (RRCI) in a specific year. All regions have recorded an increase in their regional connectivity index, the highest and the lowest increase being registered by the Middle East and Latin America regions respectively. The competition

FIGURE 4 – TOP 40 STATES IN TERMS OF SLCI IN 2013



FIGURE 5 – TOP 40 STATES IN TERMS OF SLCI GROWTH BETWEEN 2004 AND 2013



component has registered the lowest increase in all regions while the fastest growing component is the number of ASAs.

At the world level, the annual **ATCI at the world level (World Transport Connectivity Index - WTCI)** is computed as the weighted average of the five component world values

“The approach taken to build an Air Transport Connectivity Index (ATCI) is similar to the UNCTAD approach, applied to air transport ...”

normalized at 100 for the year 2004. At the world level, two components related to traffic density – departure and capacity – increased stronger than the other components between 2004 and 2013. The number of connections and ASAs are following the same trend during this period while the competition component has the slowest increase. ■

FIGURE 6 – COMPARISON OF THE REGIONAL TRANSPORT CONNECTIVITY INDEX (RTCI) IN 2013.

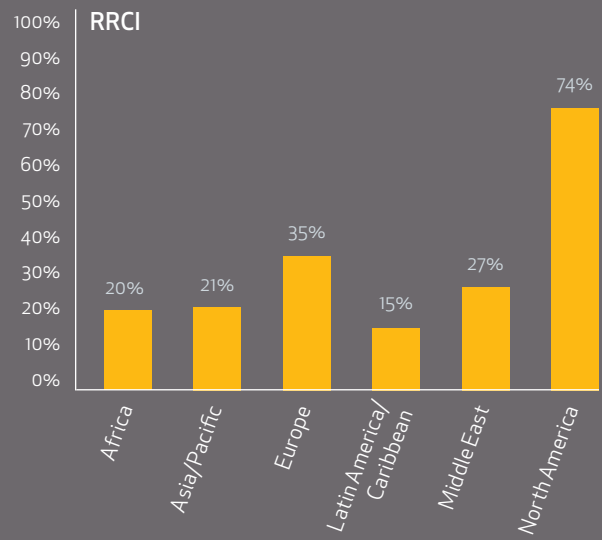
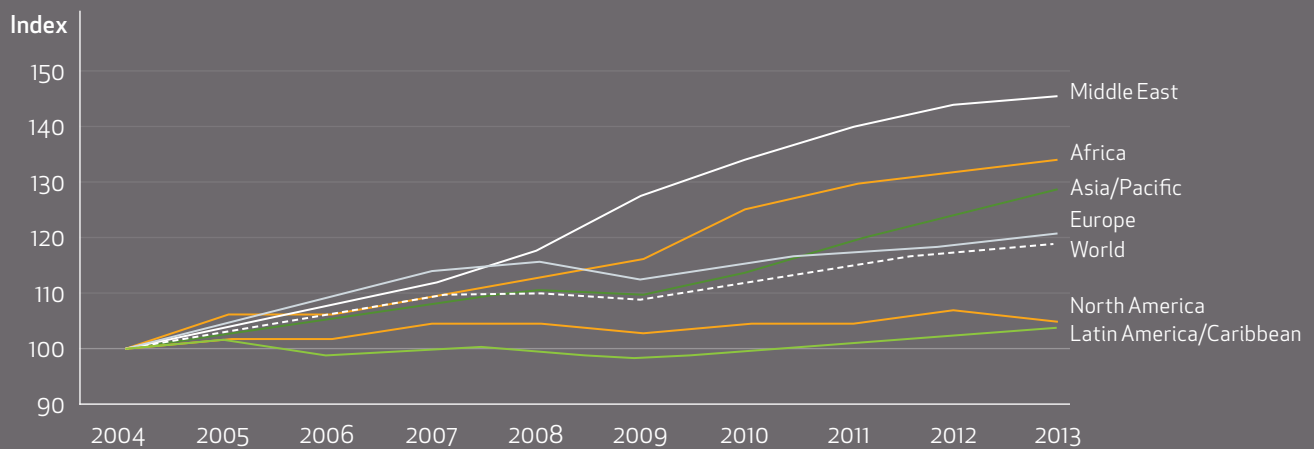



FIGURE 7 – EVOLUTION OF THE WORLD (WTCI) AND REGIONAL (RTCI) CONNECTIVITY INDICES BETWEEN 2004 AND 2013.





DAKAR SYMPOSIUM BOOSTS AFI AVIATION SAFETY MOMENTUM

 African States were encouraged to maintain the momentum in improving safety and air navigation performance, implementing the aviation safety targets established in 2012 by the Abuja Declaration. Nearly 300 delegates from African States, international organizations, and development partners attended a special two-day African-Indian Ocean (AFI) region Aviation Safety Symposium, 27-28 May in Dakar, Sénégal.

"The accident rate for Africa has fallen by 45 percent" between 2010 and 2013, ICAO Secretary General Raymond Benjamin announced to delegates of the AFI Aviation Safety Symposium. The rate dropped from 16.8 to 9.3 accidents per million departures and the number of fatal accidents decreased from three to one per year. "This represents excellent progress, but there is still work to be done if Africa is to more fully benefit from the socio-economic benefits that invariably derive from the establishment of safe and dependable air services. Our common challenge remains how to transform this development into a sustained positive trend through collaborative partnership among the relevant stakeholders."

The Symposium featured a detailed review of progress against regional safety targets adopted during the Ministerial Conference on Aviation Safety in Africa held in Abuja, Nigeria in July 2012 and

endorsed by the Assembly of Heads of State of the African Union in January 2013.

"ICAO has been very encouraged by the level of commitment shown up to this point by African States," Benjamin said. "However, continued political will is still required in order to succeed. Your commitment is primarily demonstrated through the establishment and strengthening of autonomous Civil Aviation Authorities with independent regulatory oversight and sustainable sources of funding."

SG Benjamin noted the significant projected growth of air traffic in Africa will further require huge investments for ground infrastructure and air navigation systems. "I would encourage you to consider the long-term economic development and tax-based returns which will derive from these investments, primarily by maximizing your respective tourism, foreign market access, and other business sector potentials." Aviation currently supports nearly 7 million jobs in Africa.

Last October, prior to ICAO's 38th Assembly, a Ministerial briefing on the status of aviation safety in Africa provided information on the assistance and capacity building activities of ICAO's Comprehensive Regional Implementation Plan for Aviation Safety in Africa (AFI Plan). It was also indicated that the AFI Plan would be



ICAO SG Raymond Benjamin received the honour of Officer of the Grand Order of Merit from the President of the Republic of Sénégal, Macky Sall.

expanded to include air navigation services, aerodromes, and aircraft accident investigation areas. "It is ICAO's view that this expansion in the scope of the AFI Plan will be a critical stepping stone in meeting your Abuja safety targets," Benjamin said.

"As a global organization, an important aspect of ICAO's mission is to assist our member States with training and capacity-building coordination. This targeted assistance helps them to meet global expectations with respect to the implementation of ICAO Standards and Recommended Practices [SARPs]."

The host country's Ministre du Tourisme et des Transports Aériens, Oumar Gueye, said, "The Government of Sénégal knows that air transport is a powerful vehicle for development, and is thus determined to introduce a policy to open up the skies and better serve domestic and international routes. This endeavour to develop air transport cannot succeed unless we strengthen our safety and security oversight capacity."

"I would like to praise ICAO for its dedicated promotion throughout the world, and in Africa in particular, of an efficient civil aviation system that achieves the major objectives of safety, security, environmental protection, and the sustainable development of air transport."

Sénégal is home to the ICAO Regional Office for the Western and Central Africa region (WACAF); the headquarters of the African Civil Aviation Commission (AFCAC); the West Africa Office of the International Air Transport Association (IATA); an office of the US Federal Aviation Administration (FAA); and the headquarters of the Agency for Air Navigation Safety in Africa and Madagascar (ASECNA).

PRINCIPAL OUTCOMES – 3 AGREEMENTS

The Symposium agreed to a Collaborative Implementation Programme addressed to ICAO, States, industry and development partners, the successful implementation of which will enhance aviation safety and air navigation performance in the region.

During the Symposium, three major agreements were concluded:

1. The Memorandum of Understanding among African and Malagasy Civil Aviation Authorities (AAMAC), Central African Economic and Monetary Community (CEMAC), and West African Economic and Monetary Union (UEMOA) – aiming to coordinate the functions of their three Regional Safety Oversight Organizations (RSOOs) and in the long-term to establish one common RSOO;
2. The African Flight Procedure Programme (AFPP) agreement to which 20 States adhered to facilitate Performance-Based Navigation (PBN) implementation in the AFI Region.
3. An assistance project agreement among France, Madagascar, and ICAO aimed at enhancing the safety oversight capabilities of the Civil Aviation Authority of Madagascar.

The Symposium participants were additionally presented with an overview of the assistance options currently available from States, Aviation Safety Partners, and ICAO. ICAO's goal is to provide higher-level coordination of these initiatives and resources for African States, which was fostered during the event.

LEVERAGING DELEGATES' PRESENCE

Additional special interest meetings were held during the week to take advantage of the broad representation of organizations which sent representatives to Dakar.

Immediately following the Symposium, the 13th Meeting of the Steering Committee for ICAO's AFI Plan was held. The Chairs of the Africa-Indian Ocean Regional Aviation Safety Group (RASG-AFI) and AFI Planning and Implementation Regional Group (APIRG) were incorporated into the membership of the Steering Committee to foster the synergy of the AFI Plan with these regional groups.

The Steering Committee reviewed the status of implementation of the 2014 Work Programme. The meeting also recognized the incorporation of assistance to improve air navigation services in Africa into the Work Programme.

The progress in harmonizing training and the delivery of seminars, workshops and courses across the region was also recognized. More than 2,200 people have attended courses and workshops organized from 2008 to 2013 in these areas: Government Safety Inspectors GSI-OPS, GSI-AIR, GSI-PEL, and Aerodromes; State Safety Programme (SSP) and Safety Management System (SMS); Safe Transport of Dangerous Goods; Aviation Medicine; and European Co-ordination Centre for Accident and Incident Reporting Systems (ECCAIRS).

The meeting also noted the progress made by some States in improving their effective implementation (EI) of the critical

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elements of a safety oversight system to 60 per cent or more. Seventeen States are now above 60 per cent of EI and others are expected to reach that level by the end of 2014, subject to the results of ICAO Coordinated Validation Missions (ICVMs) and Regional Office Safety Team (ROST) missions scheduled in 2014.

Among the significant recommendations from the Steering Committee meeting:

- ICAO and relevant stakeholders to continue sensitizing African States to take more ownership and implement the Abuja safety targets as well as to improve safety and air navigation performance in the AFI Region.
- The African Union Commission and the African Civil Aviation Commission (AFCAC) to conduct joint missions to those States with insufficient political will to address safety deficiencies.
- The Global Aviation Training Office in coordination with African Aviation Training Organisations (AATO) to conduct an inventory of States' training needs and courses offered by ICAO and training institutions in order to optimize the resources available.

Also held in conjunction with the Symposium was a half-day Aviation Security Meeting where attendees were presented with the results of the second cycle of ICAO's Universal Security Audit Programme (USAP), and with a new initiative for enhancing aviation security and facilitation in Africa. This event brought together 180 participants representing States, regional and international organizations, and industry. The AFI SECFAL (Security and Facilitation) Initiative, produced by the African Group of Representatives to ICAO with assistance from the Secretariat, was unanimously supported by States.

A number of by-invitation sessions and bilateral meetings were conducted with States with Significant Safety Concerns (SSCs) or low effective implementation of the critical elements of a safety oversight system and aviation safety partners. These sessions were instrumental in coordinating assistance, re-engaging States to resolve their deficiencies and sharing of experiences to find practical solutions.

For detailed insight into one State's SSC experience, see "Safety Oversight Audits: The Sudan Experience" beginning on page 26 of this issue of ICAO Journal.

SG Benjamin summarized the focus of the week's events in Sénégal: "ICAO's leadership role in coordinating assistance projects on the most urgent needs and long-term capacity building was underscored by the success of these events. The aviation international community demonstrated its interest in supporting States to improve their safety and security oversight capabilities. It is now time for States in Africa to take advantage of the assistance offered and create an environment where civil aviation can flourish. The safe, efficient, secure, and sustainable development of civil aviation in Africa will serve as an impulse for productivity and economic growth in this region due to the positive relationship between the connectivity levels and economic development." ■

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SAFETY OVERSIGHT AUDITS: THE SUDAN EXPERIENCE



ABOUT CAPTAIN HAILE BELAI

He is Senior Advisor to the Director General of the Sudan Civil Aviation Authority. A 25-year veteran of ICAO, he was the first Chief of the ICAO Universal Safety Oversight Audit Programme since its inception at the end of 1998. In 2005, he was assigned Chief of the Aviation Security and Facilitation Branch, and in 2008 he was tasked to establish and manage the AFI Comprehensive Implementation Plan (ACIP). Capt. Belai retired from ICAO at the end of 2010; however, he continues to actively support States in aviation safety and security matters.

✈ In 2011, the ICAO Continuous Validation Mission (ICVM) Team to Sudan conducted a verification audit of the implementation of the action plan submitted to resolve deficiencies identified by a Comprehensive Systems Approach (CSA) audit conducted in November 2006.

Captain Haile Belai, a veteran of 25 years at ICAO who established and managed the ICAO mandatory safety oversight programme launched in December 1998, shares the outcomes of the ICVM audit and subsequent actions in a narrative fashion. Captain Belai retired from ICAO in 2010 but continues to advise government agencies and aviation organizations on safety issues.

The Sudan Civil Aviation Authority (SCAA) believes that sharing their experience can encourage and help their sister States to learn from it, as they would also learn from others' experiences.

To this end, the Government and the SCAA would like to renew their commitment that Sudan will do its utmost not only to maintain a high level of safety oversight system in the Sudan but also cooperate with all international and regional organizations as well as ICAO contracting States in the Middle East and Africa to promote the safety, security, and efficiency of air navigation in the region and in the world.

MORNING, 18 DECEMBER 2011 – THE ICVM DEBRIEFING

In a typical ICAO fashion, the debriefing session by the ICAO Continuous Validation Mission (ICVM) Team to Sudan started with highlighting the progress Sudan has made to resolve the identified deficiencies from the Comprehensive Systems Approach (CSA) audit of 2006. From 11-15 December, the ICVM Team had conducted a verification audit of the action plan submitted to resolve the deficiencies identified by a CSA audit conducted in 2006 (November 21-30).

Fair enough, considerable progress has been made. The Republic of Sudan was able to reduce the Lack of Effective Implementation (LEI) of the Critical Elements of a States' Safety Oversight System from about 51 percent to a reasonable 31 percent. Plenty of actions still to be taken to enhance aviation safety to the maximum possible, but nevertheless respectable and significant improvement – especially when compared to the global average, and significantly high when compared to the average LEI of the African and Middle East States.

One-by-one, Critical Element by Critical Element, audit subject by audit subject, the ICAO Team Leader continued to explain the progress that was noted. The clapping of hands was as deafening as it could be, given the encouraging words of the Team Leader and with only the positives highlighted... softening the ground to enable us to accept any not-so-good results.

However, among those who were at the receiving end of the audit process, a feeling that we have not implemented as much corrective action as we thought we did started to imprint its mark in our brains.



The Standards and Safety Management Office (SSMO) within the Office of the Director General, comprising the five safety oversight regulatory Directorates – aerodromes and ground aids (AGA), airworthiness of aircraft (AIR), air navigation services (ANS), aircraft operations (OPS), personnel licensing and training (PEL), and the Central Library – was tasked with the overall responsibility for all safety-related matters. To give effect to the action plan, the SSMO established teams of experts from the technical departments of the SCAA and highly experienced individuals from the Industry.

Then followed the real message. The shock, if you may. The Team Leader stated: "Although significant progress has been made in all areas of the audit, I regret to inform you that the ICAO team is not satisfied with the air operator certification process that is implemented in the State. The appropriate certification of an air operator is at the center of all safety-related activities of the civil aviation authority, and if it is not conducted in the proper manner in line with international requirements and proven best practices, the promulgation of regulations, the development of procedures, the training of the technical staff, etc., would not in themselves ensure that adequate safety measures are in place to ensure safety and give confidence to the rest of the world that the system established fully meets international Standards and Recommended Practices. For this reason, and only for this reason (inadequate implementation of air operator certification process), the ICVM Team is recommending a Significant Safety Concern (SSC) finding to be raised against Sudan in the area of air operator certificate."

Definitely, no one clapped. The management's collective brain went on high-drive, contemplating where we failed but most importantly what should our next moves be to erase the SSC in a record time.

Even though the announcement of the SSC situation did not come as a complete shock, it proved to be a major disappointment. Expectations were raised to such a level that, even though a total elimination of all identified deficiencies was not considered possible, there was an expectation that none of the items that remained unresolved would result in an SSC

situation. That was the surprise. However, we all recognized and accepted it for what it is, and we knew that we would have to do more to achieve our ultimate goal of establishing and maintaining an effective, efficient, and sustainable safety oversight system in the Sudan.

Even before the briefing session was closed with the customary good wishes and goodwill messages, the Director General advised all concerned officers that there would be an urgent meeting soon after the session closed to plan an immediate action to resolve the identified SSC in a record time.

BACKSTORY – SAFETY OVERSIGHT AUDITS CONDUCTED IN SUDAN

The final report of the 2006 CSA audit revealed that Sudan was considered among the States with a high level of Lack of Effective Implementation (LEI) of the Critical Elements of a State's Safety Oversight System – scoring a fraction above the 50 percent mark but almost 10 percent below the minimum acceptable mark.

Of course, as required by ICAO and based on the Memorandum of Understanding (MoU) signed prior to the audit of 2006, Sudan developed a corrective action plan to resolve the identified deficiencies and, within a reasonable time, undergo a follow-up audit to ascertain the implementation effectiveness of the proposed action plan.

Sudan's action plan, accepted by ICAO, indicated that Sudan would resolve about 80 percent of the identified deficiencies by the end of 2008 and completely (100 percent) resolve the deficiencies by the end of 2009. Following tradition and past



The corrective action taken to resolve the SSC, although completed in a very short time, was not meant to be a temporary solution. It became the precursor for a sustainable and effective air operator certification and supervision process that has been exercised and is continuously implemented on all new applicants as well as for the recertification of domestic and cargo operators.

experience, this time period was acceptable to ICAO as the safety oversight experience showed that effective resolution of identified differences similar to those identified in Sudan typically took from two to three years by other States.

Nevertheless, for various reasons, Sudan was not in a position to effectively resolve the identified deficiencies and get scheduled for a follow-up audit.

In 2007, well before Sudan even started to implement its corrective action plan, the ICAO Secretariat introduced the concept of Significant Safety Concerns (SSC). In fact, SSCs were in use internally by the Secretariat to help identify where the most need for support would be required.

States with significant safety concerns at that time, specifically in the areas of air operator certification and supervision and aircraft airworthiness areas (it has since been extended to all safety areas) would be identified as such, and other contracting States would be informed of this status through the publishing of the situation on the ICAO secure website.

This was a significant departure from the original policy of confidentiality that helped to establish the Safety Oversight Audit Programme and gain it the support of a large majority of the contracting States in 1995 under the Voluntary Programme

and 1998 when the mandatory ICAO Universal Safety Oversight Audit Programme (USOAP) was established.

Transparency and disclosure evolved step-by-step through the years so that during the 2008 General Assembly, transparency and full disclosure – including the publishing of significant safety concerns – became acceptable to the majority of the contracting States and practically became part and parcel of the programme.

The programme further evolved and soon the notion of continuous monitoring became the norm, rather than conducting a series of audits every three or four years. Today, the Safety Oversight Audit Section has metamorphosed into the Continuous Monitoring Office (CMO) and the follow-up audits have been replaced by the ICAO Continuous Validation Missions (ICVM), more suitable and practical for these times.

Thus, missing the opportunity to undergo the old style audit follow-up and the semi-confidential reporting of the results, Sudan, like many other contracting States in the same situation, had to accept an ICVM five years after the CSA audit was conducted.

RESOLVING THE SSC

The knowledge that a SSC situation existed from the findings of 2006 and remained unresolved during the five years between the CSA audit and the ICVM was the greatest

disappointment. The Government of Sudan and the SCAA, at least in the last year or two leading to the ICVM, were determined and committed to resolve all existing deficiencies; considerable resources were invested for the resolution of the deficiencies. International experts were recruited and given the authority to resolve the deficiencies; further experts were contracted with the ICAO Technical Cooperation Bureau (TCB), although they could not be available before January 2012, a month after the ICVM was completed. The SCAA's intent was to have those experts by June 2011 in-time to support the resolution of remaining or still unaddressed deficiencies such as the one that led to the SSC.

In brief, the determination of a SSC by the ICAO Team served as a catalyst that enabled the SCAA and the Government to redouble their efforts, and resulted in a decision and commitment at the highest levels of government and management that no effort would be spared to resolve the SSC-specific deficiencies and the other shortcomings in the shortest possible time. Thus, the message from high-level management was loud and clear – all that is possible would be done and all required resources would be made available to resolve the SSC. No time was to be lost in developing a new action plan, and proper planning for its implementation started the afternoon of the day of the briefing.

This was going to be a comprehensive and sustainable resolution and not only address the specific finding (although the aim is to get out of the SSC), but also to address the effectiveness and sustainability of the safety oversight system as a whole. Thus, the first area to be reviewed was the organization of the safety oversight system.

In parallel with the review of the organization, all concerned senior staff were directed to provide the Director General with specific and targeted plans to address the organizational issues (establishment and staffing) and the air operator certification process. This planning has to be completed before the end of the year for an approval by the Director General and start implementation within the first week of January 2012. The instructions clearly stated that the time for resolving the SSC would not, by any account, stretch beyond the middle of May 2012, and proposed and implemented actions should be comprehensive and sustainable.

By the time we received the preliminary report about two weeks after the ICVM was completed, the SCAA had already reorganized its aviation safety system by establishing the Standards and Safety Management Office (SSMO) within the Office of the Director General.

The SSMO, comprising the five safety oversight regulatory Directorates – aerodromes and ground aids (AGA), airworthiness of aircraft (AIR), air navigation services (ANS), aircraft operations (OPS), personnel licensing and training (PEL), and the Central Library – was tasked with the overall responsibility for all

safety-related matters under the direct supervision of the Director General, who retained overall responsibility and accountability. The Standards and Safety Management Office was also tasked to lead and coordinate the effort being made to resolve the SSC, as well as develop and implement an effective, efficient, and sustainable safety oversight system within the Sudan Civil Aviation Authority.

A high-level safety and coordination team was established under the leadership of the Director General and comprised of the Deputy Director General, Director SSMO, and the National Continuous Monitoring Coordinator (who was also appointed as the Director of the Safety Policy and Standards Directorate, a new Directorate tasked with the development and amendment of operational regulations, procedures and guidance material in close cooperation with the relevant Directorates). The Deputy Director General was tasked to oversight the Team's activities on behalf of the Director General and played a significant role as the overall supervisor of actions being taken while providing high-level visibility of the SSMO in relation to other Government offices and organizations. The Team met with the Director General on a weekly basis to review progress made or to assess and resolve any problem that emerged during the implementation stage.

Further, an Air Operator Certification Committee, comprised of the Senior Staff of the SCAA, was established at the same time and tasked with the responsibility to review actions taken to implement the plan and to provide guidance on further courses to be taken.

While activities in the area of reorganization, reassignment, training, etc., were being implemented, additional and essential activities were also launched with the support of experts from ICAO. The SCAA primary regulatory document for the certification of air operators was reviewed and amended in two parts (SUCAR Part 6, Flight Operations, Subpart 1 and 2 – Air Operator Certification and Implementation Standards) as the first step in resolving the SSC. This was done in a very short period and in parallel with the review and amendment of the certification procedures manual, inspectors' handbook and checklist, and air operators' surveillance policy and program.

The effort of the SCAA was bolstered by the arrival of four international experts through the ICAO TCB.

While the process of reorganization and regrouping was going on, a detailed corrective action plan specifically addressing the SSC was developed and submitted to the Deputy Director, Safety Management and Monitoring Office, Air Navigation Bureau, ICAO Montréal on 11 January 2012, five days ahead of the deadline determined by ICAO. Feedback from ICAO on the action plan was received within five days, and implementation of the plan started in earnest by 15 January, about one month after the ICVM was completed.

To give effect to the action plan, the SSMO established teams of experts from the technical departments of the SCAA and highly experienced individuals from the Industry. Training on the air operator certification process was provided by experienced international experts to those newly established teams to prepare them for undertaking the recertification process with the support of the experts recruited through ICAO TCB and other international experts directly recruited by the organization.

AOC RECERTIFICATIONS

Those experts drawn from among highly experienced airline pilots, aircraft airworthiness and maintenance specialists, flight operations and airworthiness instructors, and examiners were, following their training in the air operator certification process, used to conduct analysis of all Air Operator Certificate (AOC) holders to ascertain which of the 18 AOC holders have the capability and capacity to operate internationally in line with international Standards and Recommended Practices (SARPs). As a result of the analysis, only five air operators were selected for recertification as international operators while the remaining 13 were downgraded to domestic operations only.

The five AOC holders with the capacity for international operations were informed that they would have to undergo a recertification process for their AOCs to remain valid for continued operation in international air navigation. The remaining AOC holders were informed that their operations are strictly limited to domestic operation only and, should they wish to get the permit for an international operation, they would have to go through a recertification process during the second half of 2012.

Accordingly, the five operators were requested to submit the required manuals for review and acceptance/approval. All the required manuals were received as requested and the teams

“Six of the original 18 have been forced to surrender their AOCs. And among the remaining 12, eight are domestic cargo operators or non-scheduled (charter) passenger carriers within Sudan.”

trained in the certification process, assisted by the international experts, started work on the recertification of the five airlines simultaneously.

All of those activities, reorganization, and other related processes such as the assignment of new directors were completed by 21 January 2012, and the recertification process in accordance to the five phases recommended by ICAO (Doc 8335) started in earnest.

The five selected air operators were instructed to submit all required documents by 15 February 2012 or be downgraded to domestic-only operations. The instruction also informed them that they would have to present new and updated Manuals and that the SCAA was not going to consider old Manuals that have been submitted in previous years. It was clear that the SCAA had embarked on a new process for the issuance of AOCs that fully meets international standards and takes into consideration accepted international practices. Alongside the promulgation of Air Operator Certification Regulations and Implementation Instructions, a pamphlet explaining the new procedures and requirements was developed and distributed throughout the industry.

The following two and half months, to the end of April 2012, were dedicated to the implementation of the five phases of the air operator certification process of the five air operators, which submitted the required manuals as requested.

Three teams of 8-10 inspectors from the Flight Operations, Airworthiness and Personnel Licensing and Training Directorates, including trained experts, were established and assigned specific air operators for documentation review and inspection. It was clear that those teams would have to work a minimum of 12 hours a day every day of the week until the process of certification was satisfactorily completed.

The high-level team kept the Director General informed on progress made at least twice a week and the Director General briefed the Minister responsible for civil aviation on progress made or any problem encountered on weekly basis.

This arrangement helped in resolving any encountered obstacle or problem as soon as identified and thus significantly contributed to the effectiveness and efficiency of the whole process. Directors of Operations and Aircraft Maintenance of the air operators under recertification were advised of any discrepancy or action that needed to be taken to rectify an identified shortcoming as soon as it came to light. Directors of Flight Operations and Aircraft Airworthiness were practically in daily contact with their counterparts in the air operators through exchange of letters, e-mail, and telephone contact.

The certification process was planned and scheduled to be completed by 30 April 2012, leaving some time for verifications and

re-checks before the ICAO Continuous Monitoring Office (CMO) could be invited to assess the progress made and determine whether Sudan CAA had resolved the SSC findings per the action plan submitted and within the period determined by ICAO.

By any measurement, it was clear that the period scheduled for resolving the SSC and enabling effective implementation was very short. However, with the determination and commitment manifested by the Director General of SCAA, the unwavering support of all Government sectors involved in the process, and the determined hard work exerted by the SCAA staff and the international experts, the Sudan Civil Aviation Authority was able to effectively resolve the SSC and establish an effective and sustainable air operator certification system that fully meets the international standard and accepted best practices.

At the end of the process, only four of the five air operators were recertified to conduct international operations. The operation of one operator was suspended and AOC denied because the review and inspections revealed that the air operator faced economic problems that would not enable it to conduct safe and efficient operations.

It has to be highlighted that the corrective action taken to resolve the SSC, although completed in a very short time, was not meant to be a temporary solution. It became the precursor for a sustainable and effective air operator certification and supervision process that has been exercised and is continuously implemented on all new applicants as well as for the recertification of domestic and cargo operators.

Today, two years down the line, some of the operators certified at the time are no longer operating as they could not survive the stringent process of surveillance and the resources required to maintain an acceptable level of operations and maintenance control. As a result, there are only 12 air operators that have a valid AOC at this time. This means that six of the original 18 have been forced to surrender their AOCs. And among the remaining 12, eight are domestic cargo operators or non-scheduled (charter) passenger carriers within Sudan. Further, among the original five air operators selected for recertification for international operation, only three have been able to maintain the Standard that they have demonstrated during the recertification process. They have, however, been joined by one air operator that met the required standards and has been issued an AOC that will enable it to operate international air transport.

As international standards and accepted best practices are strictly observed, to date, no new AOC (except for the upgrade of Tarco Air from domestic only to international) has been issued, although we have received three applications that are in the process but significantly delayed because the applicants could not effectively meet the requirements.

“The Sudan Civil Aviation Authority continues to play a productive role in the region and is actively involved in regional safety groups and safety enhancement activities, both in the MID and AFI regions of ICAO.”

EFFORTS BEARING FRUIT

We believe that the efforts made by the SCAA are bearing fruit as, unlike the previous years when there were three to four accidents or serious incidents a year, Sudan has experienced no accident or serious incident over the last two years.

Currently, the SCAA is focusing its full attention on the sustainability of the system as a whole. Over the last two years, it has recruited several highly experienced flight operations inspectors, aircraft airworthiness experts, and personnel licensing officers, while at the same time addressing findings associated with air navigation services and aerodrome ground aids. In the process, Sudan also managed the separation of the regulatory functions from that of service provision, an achievement we believe is supporting the effectiveness of the regulatory body.

The Sudan Civil Aviation Authority continues to play a productive role in the region and is actively involved in regional safety groups and safety enhancement activities, both in the MID and AFI regions of ICAO. At the Aviation Safety Symposium in Dakar, Sudan hosted the first seminar on the new ICAO Airworthiness Manual (Doc 9760) for both the Middle Eastern and Eastern and Southern African Regions. An ICAO expert in Khartoum conducted the seminar/workshop.

Sudan, through its CAA, is committed to maintain a high level of safety oversight system in Sudan as well as support the development of acceptable safety oversight systems in the region. To this end, it has committed to ICAO and the two Regional Offices of MID and ESAF that it will cooperate in hosting seminars, workshops, and training courses that are directed at enhancing aviation safety in the Middle East and Africa. ■



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ECONOMIC DEVELOPMENT



AIR TRANSPORT DEVELOPMENT: SETTING THE COURSE

✈ Nearly 300 air transport industry, civil aviation, regulatory, academia, and legal experts gathered at the International Civil Aviation Organization (ICAO) headquarters in Montréal, Canada in May to tackle the challenges of ensuring the sustainable development of air transport. The representatives of a broad spectrum of aviation stakeholders were attending the second ICAO Air Transport Symposium (IATS 2014) with the theme “*Development of Air Transport: Setting the Course,*” hosted by ICAO and the Air Transport Research Society (ATRS).

“Whether fragmentation is geographic or economic, or a combination of the two, the barriers posed to an economically sustainable air transport system are inherited from the regulatory framework,” said Boubacar Djibo, Director of the ICAO Air Transport Bureau. He kicked off the IATS 2014 event by highlighting the elements of fragmentation in the aviation sector that ICAO Secretary General Raymond Benjamin identified in 2012 as the main impediment to sustainable air transport. These barriers impede efficiency, generate friction, hinder growth, and lead to a reduction in air transport connectivity, Djibo explained, which is basically moving passengers, mail, and cargo through the fewest transit points as quickly as possible at the minimum price possible with optimal user satisfaction.

The sustainable development of air transport requires that the international community overcome these impediments to enhance connectivity, Djibo said, and ICAO must show leadership in market access liberalization, consumer protection, and principles of competition. He reminded the group the 2013 Assembly of 191 Member States agreed the group should continue liberalizing market access – which will help eliminate a main impediment to current connectivity levels, eliminating some consumer frustration with air travel.

“This symposium, in the context of our wider ambitions to constantly enhance air transport connectivity and end-user satisfaction,” Djibo added, “will be an essential tool for ICAO’s continuing efforts to improve and refine the civil aviation economic framework and will provide a framework by which to guide our work in the future.”

University of British Columbia Professor Tae Hoon Oum, Chairman of the ATRS, agreed with these sentiments, stating: “The international communities expect us to find the ways for sustainable development of air transport.” He stressed the important contributions needed from experts to “find directions” to address the critical issues facing the aviation sector in the next decade – and, where full consensus is not achieved, to crystallize the points of contention for future discussion.

Oum’s comments led the way for the eight panel presentations and discussions. Experts gave presentations from the perspectives of airports, airlines, air navigation service providers (ANSPs), the air cargo and tourism sectors, and regional, national, and international regulators and organizations.

NEW REGULATORY FRAMEWORK CHALLENGES

Speakers discussed the challenges of the new regulatory framework to be implemented for the air transport industry at large – including sustainable development to areas such as market access, air carrier ownership and control, consumer protection, air cargo, financing the air transport system, and the effects of taxes and levies on aviation.

In the first session, **Contributors’ Views for the Sustainable Development of Air Transport**, panelists explained that sustainable development will require continued liberalization (which could include multilateral approaches) and a new assessment of where regulation is needed and where it is harmful. It also will require a commitment to increase and enhance aviation system capacity and efficiency, an awareness of the risks of missing out on potential growth, environmental responsibility by stakeholders, a focus on the vital importance of tourism to global economic growth, and strategies to recruit and retain talented people.

The growth and immensity of air transport today was central to most of the group discussions in the **International Agreements: Building for the Future** session. There was consensus on the inefficiency of the existing bilateral system for exchanging traffic rights and the need for further liberalization. These panelists

“The international communities expect us to find the ways for sustainable development of air transport.”

– Tae Hoon Oum, Chairman,
Air Transport Research
Society (ATRS)

supported going beyond the bilateral paradigm to a multilateral approach – and confronting the fragmentation inherent in the “substantial ownership and effective control” clause found in most bilateral air services agreements.

During **Lifting Barriers to Air Transport’s Growth**, panelists addressed the problem of aeropolitical protectionism – or the need to focus on normalization of the sector rather than the concept of a level playing field. They noted it’s important to give airports a voice in the negotiation of agreements and the development of regulations, and recognized the danger of not giving sufficient attention to regional air services that meet the needs of the world’s low-demand / short-haul markets.

The Symposium ended Day 1 with **Meeting the Expectations of Consumers**, during which panelists discussed consumers’ needs with respect to price transparency and assistance with delays and cancellations, as well as the need to strike a balance between consumer protection and industry competitiveness. They demonstrated the growing importance of social media and emphasized the need to view customer complaints as opportunities to learn and make improvements – which led to a cluster of fundamental questions including: when is regulation needed? when will regulation likely do harm? when can market solutions work? and how can airlines achieve the greater transparency that today’s customers demand? One discussion topic wasn’t questioned – indeed, ICAO’s development of core principles on consumer protection and its approach by travel stage drew high praise.

The first session on Day 2, **Getting the Most Out of the Air Cargo System**, concentrated on the need to streamline the cargo system, reduce complexity, and do a better job of incorporating the views of users and regulators. Panelists described the important differences between passenger and cargo transport and identified measures that could contribute to future growth and success, including:

- Greater market liberalization
- Simplified customs procedures and other trade facilitation measures
- Enhanced availability of timely and accurate market data
- Improved air traffic control and aviation infrastructure
- Broader ratification of the 1999 Montréal Convention
- Uniform global security and security standards.

During *Funding and Financing the Air Transport System*, panelists confronted the central question of “who should pay” for the significant expansion and enhancements needed for the sustainable development of air transport – users, the public, or some combination of the two. Currently, various combinations of user and public financing are common, although the relative shares vary by function. All of the session leaders agreed no single approach to funding is right for all cases and decision processes should involve all stakeholders, aiming for transparency, non-discrimination, and cost-relatedness. They said Public Private Partnerships (PPPs) can be valuable, but only if government parties know what they want, and only if there is a good business plan and good governance.

Expanding on the issue of funding, the session on *The Impact of Levies on Air Transport Sustainability* yielded strong consensus. Attendees expressed that taxation of the sector is excessive, particularly when compared to other modes of transport – and the current trend is toward even more levies on aviation. This trend brings with it the potential for undermining the commercial viability of airlines and blunting the contribution the sector provides for tourism and other key determinants of economic growth. The panel agreed that aviation should properly be seen more as an input for the world economy, not as an output – and emphasized taxes and other levies can only undermine air transport sustainability, and the role that aviation plays in facilitating tourism, trade, and overall economic development.

Realizing the Vision was the Symposium’s final session, during which the speakers focused on how to build convergence on practical measures to promote and identify priorities for the efficient development and sustainability of air transport. Michel Wachenheim, former President of the 38th session of the Assembly and current Senior Adviser of Public Affairs for Airbus, said, “The more the connectivity is good, the more the passenger should be satisfied. The real ideal system for the future: air services which take you where you want, in the shortest time, for the lowest possible price and the best quality of service.”

The challenges to reaching that ideal system, however, are daunting – with major airports facing gridlock; burgeoning passenger demand in regions such as Latin America and Asia; air traffic control needing urgent modernization; and customs, immigration, and security checks causing major delays and congestion at terminals in many countries. All this comes at a time when direct government financing for improvements is exhausted and airline and airport revenues are sometimes siphoned away through fees and taxes that fund non-aviation projects. The discussion identified priorities



Fethi Chebil, Advisor, Safety and Economic Regulation Sector, General Authority of Civil Aviation (GACA), Kingdom of Saudi Arabia.



Kenneth Button, Advisory Board Member, ATRS & Professor, School of Public Policy, George Mason University



Tae Hoon Oum, Chairman, ATRS and UPS Foundation Chair, Professor, Sauder School of Business, University of British Columbia.



Shashank Nigam, Chief Executive Officer, SimpliFlying; Florian Heintz, Professor of Transport Economics, Erfurt University; Angela Gittens, Director General, ACI World and Brian Pearce, Chief Economist, IATA.

to meet these challenges, including better, smarter regulation; more uniformity of national rules on matters such as consumer protection; consistent, evidence-based evaluation of new safety and security requirements; and greater reliance of information flow and data analysis (not more personnel) to speed customs and immigration procedures at ports of entry.

“... barriers impede efficiency, generate friction, hinder growth, and lead to a reduction in air transport connectivity.”

– Boubacar Djibo, Director,
ICAO Air Transport Bureau

BARRIERS TO BE BROKEN

Dr. Narjess Abdennebi, Chief of Economic Analysis and Policy, ICAO, noted those challenges and priorities in her closing remarks, when she summarized the barriers for future growth identified at the conference:

- A fragmented system of air transport regulations
- The existence of different consumer protection regimes
- Different approaches in terms of competition rules and practices
- Excessive taxation or confusion between the definitions relating to “a charge” and “a tax”

- Infrastructure constraints and the modernization of air traffic management
- The call for modernization in “aero political relations”
- The need to alleviate restrictions on air carrier ownership and control
- The need for increased multilateralism in international air transport for passenger and cargo services.

A common thread through all of the discussions around these challenges was “a wish to see ICAO play a stronger leadership role in fostering the promotion of sound regulatory and business practices to ensure the sustainable development of civil aviation,” Abdennebi said.

Assuring the group ICAO is ready to meet that request, she said the Sixth Worldwide Air Transport Conference (ATConf/6) held last year produced several essential recommendations for the modernization of the international aviation regulatory framework – and ICAO is already actively working to implement them. For example, to address the issue of financing and funding the modernization of the air transport system, Abdennebi said ICAO “established a multi-disciplinary working group to provide business cases and best practices regarding effective implementation of the aviation system block upgrade (ASBUs) ... and has developed extensive comprehensive policies and guidance on the funding of infrastructure.”

Reiterating ICAO’s commitment to help set the course for air transport’s development, she said, “Continually improving and harmonizing the air transport regulatory system in the interest of all stakeholders is the main ICAO objective. There is no doubt that this is a complex process involving different views and approaches and one which will require time and energy.”

“The governance of the international air transport system is based both on national sovereignty and on cooperation. We at ICAO are proud to be the facilitators of this cooperation,” Abdennebi concluded. ■



Image courtesy: Western Michigan University

ICAO'S NEW APPROACH TO AVIATION TRAINING AND HR DEVELOPMENT SUPPORT

 The updated ICAO Civil Aviation Training Policy, approved by the Council during its 202nd Session, entered into force in July 2014.

ICAO's focus in this area is to achieve a coordinated, effective, and efficient system for the delivery of aviation-related training and other learning activities supporting the human resources development strategies developed by Member States.

Objectives encompass facilitating the global implementation of ICAO provisions, setting up acceptable training and qualifications standards and frameworks, and providing guidance to States and industry in skills development.

The International Civil Aviation Organization has long been involved in training activities at various levels; however, the establishment of the new Global Aviation Training (GAT) office in January 2014 has enabled ICAO to better respond to the needs of Member States in a more consistent and comprehensive manner and to enhance the standardization of ICAO training activities

and the quality and provision of services to its Member States and the aviation community.

Recognizing ICAO's strategic role in human resources development in aviation, the Organization established the GAT Office under the direct guidance of the Secretary General with the aim of planning, managing, and coordinating ICAO's aviation training activities in support of Member States.

In accordance with Assembly Resolution A38-12, Appendix D, ICAO provides support to States and, by extension, the aviation industry, in the implementation of human resources development strategies for the aviation sector.

FOUR PILLARS OF ICAO'S TRAINING POLICY

The ICAO Civil Aviation Training Policy is based on four pillars: (1) the TRAINAIR PLUS Programme (TPP), (2) recognition by ICAO of aviation training activities, (3) ICAO-developed aviation training activities, and (4) cooperation and partnership agreements.

GLOBAL AVIATION TRAINING AND TRAINAIR PLUS SYMPOSIUM

King Fahd Palace Hotel
Dakar, Sénégal
9 to 12 December 2014

The International Civil Aviation Organization (ICAO) and l'Agence pour la Sécurité de la Navigation Aérienne en Afrique et à Madagascar (ASECNA) invite the global aviation training and human resources communities to attend the 2nd edition of the TRAINAIR PLUS Symposium.

The event will feature the latest trends, techniques, tools, and best practices in the aviation training field, including how to attract and retain competent aviation professionals. The programme is designed to increase awareness of the TRAINAIR PLUS Programme, ICAO's global cooperative aviation training network, as well as foster development between ICAO and Member States, training organizations, regional organizations, operators and the industry.

Delegates expected to attend include representatives of:

- Civil Aviation Authorities (CAAs)
- Aviation universities and civil aviation training centres
- Air Navigation Service Providers (ANSPs)
- Aircraft manufacturers
- Aircraft operators
- Maintenance organizations
- Airport operators

The TRAINAIR PLUS Programme (<http://www.icao.int/safety/TrainairPlus/Pages/default.aspx>) encompasses aviation training on matters related to safety and air navigation capacity and efficiency, and is expected to evolve to include training on matters related to security and facilitation, economic development of air transport, and environmental protection.

The TPP has now grown to 70 Members.

The TRAINAIR PLUS Programme is composed of four modalities of recognition:

- Recognized Training Organizations
- Regional Training Centres of Excellence (RTCEs)
- Training Courses
- Trainers.

More than 80 Standardized Training Packages (STPs - <http://www.icao.int/Training/Pages/TrainAirPlusSTPs.aspx>) have been developed or are in the process of being finalized by TPP Members, which will further enhance the courses available to the TRAINAIR PLUS community.

ICAO may also recognize training activities (i.e. activities or products such as targeted training or ad-hoc training), applying these principles:

- Direct benefit and added value for international civil aviation
- Demonstration of compliance of the training activity with existing ICAO Standards and Recommended Practices (SARPs) and guidance material;
- Structured using an Instructional Systems Design (ISD) methodology
- Risk analysis and a mitigation strategy
- ICAO incurs no additional liability as a result
- Documented quality assessment process
- Funding ensured.

ICAO may develop its own training activities to meet specific requirements or objectives, for instance related to a Technical Cooperation or Technical Assistance project. (However, ICAO does not participate in the operation of training facilities.)

Agreements for cooperation and partnership between ICAO and Member States, United Nations organizations, international and regional organizations, educational institutions and the industry shall be pursued to the extent they help to achieve the objectives of ICAO.

GAT OFFICE DRIVING TOOLS, PROGRAMMES

In terms of implementing strategies, GAT is working with all ICAO bureaus, Member States, and industry partners and organizations to develop competency-based tools and programmes in order to support the selection, training, and qualification of aviation personnel.

GAT is also using TRAINAIR PLUS as a driving force for training standardization, addressing training organizations, training courses, and instructional staff from ICAO and training organizations.



TRAINAIR PLUS Steering Committee: Front row, left to right - Shadrack Wesechere, Capt Mostafa Houmady, María Luisa Aramburu Sierra, Dr. Othman Al Khoori, Raymond Benjamin, Juan Thomas Burgos, Gustavo Brito. Back row, Tchagbele Sadamba, Diego Martinez, Joost Jonker, Aws Al Khanjari, Tony (Jongho) Cho, Armando Fuentes, Mekki Lahlou, Dr. Michael Lim.



The GAT team, left to right: Jose Riveros, Mekki Lahlou, Bonnie McEachern, Heon Jun Kim (Vin), Jie Huang (Annie), Diego Martinez, Janet Samaniego, ICAO Secretary General Raymond Benjamin, Capt. Mostafa Hoummady, Rasha Haidar, Tammy Dick, Sara Skoczylas, Herve Tournon, Sylvie Mardini and Sara Soliman.

GAT leverages a network of leading and reliable training institutions to support the development and delivery of training in aviation. The use of technology allows GAT to ensure that effective and efficient training is delivered through the ICAO network of training organizations and to evaluate the quality and training outcome.

Earlier this year, ICAO launched the exclusive ICAO Regional Training Centres of Excellence (RTCEs) network (<http://www.icao.int/Training/SiteAssets/20140520-EB2014-022.pdf>), comprised of TRAINAIR PLUS-leading Full Members in each ICAO region. RTCEs are selected by the GAT Office and will be responsible for the development and delivery of ICAO training courses in one or more authorized subject areas such as aerodromes, air navigation services, air transport, environment, flight safety and safety management, and security and facilitation. RTCEs will also be authorized to use ICAO SARPs and guidance material in order to enhance the quality of aviation training delivered to States and to ensure ICAO provisions are well taught.

Four RTCEs have been selected thus far in three different regions:

- Gulf Centre for Aviation Studies (United Arab Emirates)
- Joint Aviation Authorities Training Organization (The Netherlands)
- Incheon Airport Aviation Academy (Korea)
- Singapore Aviation Academy (Singapore).

Other RTCE applicants are under consideration by ICAO.

Several other important deliverables have been attained by ICAO since the inception of GAT, including:

- Development of a competency framework and implementation of procedures for the selection, evaluation, and training of ICAO-qualified instructors for the delivery of ICAO training courses.
- Establishment of web-based tools supporting the development and delivery of training courses and assessment of training

organizations to ensure their compliance with ICAO guidelines.

- Establishment of working arrangements with other ICAO bureaus for the harmonization and standardization of training activities developed and delivered by ICAO.
- Creation of a GAT webpage (<http://www.icao.int/Training/Pages/default.aspx>) on the ICAO public website to promote aviation training activities and events, as well as provide users access to useful and up-to-date information on training in one place.
- Establishment of a Training Scholarship Programme to Least-Developed Countries (http://www.icao.int/Training/SiteAssets/ICAO_Training_Scholarship_Programme.pdf).

Other GAT projects are underway, including a recognition mechanism for ICAO-compliant courses. These current and future projects will continue to play a central role in the development of aviation training programmes. ■

THE ICAO AVIATION TRAINING PROGRAMME SHALL BE GOVERNED BY THE FOLLOWING PRINCIPLES:

- a) Qualification of aviation professionals is the responsibility of Member States;
- b) The highest priority is placed on learning activities that support the implementation of SARPs;
- c) Cooperation with Member States and industry is essential to develop and implement learning activities to support the implementation of SARPs; and
- d) Priority shall be placed on cultivating the next generation of aviation professionals.

From ICAO A38-12, Appendix D



Emerging space activities and civil aviation: challenges and opportunities

There are very few visions of the future that don't show us traveling through space like we do today through the air. While commercial aviation is celebrating its 100th year, in another 100 more we may likely be doing the same for civil space transport. The dream has always been to reach the stars and aviation is a good stepping stone to start from. And just as with civil aviation, the

success or failure of the civil space sector may well rest on the ability of governments, regulators and industry to act cooperatively as we reach towards this vast and inspiring new area of human endeavour. For programme and registration information on this landmark ICAO/UNOOSA international civil space symposium, please be sure to visit the ICAO website at: www.icao.int/space-2015



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Remotely piloted or piloted: sharing one aviation system

ICAO's RPAS Symposium will provide a unique opportunity for States, international organizations and stakeholders to identify how existing aviation rules need to evolve to meet the challenges inherent in welcoming the RPAS community and to examining the alignment between ongoing RPAS development and supporting regulatory provisions. The symposium will also showcase the opportunities created by

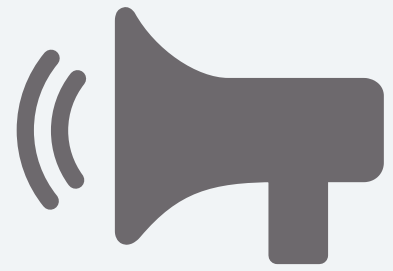
the integration of RPAS into the global civil aviation system, and an industry exhibit will showcase the breadth of existing technologies and the thriving research and development activities currently underscoring this new sector of the aviation industry. For programme and registration information please be sure to visit the ICAO website at:

www.icao.int/meetings/rpas



ICAO

CAPACITY AND EFFICIENCY



FIRST BAHAMIAN AERODROME INSPECTOR GRADUATES

The first Bahamian graduates of the ICAO Aerodrome Inspectors Training Programme represent an important step in the development of civil aviation in The Bahamas. "This is an historic new paradigm for the Department of Civil Aviation," Minister of Transport and Aviation Glenys Hanna-Martin told the graduates. "This is exciting. It is about taking it to the next level. The role that aerodrome inspectors play in advancing us as a people is critical. Our airports are such a powerful economic engine to our country. They are also a critical necessity to connect our people."

The graduates underwent three months of intense, competency-based training on safety implementation and management systems, including on-the-job training at the Lynden Pindling International and Marsh Harbour, Abaco, airports.

ICAO's Technical Cooperation Bureau's Expert/Consultant Dr. Samuel H. Cardoso conducted the training.



Photo by Raymond A. Bethel Sr.

Dr. Samuel H. Cardoso (3rd from left) and Bahamian leaders with the Aerodrome Inspector graduates. Seated from left: Peter Deveaux-Isaacs, Under Secretary; Ivan Cleare, Director of Civil Aviation (Actg); Dr. Cardoso; Minister of Transport and Aviation, Glenys Hanna-Martin; Hope Strachan, Minister of State in the Ministry of Transport and Aviation; and Lorraine Armbrister, Permanent Secretary.

EAG STRAWMAN REFINING EMISSIONS OPTIONS

The design elements of a global market-based measure (MBM) scheme to limit the growth of international emissions are slowly being pulled together by ICAO's Environmental Advisory Group (EAG). Set up in March, the EAG comprises 17 representatives from the governing ICAO Council, with participation from industry representatives, and works in parallel with a Global MBM Technical Task Force (GMTF), an ICAO Committee on Aviation Environmental Protection (CAEP) sub-group.

The EAG is now developing the principles and details of a carbon offset global scheme based on a "strawman" approach drawn up by the ICAO Secretariat. Strawman Version 1.0 was presented to the EAG in March and after five meetings it has now progressed to Version 1.1.

In order to quantify the amount of emissions to be offset under a global MBM and the corresponding cost impacts, the volume of CO₂ from international aviation has to be assessed from past years, for the reference year period from 2018 to 2020, and in future years up to 2035 and beyond. Analysis is also required to estimate adjustments for aircraft operators that are fast growers, early movers, and new entrants.

Another task is to develop a list of all States in increasing order from the lowest to the highest amount of estimated emissions generated by all international flights to and from individual States, both in the past and predicted in the future. The EAG is considering a proposal for a phase-in method in which there would be different treatment of route groups, depending on the maturity of aviation markets. Threshold and technical exemptions of 10,000 tonnes of CO₂ emissions per year and 5,700kg MTOM are also under consideration and estimates again required.

A carbon offsetting scheme without an additional revenue-generating mechanism is the basis for the Strawman approach and the GMTF has been undertaking work to propose the criteria for emission units that would be eligible for the scheme. Studies are being undertaken on how offsets might fit in with the UN's Clean Development Mechanism. Industry representatives have highlighted a preference for aircraft operators to have access to the most cost-effective types of offset credits.

Another decision taken at the last Council meeting was to postpone the convening of the Global Aviation Dialogues (GLADS) – regional meetings with stakeholders to open up the GMBM process – from this year until probably 2015, to allow for further development of the Strawman.

NEW US REPRESENTATIVE TO ICAO HOPEFUL ON EMISSIONS



Michael Lawson, US representative to ICAO

The new US representative to ICAO, Michael Lawson, said he is hopeful Member States will be able to agree a global system to curb carbon emissions from airlines. ICAO has been challenged to propose and adopt a global market-based measure by 2016.

"I am extremely hopeful that we will be able to come to an agreement. I don't think I would have taken this position if I wasn't hopeful of that," said Lawson.

Asked whether the push to regulate aviation emissions is part of the Obama administration's "climate action plan," Lawson said it is. As part of the plan, announced last year, the administration has pledged to work to persuade other countries to fight climate change.

Lawson is a Los Angeles, California-based attorney. He was president of the Board of Commissioners for Los Angeles World Airports until August 2013.

SG BENJAMIN INAUGURATES SINGAPORE ACADEMY

ICAO Secretary General Raymond Benjamin officiated at the inauguration of the Singapore Aviation Academy (SAA) as an ICAO Regional Training Centre of Excellence and an ICAO Aviation Security Training Centre during a visit to Singapore in August.

SG Benjamin also met with Teo Chee Hean, Deputy Prime Minister, Co-ordinating Minister for National Security and Minister for Home Affairs; K. Shanmugam, Minister for Foreign Affairs and Law; Lui Tuck Yew, Minister for Transport; Josephine Teo, Senior Minister of State for Finance and Transport; and Lee Hsien Yang, Chairman of the Civil Aviation Authority of Singapore (CAAS).

Benjamin delivered a lecture at the Civil Service College (CSC) on international governance and leadership in the aviation sector, jointly organized by the CSC and the SAA. In addition, the SG and Yap Ong Heng, Director-General of CAAS, signed Annex I to the Singapore-ICAO Memorandum of Understanding on Cooperation in Leadership and Management Training, on the conduct of the ICAO-SAA Directors-General Course on Aviation Safety.

ICAO PARTNERS WITH SOLAR IMPULSE

ICAO has agreed to serve as an institutional and aeronautical partner for the Solar Impulse 2015 around-the-world flight.

ICAO's partnership with Solar Impulse is in line with its Strategic Objective to reduce greenhouse gas and other emissions from international civil aviation activity using a multi-faceted approach. "Innovative green technologies, such as those now being employed by the Solar Impulse project, play a key role in the basket of environmental protection measures that our Organization strongly encourages," remarked ICAO Council President, Dr. Olumuyiwa Benard Aliu.

"Flying an experimental airplane in so many countries will not only be very difficult, but also something that has never been done in the past," remarked Solar Impulse Co-founder, CEO and pilot, André Borschberg. "This is an extraordinary challenge and ICAO's support will be instrumental in helping us obtain the over-flight authorizations, take-off and landing permits, and other certifications which may be needed from its Member States."

The Solar Impulse around-the-world series of solar-powered flights are set to take place over a five-month period from March to July, 2015. A host city is currently being identified in the Gulf region which will serve as the departing and final landing destination.



Solar Impulse's series of solar-powered flights around-the-world are set to launch in March 2015.

MET DIVISIONAL ALIGNS GANP, ASBU & SWIM

Recognizing the strategic direction provided by the revised Global Air Navigation Plan (GANP), the 2014 Meteorology Divisional Meeting set out recommendations aligned with the Plan's aviation system block upgrade (ASBU) methodology, including the integration of digital meteorological information into the future system-wide information management (SWIM) environment. SWIM is seen as a critical component of the future global air traffic management system.

The two-week MET Divisional meeting was held at ICAO's Montréal, Canada headquarters in early July, in part conjointly with the 15th Session of the World Meteorological Organization (WMO) Commission for Aeronautical Meteorology (CAeM-XV), and included about 300 experts from ICAO Member States, the WMO, and other industry professionals.

ICAO Council President, Dr. Olumuyiwa Benard Aliu, told the group: "Aeronautical meteorological service provision is essential to safe and efficient global air transport operations. The recommendations developed at this meeting will serve to improve both the accuracy and quality of meteorological information-establishing an important foundation as the air transport industry transitions to an increasingly globalized operating environment."

Specific recommendations were made on meteorological services for all phases of flight, including those relating to volcanic ash, radioactive material in the atmosphere and space weather.

The gathering also addressed related institutional issues, including meteorological authority designation, cost recovery, regional and sub-regional cooperation, quality management, data quality and personnel competency.

ICAO, ATAG, PARTNERS COLLABORATE ON CLIMATE

ICAO and the Air Transport Action Group (ATAG), a coalition of organizations and companies representing all sectors of the air transport industry, announced at the United Nations Climate Summit in September a commitment to expand on work already being undertaken to reduce carbon dioxide emissions.

"Working cooperatively, our sector is taking proactive and concrete actions which will continue improving air transport fuel efficiency and stabilize the sector's net carbon dioxide emissions from 2020, consistent with our historically strong record in this regard, while permitting air transport to continue to bring citizens, societies and businesses together, promoting peace and prosperity wherever aircraft fly," said Dr. Olumuyiwa Benard Aliu, President of the ICAO Council.

The Executive Director of ATAG, Michael Gill, added: "It is impressive to see all parts of the industry working with each other, and with partners in research, government, and other sectors to deliver the climate actions we have committed to as an industry. Aviation is a force for good in the world, supporting economies, fostering tourism, and allowing global cultural exchange."

The aviation sector has an ambitious and robust path to lower emissions – first stabilizing net emissions from 2020, then reducing net emissions (relative to 2005 levels) by half by 2050. Programmes include sustainable alternative fuels development, improved aircraft efficiency, new methods of landing aircraft which reduce fuel use and noise, making better use of air traffic management infrastructure as outlined in ICAO's Global Air Navigation Plan, and designing a global market-based measure for international aviation as agreed at the 38th ICAO Assembly.



5TH NACC/DCA MEETING HELD IN TRINIDAD

The Fifth North American, Central American and Caribbean Directors of Civil Aviation Meeting (NACC/DCA/5) was held in late April in Port-of-Spain, hosted by Trinidad and Tobago, and opened by the President of the ICAO Council, Dr. Olumuyiwa Benard Aliu. The event included participants from the Bahamas, Barbados, Belize, Bermuda, Canada, Costa Rica, Cuba, Curacao, Dominican Republic, ECCAA, El Salvador, France, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Sint Maarten, Trinidad and Tobago Turks and Caicos Islands, the United Kingdom and United States, who signed the Port-of-Spain Declaration. Observers included representatives from ALTA (Asociación Latinoamericana de Transporte Aéreo), CANSO (Civil Air Navigation Services Organisation), CARICOM (Caribbean Community), CASSOS (Caribbean Aviation Safety and Security Oversight System), COCESNA (Corporación Centroamericana de Servicios de Navegación Aérea), IATA (International Air Transport Association), IFATCA (International Federation of Air Traffic Controllers' Associations) and Rockwell Collins / ARINC.



Coordinating Global Assistance for Aviation's High-priority Safety Targets

Financial support or in-kind resources are essential to driving continued progress on global aviation safety targets – especially in least developed nations. ICAO coordinates assistance to States for safety project and programme implementation, supported by a global Safety Fund (SAFE) that manages voluntary contributions from donors.

If your State or donor organization wishes to assist ICAO and the aviation community to address serious safety deficiencies in States in need, please visit the SAFE website today or contact ICAO via the details provided below. No matter how large or how small your intended contribution, it's never too late to make safety your priority.



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